

American Institute of Electrical Engineers

WINTER CONVENTION

January 23-27, 1939

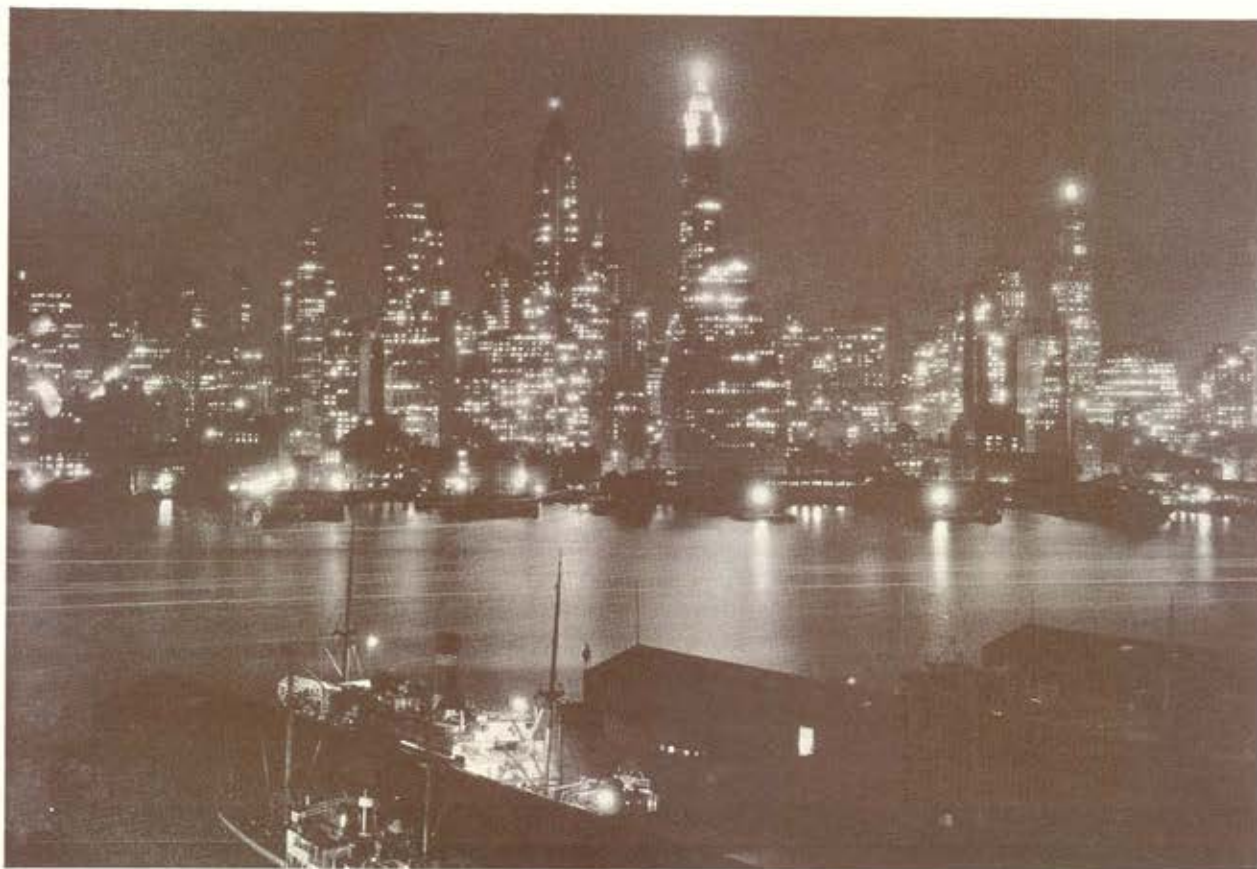


Headquarters

ENGINEERING SOCIETIES BUILDING

33 West 39th Street

New York, N. Y.



Night View of Lower Manhattan

ADVANCE COPIES OF PAPERS

For the convenience of those who wish to obtain photo-offset copies of authors' manuscripts in advance of the meeting an order form is enclosed. If ordered by mail, price 10c per copy; if purchased at Institute headquarters or at the meeting, price 5c per copy. Coupon books in \$1.00 and \$5.00 denominations are available for those who wish to avoid remittance by check or otherwise. Papers not mentioned by number on order blank will not be available in advance-copy form. Most of the papers ultimately will be published in **ELECTRICAL ENGINEERING** or the **TRANSACTIONS**.

Monday, January 23

10:00 a.m.—Relays

- 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

- 39-10. Breakdown Studies in Compressed Gases, Alvin H. Howell, Massachusetts Institute of Technology
- 39-32. Effect of Corona Discharge on Liquid Dielectrics, Joseph Stitche 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

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

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

- 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

- 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
- 39-22. The Magnesium Copper Sulphide Rectifier Battery Charger for Railroad Passenger Cars, C. A. Kotterman, P. A. 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

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

- 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



Photograph by London Daily Herald

Submarine Cable Plover to be Described in One of the Communication Sessions.

WINTER CONVENTION PROVISIONAL PROGRAM



Streamlined High-speed Electric Passenger Locomotive, 3600 HP- Described in One of the Papers of the Transportation Session.

- 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

Tuesday, January 24

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

- 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.
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

- 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

- 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 Circuit of a Transformer to Switching Surges, L. V. Bewley, General Electric Company (Presentation by title)

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

- 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

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, Arthur Bessey Smith and Gilbert Sorber, Associated Electric Laboratories, Inc.

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

2:00 p.m.—Power Generation

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

This conference, under the direction of Professor Michel G. Malti, 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. Scheikunoff, Bell Telephone Laboratories, Inc.; Dr. J. Slepian, Westinghouse Electric & Mfg. Co.; 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.

Wednesday, January 25

10:00 a.m.—General Session

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

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 and Refrigeration and Air Conditioning, P. H. Rutherford, General Motors Corporation

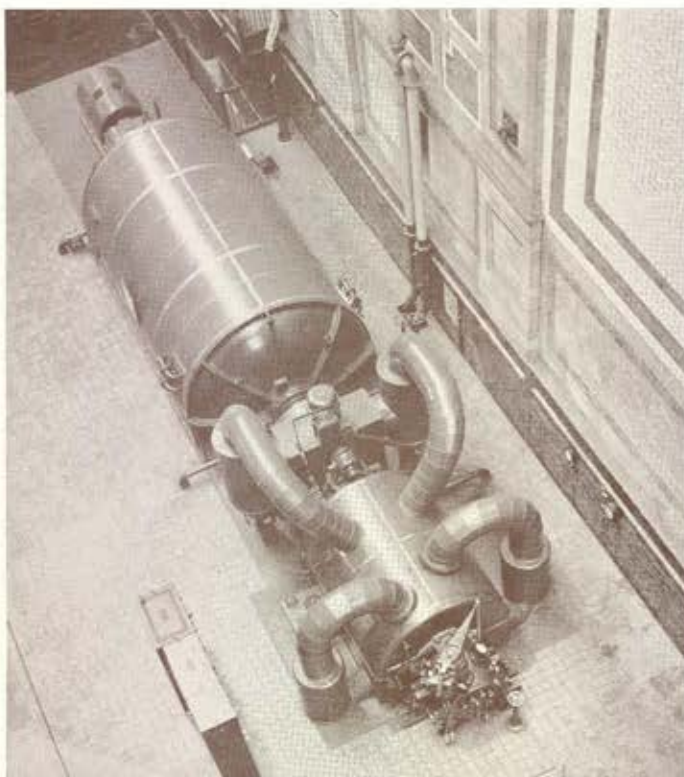
39-59. Duty Cycles and Motor Rating, L. E. Hildebrand, General Electric Company

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

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

39-62. Secondary Vs. Primary Capacitors, F. M. Starr, General Electric Company



New 1,200-lb., High-pressure Topping Turbine, with Generator Hydrogen-cooled, 3600 RPM, in the Waterside Station Which May Be Visited During the Convention.

PROVISIONAL PROGRAM, JANUARY 23-27, 1939

- 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

- 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

This conference sponsored by the Committee on Communication will be under the direction of Professor Edward L. Bowles, who will send informal notices to those interested in this work. The program for the conference will be posted at the convention.

Thursday, January 26

9:30 a.m.—Cables

- 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

9:30 a.m.—Instruments and Measurements

- 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 Non Destructive 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 Watt hour Meters, Stanley Green, Duncan Electric Manufacturing Company.
- 39-72. Demand Meter Time Periods, P. M. Lincoln, Cornell University.

9:30 a.m.—Basic Sciences

- 39-1. Current Distribution in a Rectangular Conductor, John L. Daley, Yale University
- 39-14. Subharmonics in Circuits Containing Iron-Cored Inductors—II, Iryen 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

This conference, under the direction of Professor John R. Martin, 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.

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

Introductory statement describing the storm and general property damage and loss of life.

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



Radio Frequency Laboratory in the Electrical Testing Laboratories on East End Avenue to Be Visited During the Convention.

CONVENTION FEATURES, JANUARY, 20-27, 1939

SMOKER

Another excellent smoker and dinner is in store for 5:30 p.m., 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 send reservations at an early date to 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."

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."

DINNER-DANCE

This year, as in the past, the outstanding social event of the Winter Convention will be the dinner-dance and buffet supper. Thursday evening, January 26, is the date to be noted and remembered.

Unusually extensive facilities have been reserved for the festivities in the Hotel Roosevelt at Madison Ave. and 45th St. Dinner will be served at 7:00 p.m. in the luxurious Hendrik Hudson Room, followed by dancing in the Grand Ballroom from 9:30 p.m. to 2:00 a.m. By this novel arrangement whereby separate rooms are used for the dinner and dance the committee hopes to please both those who wish to enjoy a leisurely dinner and those who prefer to begin dancing promptly. Music for dancing will start at exactly 9:30 p.m. regardless of the time required to serve the dinner. Smaller rooms adjacent to the Grand Ballroom are being made available for lounging, beverage service, and for serving the buffet supper. Supper guests may enjoy a selection of delicious dishes at their convenience between the hours of 12 midnight and 2:00 a.m.

The President of the Institute will receive members and their guests immediately after dinner.

One unit of George Ellner's famous orchestra will provide music for the dinner while another plays rhythmic strains for dancing. Encores will be limited in order to allow a large number of dances during the evening.

Parking facilities will be provided by the hotel at a nominal fee. Arrangements for a special rate on rooms for those who wish to stay in town over night or to dress before the dance have been made. For room reservations write or phone the hotel and mention the A.I.E.E.

The price for tickets are:

Dinner and dance.....	\$5.00 per person
Dinner, dance and buffet supper.....	\$6.50 per person
Dance and buffet supper.....	\$3.00 per person

Dinner reservation requests should be sent to A.I.E.E. Dinner-Dance Committee, 33 West 39th St., New York, N. Y., checks being made payable to "Special Account, A.I.E.E." All such requests should include names of guests and desired seating arrangements, taking into account the fact that there may be either 8 or 10 persons seated at each table. The committee requests that tickets be purchased as early as possible so that there will be sufficient time to work out seating arrangements satisfactory to all.

LADIES' ENTERTAINMENT

In addition to the Medal presentations and dinner-dance the Ladies' Entertainment Committee has arranged an interesting program for the visiting ladies, including a trip to the Metropolitan Museum Cloisters, reception and tea at the British Empire Exhibition Room, a luncheon followed by a fashion show and bridge, and tours to the Jules Bache Home. Details of the schedule will be given in the convention program.

ETA KAPPA NU AWARD DINNER

The dinner honoring the Outstanding Young Electrical Engineers for 1938 will be held Monday evening, January 23, at 6:30 o'clock, at the Town Hall Club, 123 West 43rd St., New York, N. Y. Tickets will be \$2.00. Dr. Winston Kock (University of Cincinnati, '32) of the Baldwin Piano Company, Cincinnati, is the winner of the 1938 Eta Kappa Nu Award. Harold Gove (University of Missouri, '29) of the Union Electric Company of Missouri, St. Louis, and Dr. G. M. L. Sommerman (John Hopkins University, '29) of the American Steel & Wire Co., Worcester, are to receive the Honorable Mention Award. A.I.E.E. members will find this a highly enjoyable affair on the first night of the convention, with the opportunity of meeting many of the leading younger electrical engineers of the country. Reservations may be made through Mr. Roger Wilkinson, Chairman, Award Organization Committee, 463 West St., New York, N. Y.

COLUMBIA UNIVERSITY CLUB FACILITIES

Through the auspices of Columbia University men who are members of the Institute, limited restaurant facilities of the Columbia Club, 4 West 43rd St., will be available for luncheon to all Institute members showing convention badges.

INSPECTION TRIPS

The Inspection Trips Committee is making arrangements to visit a number of places during the week of the convention and Friday will be devoted entirely to inspection trips.

The following have been tentatively selected and arrangements are being made for visits

- Modern Newspaper Plant
- Electrical Testing Laboratory
- Modern Brewery
- Motion Picture Studio
- Columbia University Laboratory and Cyclotron
- Television Demonstration
- Lamp Factory
- Meter Works
- Elevator Factory
- Cable Factory
- Sponsored Radio Broadcasts
- New York Stock Exchange

See enclosed circular for details regarding another post-convention cruise to Bermuda sailing on Saturday, January 28.

HOTEL RESERVATIONS

Members are requested to make their hotel reservations by writing directly to the hotel of their preference. For convenience, the room rates of a few of the hotels will be listed in the January issue of ELECTRICAL ENGINEERING, p. 33.

REGISTER IN ADVANCE

Please fill in and return promptly the enclosed Mail Registration Card. This will permit the committee to have badges ready and prevent congestion at the registration desk upon arrival. A registration fee of \$2 will be charged all non-members, except Enrolled Students and the immediate families of members.

H. H. HENLINE, National Secretary.

WINTER CONVENTION COMMITTEE

T. F. Barton, Chairman

G. E. Dean	A. L. Powell
E. E. Dorting	C. S. Purnell
F. M. Farmer	George Sutherland
L. C. Miller	J. H. Pilkington
H. S. Osborne	W. W. Truran

Chairmen of Subcommittees

D. W. Taylor (Smoker)	T. S. Bacon (Dinner-Dance)
R. F. Brower (Inspection Trips)	
Mrs. A. F. Dixon (Ladies' Entertainment)	

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