

American Institute of Electrical Engineers

WINTER CONVENTION

JANUARY 25-29

NINETEEN - THIRTY - SEVEN

SMOKER—Winter Convention Smokers have been increasing so in popularity that it has become a difficult problem to meet satisfactorily the ticket demand. This year the committee feels that the problem is solved, as the Grand Ballroom and West Ballroom at the Hotel Commodore have been engaged. Seated at tables of ten with ample space to move around, an excellent supper served by the experienced Commodore staff, and a satisfactory view for all of a full sized stage insure a pleasant evening. A better show is also being booked. The West Ballroom will be available as a lounge with service bar. To be sure of being among those present send your reservation to the Smoker Committee, A.I.E.E. Headquarters, at an early date. All tables reserved. Tickets will be \$3.50 per person. Go to the Smoker, Tuesday eve., January 26!

EDISON MEDAL PRESENTATION—The 1936 Edison Medal presentation ceremonies are scheduled on Wednesday evening, January 27, at 8:15 p.m. Dr. Alex Dow was awarded the medal "for outstanding leadership in the development of the central station industry and its service to the public."

DINNER-DANCE—Continuing a social activity which has proven very popular a dinner-dance has been

(Continued on page 4)

**ENGINEERING
SOCIETIES
BUILDING
33 West 39th Street
NEW YORK N.Y.**



*Empire State Building
New York City*



TECHNICAL PROGRAM --: --: JANUARY 25-29, 1937

NOTE: Reference is given with each paper to the issue and page of ELECTRICAL ENGINEERING publication.

MONDAY

10:00 a.m.—Registration

2:00 p.m.—Opening of Convention
(In Auditorium)

Welcome to Members and Guests

C. R. BEARDSLEY, Chairman, Winter Convention Committee

Presentation of Alfred Noble Prize to Abe Tilles

Address by President A. M. MacCutcheon

The Technical Program

H. S. OSBORNE, Chairman, Technical Program Committee

2:30 p.m.—Communication

(In Auditorium)

C. B. JOLLIFFE, Presiding

Calorimetric Measurement of Dielectric Losses in Solids. H. H. Race and S. C. Leonard, General Electric Co. Dec., p. 1347

Currents and Potentials along Leaky Ground-Return Conductors. E. D. Sunde, Bell Telephone Laboratories, Inc. Dec., p. 1338

Inductive Co-ordination of Common-Neutral Power Distribution Systems and Telephone Circuits. J. O'R. Coleman, Edison Electric Institute, and R. F. Davis, American Telephone & Telegraph Co. Jan., p. 17

2:30 p.m.—Selected Subjects

(Room One, Fifth Floor)

O. B. BLACKWELL, Presiding

Electronic Transient Visualizers. H. J. Reich, University of Illinois Dec., p. 1314

Studies of Stability of Cable Insulation. Herman Halperin and C. E. Betzer, Commonwealth Edison Co. Oct., p. 1074

Proposed Transformer Standards. J. E. Clem, Chairman, 1934-36 Transformer Subcommittee. Jan., p. 32

A New Electrostatic Precipitator. G. W. Penney, Westinghouse Electric & Mfg. Co. Jan., p. 159

Electrical Characteristics of Suspension Insulator Discs. C. L. Dawes and Reuben Reiter, Harvard University. Jan., p. 59

First Report of Power System Stability, Subcommittee on Interconnection and Stability Factors, R. D. Evans, Chairman. Feb. 1937

10:00 a.m.—Tensor Analysis

(Room One, Fifth Floor)

E. E. DREESE, Presiding

The Tensor—A New Engineering Tool. A. Boyajian, General Electric Co. Aug., p. 856

Tensor Algebra in Transformer Circuits. L. V. Bewley, General Electric Co. Nov., p. 1214

Tensor Analysis of Multielectrode Tube Circuits. Gabriel Kron, General Electric Co. Nov., p. 1220

Dyadic Algebra Applied to 3-Phase Circuits. A. Pen-Tung Sah, National Tsing Hua University. Aug., p. 876

Complex Vectors in 3-Phase Circuits. A. Pen-Tung Sah, National Tsing Hua University. Dec., p. 1356

2:00 p.m.—Power Distribution

(In Auditorium)

C. T. SINCLAIR, Presiding

A Review of Secondary Distribution. W. P. Holben, Duquesne Light Co. Jan., p. 114

Pole Flexibility as a Factor in Line Design. H. P. Seelye and Myron Zucker, The Detroit Edison Co. Jan., p. 91

Trends in Distribution Over-Current Protection. G. F. Lincks and P. E. Benner, General Electric Co. Jan., p. 138

Automatic Boosters on Distribution Circuits. L. M. Olmsted, Duquesne Light Co. Oct., p. 1083

2:00 p.m.—Tensor Analysis (continued)

(Room One, Fifth Floor)

E. E. DREESE, Presiding

TUESDAY

10:00 a.m.—Power Transmission

(In Auditorium)

C. T. SINCLAIR, Presiding

Lightning Investigation on Transmission Lines, VI. W. W. Lewis and C. M. Foust, General Electric Co. Jan., p. 101

Lightning Investigation on a 220-Kv. System—II. Edgar Bell, Pennsylvania Power & Light Co. Dec., p. 1306

Lightning Protection for Transmission Lines. A. W. Gothberg and A. S. Brookes, Public Service Electric & Gas Co. Jan., p. 13

WEDNESDAY

10:00 a.m.—Induction Machinery

(In Auditorium)

J. L. HAMILTON, Presiding

Induction Motor Resistance Ring Width. P. H. Trickey, Diehl Manufacturing Co. Feb., p. 144

Induction Motors under Unbalanced Conditions. E. O. Lunn, Peterson & Cowan Elevator Co., Ltd. April, p. 387

Induction Motors on Unbalanced Voltages. H. R. Reed and R. J. W. Koopman, Michigan College of Mining & Technology. Nov., p. 1206

Capacitor Motors with Windings not in Quadrature, A. F. Puchstein, Robbins & Myers, Inc., and T. C. Lloyd, Antioch College. . . Nov. 1935, p. 1235
An Analysis of the Shaded Pole Motor, P. H. Trickey, Diehl Manufacturing Co. . . Sept., p. 1007

10:00 a.m.—Protective Devices
 (Room One, Fifth Floor)
 J. P. McKEARIN, Presiding

The Control Gap for Lightning Protection, Ralph Higgins and H. L. Rorden, Ohio Insulator Co. . . Sept., p. 1029
A New Thermal Fuse for Network Protectors, L. A. Nettleton, Brooklyn Edison Co., Inc. . . Oct., p. 1096
Ultra-High Speed Reclosing of High Tension Transmission Lines, Philip Sporn, American Gas & Electric Co., and D. C. Prince, General Electric Co. Jan., p. 81
A New Service Restorer, E. F. Sixtus and W. R. Nodder, Pacific Electric Mfg. Corp. Jan., p. 180
A Single Element Polyphase Directional Relay, A. J. McConnell, General Electric Co. Jan., p. 77

2:00 p.m.—Synchronous Machinery
 (In Auditorium)
 J. L. HAMILTON, Presiding

Negative-Sequence Reactance of Synchronous Machines, W. A. Thomas, Antioch College . . . Dec., p. 1378
Contributions to Synchronous Machine Theory, A. S. Langsdorf, Washington University . . . Jan., p. 41
Operational Solution of A-C Machines, A. R. Miller and W. S. Weil, Lehigh University . . . Nov., p. 1191
Two-Reaction Theory of Synchronous Machines, S. B. Crary, General Electric Co. . . Jan., p. 27
Synchronous Machine with Solid Cylindrical Rotor, C. Concordia and H. Poritsky, General Electric Co. Jan., p. 49

2:00 p.m.—Electronics
 (Room One, Fifth Floor)
 H. M. TURNER, Presiding

Heater Cathode Insulation Performance, Hans Klemperer, Westinghouse Electric & Mfg. Co. . . Sept., p. 981
Amplification Loci of Resistance-Capacitance Coupled Amplifiers, A. C. Seletzky, Case School of Applied Science Dec., p. 1364
An Electronic Voltage Regulator for D-C Generators, F. H. Gulliksen, Westinghouse Electric & Mfg. Co. Aug., p. 873
New Developments in Ignitron Welding Control, J. W. Dawson, Westinghouse Electric & Mfg. Co. . . Dec., p. 1371
Sealed-Off Ignitrons for Welding Control, David Packard and J. H. Hutchings, General Electric Co. . . Jan., p. 37

THURSDAY

10:00 a.m.—Electrical Machinery
 (In Auditorium)

J. L. HAMILTON, Presiding

Self-Regulated Compounded Rectifiers, W. M. Goodhue and R. B. Power, Harvard University . . . Nov., p. 1200
Abrasion—A Factor in Electrical Brush Wear, V. P. Hessler, Iowa State College Jan., p. 8
Arc Characteristics Applying to Flashing on Commutators, R. E. Hellmund, Westinghouse Electric & Mfg. Co. Jan., p. 107
Contact Drop and Wear of Sliding Contacts, R. M. Baker and G. W. Hewitt, Westinghouse Electric & Mfg. Co. Jan., p. 123

10:00 a.m.—Electrophysics

(Room One, Fifth Floor)

R. C. MASON, Presiding

A-C Characteristics of Dielectrics—II, Alfredo Banos, Jr., The Johns Hopkins University . . . Dec., p. 1329
Dielectric Strength of Transformer Insulation, P. L. Bellaschi and W. L. Teague, Westinghouse Electric & Mfg. Co. Jan., p. 164
Parallel Inverter with Inductive Load, C. F. Wagner, Westinghouse Electric & Mfg. Co. . . Sept., p. 970
Calculation of Resistances to Ground, H. B. Dwight, Massachusetts Institute of Technology . . . Dec., p. 1319
Expansion Theorems for Ladder Networks, M. G. Malti and S. E. Warschawski, Cornell University . . . Jan., p. 153

2:00 p.m.—Instruments and Measurements
 (In Auditorium)

H. C. KOENIG, Presiding

Impulse Voltages Chopped on Front, P. L. Bellaschi, Westinghouse Electric & Mfg. Co. Sept., p. 985
Impulse-Generator Voltage Charts for Selecting Circuit Constants, J. L. Thomason, General Electric Co. Jan., p. 183
Short-Time Spark-Over of Gaps, J. H. Hagenguth, General Electric Co. Jan., p. 67
Development of a Modern Watt-Hour Meter, I. F. Kinnard and H. E. Trekell, General Electric Co. . . Jan., p. 172
Watt-Hour Meter Bearings, I. F. Kinnard and J. H. Goss, General Electric Co. Jan., p. 129

2:00 p.m.—Electric Welding
 (Room One, Fifth Floor)

H. M. HOBART, Presiding

The Resistance Welding Circuit, C. L. Pfeiffer, Western Electric Co. Aug., p. 868
Demonstrations

WINTER CONVENTION PROGRAM :- JANUARY 25-29

INSPECTION TRIPS—Preliminary arrangements have been made to visit a variety of very interesting places. Some of the trips during the week are complementary to the technical sessions while Friday has been set aside exclusively for inspection trips.

As only a very limited number of tickets can be secured to the General Electric Company "Hour of Charm" featuring Phil Spitalny and his all girl orchestra, out-of-town members should promptly indicate their desire for tickets when registering. This sponsored program is given in the National Broadcasting Company studios on Monday afternoon.

The Columbia Presbyterian Medical Center have invited us to see the 1,000,000 volt high-frequency X-ray generator in operation this year. This generator was seen by many members while under construction last year. Other interesting trips have been arranged to plants manufacturing thermionic tubes, electrical instruments, welding equipment, and wire and cable. A sightseeing tour of New York also will be arranged if weather conditions are favorable. The schedule, which is subject to change, follows:

Monday, January 25

Sponsored broadcast, RCA Studios
Edison Wonder House

Tuesday, January 26

Public Service Electric & Gas Company—Mercury turbine
S. H. Kress & Company—Lighting and air conditioning
RCA Radiotron Company
The M. W. Kellogg Company—Welding

Wednesday, January 27

Mackay Radio & Telegraph Co.—Ultra High Frequency Transmitter
Weston Electrical Instrument Corporation
Columbia Presbyterian Medical Center—Sloan X-ray generator

Thursday, January 28

Associated Press
Westinghouse Lamp Works
Board of Transportation, New York City—Power control board—
Cable Testing Equipment
Brooklyn Navy Yard

Friday, January 29

New York Stock Exchange
"Monarch of Bermuda"
Hastings-on-Hudson Mill, Anaconda Wire & Cable Company
Warner Brothers Moving Picture Studio
National Broadcasting Company Studios
Museum of Science and Industry

Saturday, January 30

Post-Convention Bermuda Cruise (See enclosed circular for details)

In addition to scheduled inspection trips, the committee will be pleased to make special arrangements for other visits by individuals and small groups. A list of possible places of interest will be available at the committee desk during the convention.

TECHNICAL CONFERENCES—During the convention a number of technical conferences will be held. Those which have already been scheduled are as follows:

1. Network Analysis and Synthesis
2. Committee on Education
3. Noise Conference
4. The Performance Standards, Synchronous Machinery, Induction Machinery, and D-C Machinery Test Codes.

These conferences are intended for specialists to meet and discuss subjects informally without publication of the papers or discussions.

DINNER-DANCE (Continued from first page cover)

scheduled for Thursday evening, January 28, at the Hotel Astor, Broadway between 44th and 45th Streets, New York. A combination dinner, dance and buffet supper again will be featured. The flexibility of this arrangement will provide a very pleasant evening, which may be enjoyed by all according to their tastes, in one of New York's most popular hotels. The Astor has been entirely redecorated and refurbished, making the surroundings more luxurious than ever. The Grand Ballroom and adjacent facilities will be reserved for the Institute's members and guests. Music will be furnished by George Ellner's Orchestra, artists of symphonic arrangements.

The program is: Dinner 7:00—Dancing 9:00 to 2:00—Buffet Supper 12:00 to 2:00. Tickets per person: For the Dinner-Dance \$5.00; for the Dance-Buffer Supper \$3.00; for the Dinner-Dance-Buffer Supper \$6.50.

Early purchase of tickets is requested in order to assist the committee. Dinner reservation requests should indicate names of guests and the desired seating arrangement. Tables will be set for 8 or 10 places and every effort will be made to comply with requests.

Reservation requests should be sent to the A.I.E.E. Dinner Dance Committee, 33 West 39th Street, New York, N. Y., and checks made payable to Mr. H. H. Henline, National Secretary.

LADIES' ENTERTAINMENT

The ladies attending the Winter Convention this year are assured of plenty to occupy their time.

The Ladies Entertainment Committee, under the chairmanship of Mrs. George Sutherland, is rapidly completing the details of a most attractive program. Monday, January 25, the first day, will be devoted to registration at the Ladies' headquarters on the 10th floor. On Tuesday several novel and interesting tours are scheduled with attendance at a broadcast for the evening. On Wednesday there will be luncheon and bridge at the Engineering Woman's Club, and the Edison Medal presentation in the evening. Thursday will be devoted to a visit to the Edison Wonder House with the Dinner-Dance at the Hotel Astor for the evening. On Friday a visit is arranged to the Morgan Library. This will necessarily be for a limited group. If demand warrants, a visit to the Planetarium will also be provided.

REGISTER IN ADVANCE—Please fill in and post 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.

1937 Winter Convention Committee

C. R. Beardsley, Chairman

H. E. Farrer, Secretary

T. F. Barton	A. G. Oehler	S. A. Smith, Jr.
O. B. Blackwell	C. S. Purnell	George Sutherland
E. E. Dorting		F. P. West

Chairmen of Subcommittees

C. M. Gilt (Dinner-Dance)	E. R. Thomas (Inspection Trips)
	E. S. Banghart (Smoker)
Mrs. George Sutherland (Ladies' Entertainment)	

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