

# American Institute of Electrical Engineers

Nineteen-thirty-seven

## Summer Convention

June 21-25

Headquarters: Hotel Schroeder

MILWAUKEE  
WISCONSIN



### SCHEDULE OF EVENTS

Central Standard Time

#### Monday, June 21

- 9:00 a.m.—Registration  
10:00 a.m.—Opening Session  
Address of Welcome: General Otto H. Falk, Honorary Chairman  
Annual Business Meeting  
Annual Report of Board of Directors, in abstract, by H. H. Henline, National Secretary  
Report of Committee of Tellers on Election of Officers  
Introduction of and response from President-elect  
Presentation of Prizes for Papers  
Presentation of Lamme Medal to Doctor Frank Conrad  
President's Address by A. M. MacCutcheon  
12:45 p.m.—Inspection Trip with Luncheon at Harnischfeger Corporation—Lecture on Prefabricated Houses or Inspection of the National Avenue Plant  
1:30 p.m.—Inspection Trip to A. O. Smith Corp.  
1:45 p.m.—Inspection Trip to Cutler-Hammer, Inc.  
2:00 p.m.—Conference of Officers, Delegates, and Members  
(a) Section Delegates (b) Student Branch Counselors  
Evening—Stag Smoker

#### Tuesday, June 22

- 10:00 a.m.—Power Transmission  
General Power Applications  
Instruments and Measurements  
Education  
1:30 to 3:30 p.m.—Inspection Trip to Schlitz Brewery—Refreshments  
2:00 p.m.—Conference of Officers, Delegates, and Members  
(continued)

2:00 p.m.—Meeting of District Committee on Student Activities

Evening—Lecture: The Engineer and His Relation to Government, Dr. Vannevar Bush, Vice-President and Dean, School of Engineering, M.I.T.

#### Wednesday, June 23

- 10:00 a.m.—General Session  
12:30 p.m.—Inspection Trip to Allis-Chalmers Mfg. Co.—Luncheon  
2:30 p.m.—Conference on Field Problems  
Evening—Boat Trip on Lake Michigan—Dancing, Cards, and Buffet Service on Steamer

#### Thursday, June 24

- 10:00 a.m.—Lightning Protective Equipment  
Power Generation and Electrical Machinery  
Illumination  
12:30 p.m.—Directors' Luncheon Meeting  
1:15 p.m.—Inspection Trip to Port Washington Power Plant  
1:30 p.m.—Inspection Trip to A. O. Smith Corp.  
1:45 p.m.—Inspection Trip to Cutler-Hammer, Inc.  
2:30 p.m.—Conference on Electrical Apparatus for 3-Phase Arc Furnaces  
Evening—President's Reception—Dinner and Dancing

#### Friday, June 25

- 10:00 a.m.—Insulation Co-ordination  
Vibration and Balance  
Communication and Research  
1:30 p.m.—Inspection Trip to Globe-Union, Inc.  
1:30 p.m.—Inspection Trip to Allen-Bradley Co.  
Evening—Farewell Gathering at Bluemound Country Club

Note: For information in regard to trips, ladies' entertainment, hotels and registration see page 4.



Milwaukee's Sky Line from Lake Michigan

# TECHNICAL PROGRAM

# Summer Convention, 1937

NOTE: Reference is given with each paper to ELECTRICAL ENGINEERING publication in so far as possible.

## Tuesday, June 22

### 10:00 a.m.—Power Transmission

C. T. SINCLAIR, Presiding

**Power System Faults to Ground—Part I: Characteristics.** C. L. Gilkeson, Edison Electric Institute, and P. A. Jeanne and J. C. Davenport, Bell Telephone Laboratories, Inc. April, p. 421

**Power System Faults to Ground—Part II: Fault Resistance.** C. L. Gilkeson, Edison Electric Institute, and P. A. Jeanne and E. F. Vaage, Bell Telephone Laboratories, Inc. April, p. 428

**System Recovery Voltage Determination by Analytical and A-C Calculating Board Methods.** R. D. Evans and A. C. Monteith, Westinghouse Electric & Mfg. Co. June issue

**New Oil-Filled Cable Lines in Chicago.** Herman Halperin, Commonwealth Edison Co., and G. B. Shanklin, General Electric Co. . . . . June issue

### 10:00 a.m.—General Power Applications

H. W. ROGERS, Presiding

**A-C Motor Protection.** C. W. Kuhn, Cutler-Hammer, Inc. May, p. 589

**Impulse Operation of Magnetic Contactors.** Carroll Stansbury, Cutler-Hammer, Inc. . . . . May, p. 583

**Coincidental Electric Drives.** L. E. Miller, Reliance Electric & Engineering Company . . . . . May, p. 578

### 10:00 a.m. — Instruments and Measurements

H. C. KOENIG, Presiding

**A New Magnetic Flux Meter.** G. S. Smith, University of Washington . . . . . April, p. 441

**Sixty-Cycle Calibration of the 50-Centimeter Ungrounded Sphere Gap.** C. S. Sprague and G. Gold, Purdue University . . . . . May, p. 594

**A New Photoelectric Hysteresigraph.** R. F. Edgar, General Electric Co. . . . . Pamphlet copies—July issue

**A New High-Speed Cathode-Ray Oscillograph.** H. P. Kuehni and Simo Ramo, General Electric Co. . . . . June issue

### 10:00 a.m.—Education

O. W. ESHBACH, Presiding

**A Suggested Course on Industrial Economics and Business Methods.** R. E. Hellmund, Westinghouse Electric & Mfg. Co. April, p. 446

**Current Loci in the General Linear A-C Network.** L. A. Hazeltine, Stevens Institute of Technology. March, p. 325

**Per Unit Quantities.** Irven A. Travis, University of Pennsylvania . . . . . Pamphlet copies

**Fundamental Concepts of Synchronous Machine Reactions.** B. R. Prentice, General Electric Co. Pamphlet copies

## Wednesday, June 23

### 10:00 a.m.—General Session

1. Address: "The Engineer in a Changing World." Ralph E. Flanders, Chairman, Engineering Economics Committee, American Engineering Council; President, Jones and Lamson Machine Co., and Past President, A.S.M.E.  
H. S. OSBORNE, Presiding

#### Intermission

2. "How Can the Institute Programs Be Made of Greatest Value to the Membership?"  
L. W. W. MORROW, Presiding

#### Introductory Discussions

**The Institute Programs.** A. W. Berresford, Past President, A.I.E.E.

**Institute Publications—In Retrospect and in Prospect.** L. A. Doggett, Pennsylvania State College

**How Can the American Institute of Electrical Engineers Be Made of Greater Value to Its Membership?** J. L. Hamilton, Century Electric Co.

**The Social Responsibility of the Engineer—What the Electrical Engineer Can Do About It.** F. R. Innes, McGraw-Hill Publishing Co.

**How Can the Institute Programs Be Made of Greatest Value to the Membership?** Mark Eldredge, Memphis Power & Light Co.

**A.I.E.E. Tradition and A.I.E.E. Policy.** J. B. Whitehead, The Johns Hopkins University, Past President A.I.E.E.

#### General Discussion

### 2:30 p.m.—Conference on Field Problems

ERNST WEBER, Presiding

1. Introduction: The Field Concept in Physics and Engineering

#### 2. Topics:

a. Graphical Field Plotting—Special Applications to Magnetic Fields

b. Analytical Solutions of Fields—Special Applications to Heat Problems

c. Conformal Representation — Special Applications to Electric Fields

d. Experimental Methods of Field Exploration—Special Applications to Hydrodynamics

## Thursday, June 24

### 10:00 a.m. — Lightning Protective Equipment

J. P. McKEARIN, Presiding

**Flashover Characteristics of Rod Gaps and Insulators.** Subcommittee on Correlation of Laboratory Data of joint EEI-NEMA Committee on Insulation Coordination. June issue

**Expulsion Protective Gaps.** W. J. Rudge and E. J. Wade, General Electric Co. . . . . May, p. 551

# Summer Convention, 1937

# TECHNICAL PROGRAM

Distribution Lightning Arrester Performance Data, Lightning Arrester Subcommittee of the Committee on Protective Devices . . . . . May, p. 576

Surge Protection of Distribution Systems, J. K. Hodnette and L. R. Ludwig, Westinghouse Electric & Mfg. Co. June issue

## 10:00 a.m.—Power Generation and Electrical Machinery

G. M. ARMBRUST and J. L. HAMILTON, Presiding

Switchboards for Boulder Power Plant, L. N. McClellan, U. S. Bureau of Reclamation, A. J. A. Peterson, Westinghouse Electric & Mfg. Co., and C. P. Garman, Bureau of Power and Light, City of Los Angeles . . . . . February, p. 224

Approximating Potier Reactance, Sterling Beckwith, Allis-Chalmers Mfg. Co. . . . . Pamphlet copies & July issue

End-Connection Reactance of Electrical Machinery, J. F. H. Douglas, Marquette University . . . . . February, p. 257

End-Winding Leakage Inductance of a Synchronous Machine, B. H. Caldwell, Jr., General Electric Co. April, p. 455

Characteristic Constants of Single-Phase Induction Motors—Part I: Air Gap Reactances, W. J. Morrill, General Electric Co. . . . . March, p. 333

## 10:00 a.m.—Illumination

E. M. STRONG, Presiding

A New Approach to the Industrial Lighting Problem; Specific Lighting for Different Services, H. B. Dates, Case School of Applied Science . . . . . May, p. 545

Address: What a University Has Done toward Protecting the Eyesight of Its Students, F. A. Kartak, Marquette University

Further Characteristics of the Carbon Arc, W. C. Kalb, National Carbon Co., Inc. . . . . March, p. 319

Demonstration Address: New Light Sources, Their Characteristics and Applications, D. W. Atwater, Westinghouse Lamp Co.

## 2:30 p.m.—Conference on Electrical Apparatus for 3-Phase Arc Furnaces

N. R. STANSEL, Presiding

1. Introduction: Modern Arc Furnace Apparatus—lantern slides—Samuel Arnold

2. Discussions:

a. Kva Ratings—Frank Brooke

b. Voltages—C. C. Levy

c. Reactance—F. V. Andreae

d. Regulation—F. E. Ackley

e. Protective Equipment—E. L. McClure

f. Methods of Supplying Power—L. W. Clark

## Friday, June 25

### 10:00 a.m.—Insulation Co-ordination

J. P. McKearin and C. T. SINCLAIR, Presiding

Basic Impulse Insulation Levels, EEI-NEMA Joint Committee on System Insulation Coordination . . . . . June issue

Insulation Strength of Transformers, Transformer Subcommittee of the Committee on Electrical Machinery . . . . . June issue

Application of Arresters and the Selection of Insulation Levels, J. H. Foote and J. R. North, The Commonwealth & Southern Corporation . . . . . June issue

Insulation Co-ordination, Philip Sporn and I. W. Gross, American Gas & Electric Co. . . . . June issue

Application of Spill Gaps and Selection of Insulation Levels, H. L. Melvin and R. E. Pierce, Ebasco Services Incorporated . . . . . June issue

### 10:00 a.m.—Vibration and Balance

J. L. HAMILTON, Presiding

Motion Pictures of the Mechanics of Vibration, J. J. Ryan, University of Minnesota

Vibration Measuring Instruments: Fundamental Considerations in Their Design, C. D. Greentree, General Electric Co. . . . . June issue

Dynamic Balancing of Small Gyroscope Rotors, O. E. Esval and C. A. Frische, Sperry Gyroscope Co., Inc. June issue

The Vibration Isolation of Machinery, L. H. Hansel, The Felters Co., Inc. . . . . June issue

Preliminary Report on a Proposed Test Code for Apparatus Noise Measurement, Subcommittee on Sound of AIEE Standards Committee

### 10:00 a.m.—Communication and Research

W. B. KOUWENHOVEN, Presiding

Police Radio Communication, E. L. White, Federal Communications Commission, and E. C. Denstaedt, Police Dept., Detroit . . . . . May, p. 532

Oxidation in Insulating Oil, J. B. Whitehead, The Johns Hopkins University, and F. E. Mauritz . . . . . April, p. 465

Properties of Saturants for Paper-Insulated Cables, G. M. L. Sommerman, American Steel & Wire Co. . . . . May, p. 566

Tests on Oil Impregnated Paper—II—Effects of Gas Pressure, H. H. Race, General Electric Co.

Scheduled for July issue

The Dielectric Strength of Nonflammable Synthetic Insulating Liquids, F. M. Clark, General Electric Co. June issue

For a description of all events of the convention see **ELECTRICAL ENGINEERING** for May, pages 635-639.

# A.I.E.E. Summer Convention at Milwaukee, June 21-25

## Inspection Trips

The plants of internationally known manufacturers will be open for inspection where may be seen new equipment and new products. A spirit of friendliness and hospitality will prevail and, as noted in the schedule on the front page, several are serving luncheons or refreshments.

Consult the Inspection Trips Desk for details. In general, the trips require registration in advance to permit arrangements to be made. A nominal charge of \$.25 for buses obtains for all of the trips except to the Port Washington Power Plant, which is about 25 miles away and for which the charge will be \$1.00.

## Post-Convention Trip to the Dells

Special arrangements are being made for the chartered-motor-bus trip on Saturday, June 26, to the Dells of the Wisconsin River. The trip will include a chicken dinner at Kilbourn, a visit to Devil's Lake, and the University of Wisconsin Campus; in the evening dinner at the Hotel Lorraine, returning to Milwaukee after dinner.

## Ladies' Entertainment

A variety of special parties, a tea, luncheon, inspection and shopping trips, golf and a day at the Country Club have been arranged by the Ladies' Entertainment Committee, Mrs. A. C. Flory, Chairman. In addition, there will be the combined events on the schedule—the boat trip on Lake Michigan, the trip to the Schlitz Brewery, President's reception and dinner-dance, and the farewell party at the Bluemound Golf and Country Club. The Ladies' Entertainment Committee will make Milwaukee's traditional and gracious spirit of hospitality felt.

## Sports

Golf will include competition for the Mershon, Lee and District team trophies and special events. Monday and Tuesday play will be on the course of the Tripoli Country Club, on Wednesday and Thursday at the Ozaukee Country Club, and on Friday at the Bluemound Golf and Country Club. Qualifying rounds for the Mershon Trophy, which is on a handicap basis, will be on Monday with match play rounds on Tuesday, Wednesday, and Thursday. The Lee Trophy, which is on a handicap basis, 36 holes of medal play, will be on Monday and Tuesday. The District team event will be decided by the gross medal score for the 4 lowest out of a team of 6 players from each District for 36 holes to be played Monday and Tuesday. Each District is urged to organize a team before leaving for the convention.

The Mershon Tennis Trophy tournament will be held on the clay courts of the Milwaukee University School. Numerous prizes for both golf and tennis will be awarded at the informal farewell dinner Friday evening at the Bluemound Golf and Country Club.

## Hotel Rates

For convenience, the rates of the Hotel Schroeder, Convention Headquarters, as well as those for several of the other hotels, are listed in the following table. Members should make their hotel reservations by writing directly to the hotel of their preference.

Hotel	Single Room	Double Room
Schroeder	\$3.00—4.00	\$6.00—20.00
Wisconsin	3.00—5.00	5.00—10.00
Plankinton	2.50—4.50	4.00—15.00
New Pfister	2.50—3.00	4.00—15.00
Astor	3.50—5.00	4.00—6.00
Ambassador	3.00—4.00	5.00—6.00
New Randolph	2.50—3.50	3.50—6.00
Knickerbocker	3.00	5.00—6.00
Martin	2.25—5.00	
Juneau	2.00—3.00	3.00—5.00
Medford	1.75—3.00	2.75—5.00
Republican	1.50—2.50	2.50—4.00
Miller	1.50—3.00	3.00—5.00

## Advance Registration

Members who will attend the convention should promptly fill in and mail the enclosed advance registration card. This will permit the committee to make advance arrangements and minimize congestion at the registration desk upon arrival. A registration fee of \$2 will be charged non-members except Enrolled Students and the immediate families of members.

## Summer Convention Committee

OTTO H. FALK, Honorary Chairman  
K. L. HANSEN, Chairman  
L. H. HILL, Vice-Chairman  
C. H. KRUEGER, Secretary  
W. E. CRAWFORD, Treasurer

R. R. BENEDICT  
A. G. DEWARS  
C. F. HARDING  
H. S. OSBORNE  
G. G. POST  
J. A. POTTS  
D. L. SMITH  
W. H. TIMBIE

## Subcommittee Chairmen

J. F. H. DOUGLAS (Technical Program)  
E. W. SEEGER (Finance)  
L. W. COPELAND (Entertainment)  
C. D. BROWN (Transportation)  
W. O. HELWIG (Registration and Housing)  
W. E. GUNDLACH (Publicity)  
G. F. CROWELL (Sports)  
S. H. MORTENSEN (Inspection Trips)  
MRS. A. C. FLORY (Ladies' Entertainment)

H. H. HENLINE, National Secretary

Issued by  
AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS  
33 West 39th Street, New York, N. Y.

PRINTED IN U. S. A.