

American Institute of Electrical Engineers



SUMMER CONVENTION

**Washington, D. C.
June 20-24, 1938**

Headquarters
Mayflower Hotel



Photo by R. E. Williams (A'35)

The National Capitol Building

SUMMER CONVENTION

SCHEDULE OF EVENTS

Eastern Standard Time

Monday, June 20

- 9:00 A.M.—Registration
- 10:00 A.M.—Conference of Officers, Delegates, and Members
- 11:00 A.M.—Separate Conferences
 - (a) Section Delegates
 - (b) Student Branch Counselors
- 2:00 P.M.—Conference of Officers, Delegates, and Members (continued)
 - Inspection Trips
- 7:00 P.M.—Student Branch Dinner

Tuesday, June 21

- 9:30 A.M.—Annual Meeting
- 2:00 P.M.—Technical Sessions
 - Inspection Trips
- 7:30 P.M.—Dinner-Dance at the Congressional Country Club

Wednesday, June 22

- 9:30 A.M.—General Session
- 2:00 P.M.—Inspection Trips
 - Visit to Mount Vernon
- 4:00 to
- 6:00 P.M.—Tea at Dr. McClellan's Burgundy Farm, Alexandria, Va.

Thursday, June 23

- 9:30 A.M.—Technical Sessions
- 12:30 P.M.—Board of Directors Luncheon Meeting
- 2:00 P.M.—Conference Sessions
 - Inspection Trips
- 3:00 P.M.—Conference of Vice-Presidents, District Secretaries, and Counselor Delegates
- 7:00 P.M.—Dinner—Mayflower Hotel
 - President W. H. Harrison, Presiding
 - Address: Dr. William McClellan, President, American Engineering Council
 - Presentation of Gaston Planté Medal to Dr. George W. Vinal by the French Ambassador
 - Greetings by the President-elect
 - Introduction of Past Presidents
 - Award of prizes for sports events

Friday, June 24

- 9:30 A.M.—Technical Sessions
- 2:00 P.M.—Inspection Trips

Note: See pages 5 and 6 for general information, inspection trips, and sports.



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The Home of the First President of the United States at Mount Vernon, Va.

BUSINESS AND TECHNICAL PROGRAM

For the convenience of those who wish to obtain photo-offset copies of authors' manuscripts in advance of the convention an order form is enclosed. If ordered by mail, price 10c per copy; if purchased at Institute headquarters or at the convention, 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.

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- 9:00 a.m.—Registration
- 10:00 a.m.—Conference of Officers, Delegates, and Members
- 11:00 a.m.—Separate Conferences
 - (a) Section Delegates
 - (b) Student Branch Counselors
- 2:00 p.m.—Conference of Officers, Delegates, and Members (continued)

Tuesday, June 21

- 9:30 a.m.—Annual Meeting
 - Address of Welcome:
 - Dr. WILLIAM McCLELLAN, Honorary Chairman
 - Annual Report of Board of Directors, in abstract,
 - By H. H. HENLINE, National Secretary
 - Report of National Treasurer
 - Report of Committee of Tellers on (a) Constitutional Amendments and (b) Election of Officers
 - Introduction of and response from President-elect
 - Presentation of Institute Prizes for Papers
 - Presentation of Lamme Medal to
 - Dr. R. E. DOHERTY
 - Address: "Municipal Planning in Washington"
 - Colonel DAN I. SULTAN, Engineer Commissioner
 - District of Columbia

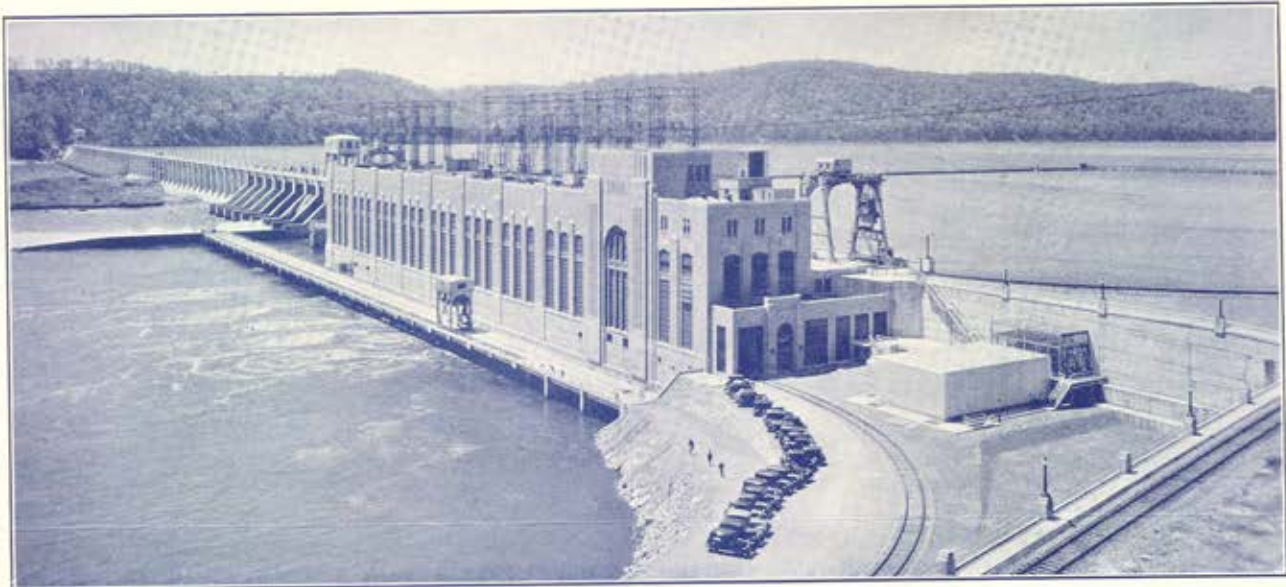
2:00 p.m.—Power Transmission and Distribution

- 55. Traveling Waves Initiated by Switching
 - L. V. BEWLEY, General Electric Co.
- 75. Application of Large Phase Shifting Transformer on an Interconnected System Loop
 - W. J. LYMAN, Duquesne Light Co.
 - J. R. NORTH, Commonwealth and Southern Corp.
- 61. Tests on Oil-Impregnated Paper—III—Fluid Flow
 - H. H. RACE, General Electric Co.
- 89. Field Testing of Bushings and Transformer Insulation by the Power Factor Method
 - I. W. GROSS, American Gas and Electric Co.
- 72. Flashover Characteristics of Transformer Condenser Bushings
 - H. L. COLE, Westinghouse Electric & Mfg. Co.

Presentation by title

- 79. Reactance of Square Tubular Busbars
 - H. B. DWIGHT and T. K. WANG, Massachusetts Institute of Technology

BUSINESS AND TECHNICAL PROGRAM



Safe Harbor Generating Plant of the Pennsylvania Water and Power Company

2:00 p.m.—Communication

73. Analysis and Design of Harmonic Generators
F. E. TERMAN, Stanford University
80. A Symbolic Analysis of Relay and Switching Circuits
C. E. SHANNON, Massachusetts Institute of Technology
81. Instruments for the New Telephone Sets
W. C. JONES, Bell Telephone Laboratories, Inc.
77. Transmission Features of the New Telephone Sets
A. H. INGLIS, Bell Telephone Laboratories, Inc.

Presentation by title

74. Transmission Theory of Spherical Waves
S. A. SCHELKUNOFF, Bell Telephone Laboratories, Inc.

2:00 p.m.—Symposium on Correlation of Mathematics and Physics with Electrical Engineering Subjects

67. The Co-ordination of Mathematics and Physics with Electrical Engineering Subjects
W. A. CURRY, Columbia University
82. A Course to Develop Facility in the Use of Mathematics and Physics in the Solution of Engineering Problems
B. R. TEARE, Jr., Yale University
83. Co-ordination of Physics with Electrical Engineering
J. M. BRYANT, University of Minnesota
76. Co-ordination of Mathematics and Physics with Electrical Engineering Subjects
T. H. MORGAN, Worcester Polytechnic Institute
68. Mathematics and Physics in Engineering
M. G. MALTI, Cornell University

2:00 p.m.—Conference on Machines in Mathematical Analysis

The objectives of this conference will be to consider broadly the ways in which machines can facilitate analysis in applied mathematics rather than the techniques and technicalities of specific machines. Short informal papers and discussions will be given by men who are leaders in this field and it is hoped that there will be other discussions by those in attendance.

Wednesday, June 22

9:30 a.m.—General Session

- President W. H. HARRISON, Presiding
Address of the President
Address: "Progress in Weather Forecasting"
Dr. W. R. GREGG, Chief of the Weather Bureau
Address: "The Present and Future of Commercial Aviation"
Col. J. M. JOHNSON, Assistant Secretary of Commerce

Thursday, June 23

9:30 a.m.—Fault Interruption—I

65. The Current Limiting Power Fuse
D. C. PRINCE and E. A. WILLIAMS, Jr., Gen'l Electric Co.
62. A New Multibreak Interrupter for Fast-Clearing Oil Circuit Breakers
R. M. SPURCK and H. E. STRANG, General Electric Co.
84. Tests on and Performance of a High-Speed Multibreak 138-Kv Oil-Circuit Breaker
PHILIP SPORN and H. P. ST. CLAIR, American Gas and Electric Service Corp.
85. "De-ion" Air Circuit Breakers for A-C Feeder, Motor Starting and Station Auxiliary Service
R. C. DICKINSON, Westinghouse Electric & Mfg. Co.
86. Enclosed Low-Voltage "De-ion" Air Circuit Breaker of High Interrupting Capacity
JEROME SANDIN, Westinghouse Electric & Mfg. Co.

9:30 a.m.—Electrical Machinery

- 37-58. Double Line-to-Neutral Short Circuit of an Alternator
JAMES B. SMITH, Associated Factory Mutual Fire Insurance Co.
C. N. WEYGANDT, University of Pennsylvania
Elec. Engg., Sept. 1937, p. 1149
69. An Analysis of the Induction Machine
H. C. STANLEY, American Gas & Electric Service Corp.

53. Amplitudes of the Magnetomotive-Force Harmonics for Fractional Slot Windings—I

J. F. CALVERT, Iowa State College

- 37-866. The Cause and Elimination of Noise in Small Motors

W. R. APPLEMAN, Marathon Electric Mfg. Corp.
Elec. Engg., Nov. 1937, p. 1359

87. The Wound-Core Distribution Transformer

E. D. TREANOR, General Electric Co.

9:30 a.m.—Selected Subjects

88. The Economic Status of the Engineer

R. W. SORENSEN, California Institute of Technology

60. A Self-Checking System of Supervisory Control

M. E. REAGAN, Westinghouse Electric & Mfg. Co.

66. Application of Capacitance Potential Devices

J. E. CLEM, General Electric Co.

71. Radio Influence Characteristics of Electrical Apparatus

P. L. BELLASCHI and C. V. AGGERS, Westinghouse Electric & Mfg. Co.

78. Noise Coordination of Rural Power and Telephone Systems

H. W. WAHLQUIST, Edison Electric Institute
T. A. TAYLOR, Bell Telephone Laboratories, Inc.

9:30 a.m.—Electronics and Basic Sciences

54. Positive-Grid Characteristics of Triodes

R. W. PORTER, General Electric Co.

64. A Position Regulator for Paper Slitters

F. H. GULLIKSEN, Westinghouse Electric & Mfg. Co.

90. Combined Thyatron and Tachometer Speed Control of Small Motors

A. J. WILLIAMS, Jr., Leeds and Northrup Co.

91. A Static Constant Current Circuit

C. M. SUMMERS, General Electric Co.

Presentations by title

59. Graphical Field-Plotting Methods in Engineering

HILLET PORITSKY, General Electric Co.

92. Basic Equations for Electric and Sound Radiation

L. ALAN HAZELTINE, Stevens Institute of Technology

2:00 p.m.—Conference sessions:

(a) Electrical Machinery

(b) Electronics

(c) Conference on Definitions

This second conference on definitions is sponsored by the A.I.E.E. Committee on Basic Sciences under the direction of M. G. Malti, Chairman of the Subcommittee on Definitions. Discussion will cover sections 10 to 21 of Group 05 of the Final Revised Report of Committee 42 (The Sectional Committee on Definitions of Electrical Terms).

Written discussions have been prepared by the following: A. Boyajian, General Electric Co.; M. G. Malti, Cornell University; K. W. Miller, Utilities Research Commission; S. A. Schelkunoff, Bell Telephone Laboratories, Inc., and Ernst Weber, The Polytechnic Institute of Brooklyn.

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 not only from a technical but also from a financial point of view. In a law suit thousands of dollars might change hands because a certain electrical term is defined in a certain way. Correct and consistent definitions are of more than scientific and academic interest. The membership is therefore invited to participate actively in these conferences.

Friday, June 24

9:30 a.m.—Symposium on Fluorescent Lighting

57. The Fundamental Principles of Fluorescence

G. R. FONDA, General Electric Co.

93. Low-Voltage Fluorescent Lamps

G. E. INMAN and R. N. THAYER, General Electric Co.

94. High-Voltage Gaseous and Fluorescent Tubes for Advertising and Architectural Lighting Effects

J. A. McDERMOTT, Claude Neon Lights, Inc.

Demonstration Lecture: "Penny Wise Pound Foolish—How to Get the Most for Your Lighting Dollar"

A. L. POWELL, General Electric Co.

9:30 a.m.—Fault Interruption—II—and Lightning Protection

70. Remote Control of Network Protectors

W. R. BROWNLEE and W. E. DENT, Jr., Tennessee Electric Power Co.

63. System Analysis for Petersen Coil Application—Part I, Operating Features and Basic Calculations—Part II, System Analysis and Computations

W. C. CHAMPE and F. VON VOIGTLANDER
The Commonwealth and Southern Corp.

58. Lighting Protection of 22-Kv Substations

E. R. WHITEHEAD, Duquesne Light Co.

56. Line-Type Lightning-Arrester Performance Data

LIGHTNING ARRESTER SUBCOMMITTEE

9:30 a.m.—Instruments and Measurements

95. A Memory Attachment for Oscilloscopes

W. E. PAKALA, Westinghouse Electric & Mfg. Co.

96. Absolute Power Factor of Air Capacitors

W. B. KOUWENHOVEN and E. L. LOTZ,
The Johns Hopkins University

97. The Electric Strain Gauge

M. A. RUSHER and A. V. MERSHON, General Elec. Co.

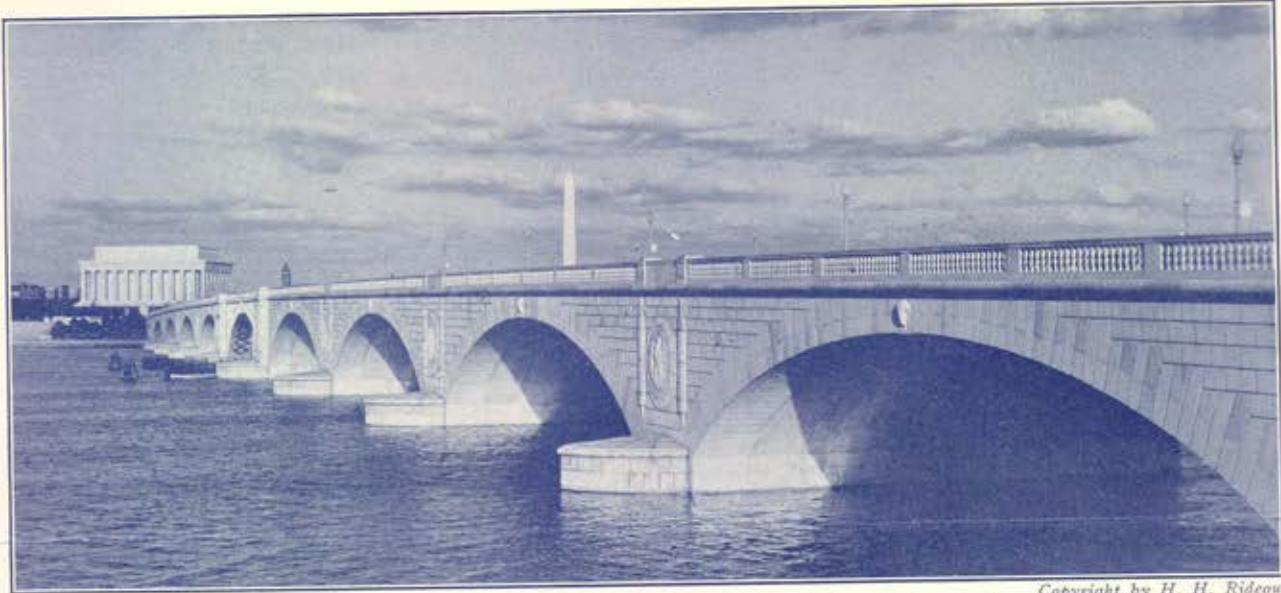
9:30 a.m.—Conference on Power Requirements in Electrochemical and Allied Industries

Address: "Power Requirements in the Electrochemical, Electrometallurgical, and Allied Industries"
J. V. ALFRIEND, Jr., Federal Power Commission

Discussions by:

M. E. STONE, United Engineering & Foundry Co., Ltd.
E. E. MERRICK, General Electric Co.
HERBERT SPEIGHT, Westinghouse Electric & Mfg. Co.

SUMMER CONVENTION



Memorial Bridge which connects Alexandria, Va., with Washington, D. C.

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INSPECTION TRIPS

A program of inspection trips in Washington and in the near vicinity has been planned to include many points of interest. Arrangements have been made by which the following buildings and plants may be inspected on each day during the convention, except where noted otherwise. Guides will be available at all locations:

- 1. Bureau of Standards.** This is an institution, operated by the Federal Government, devoted to the development of methods, standards of measurement, standard constants, and standards of quality performance, and practices.
- 2. New High-Voltage Generator of the Department of Terrestrial Magnetism of the Carnegie Institution of Washington (2:30 p.m., Tuesday, Wednesday and Thursday only).** This is an electrostatic machine capable of delivering constant potential at controlled voltages from 500,000 volts to 5,000,000 volts. The special steel pressure tank and building with underground laboratory rooms already are constructed to house this apparatus, and it is anticipated that the generating equipment will be ready for use before June.
- 3. United States Navy Yard.** The guns for the Navy are constructed here, as well as the delicate and accurate apparatus for sighting and controlling their discharge.
- 4. New Building of the Department of the Interior.** This represents the latest ideas and designs of mechanical equipment in the construction of a Government office building.
- 5. United States Central Heating Plant.** This plant furnishes heat to practically all of the Government-owned buildings in the downtown area of Washington.
- 6. Department of Justice—Federal Bureau of Investigation.** The investigation of Federal offenses, including kidnaping, and robbery of national banks and the United States mail, is centered here. Laboratories for chemical analysis, photography, and other scientific aids for detection of crime are maintained. Special arrangements for receiving the AIEE delegates at the Federal Bureau of Investigation will be made and definite hours set for this visit.
- 7. Bureau of Engraving and Printing.** At this establishment, all stamps (postage, revenue, and tax), paper currency, and bonds issued by the United States Government are engraved and printed.
- 8. Buzzard Point Power Plant.** This is the baseload station of the Potomac Electric Power Company for the Washington system in connection with the Benning steam plant and the 230-kv transmission line from Safe Harbor (Pa.) on the Susquehanna River. (2:00 p.m. Thursday only.)
- 9. United States Naval Observatory.** The function of this

Federal-operated plant is to determine accurate time through daily astronomical observations and other astronomical data required by the Navy Department. (8 p.m. Wednesday only—limited to 40 people.)

10. New Installation of Dial Telephone Equipment. The new Dupont central office of the Chesapeake and Potomac Telephone Company is the latest office of this type to be placed in service in Washington.

OUT-OF-TOWN INSPECTION TRIPS

- Friday, June 24.** Inspection of the cable and wire manufacturing plant of the Western Electric Company at Point Breeze, Baltimore, Md. At this plant is manufactured all of the rubber-insulated wire, submarine cable, and quadded cable used by the Bell System.
- Friday, June 24.** Inspection of the 56-inch hot-strip mill of the Bethlehem Steel Company, Sparrows Point, near Baltimore, Md. This is the latest in hot-strip mills for the production of sheet metal.
- Saturday, June 25.** Inspection of the Safe Harbor (Pa.) hydroelectric station of the Pennsylvania Water and Power Company. This will be an all-day trip.

Post-Convention Trips

In addition to trips during the convention, arrangements will be made, provided a sufficient number register for the purpose, to include several post-convention trips. These have been planned as follows:

- 1. Annapolis tour,** leaving Mayflower Hotel at 2:00 p.m., Friday, returning at 6:00 p.m., covering the city of Annapolis and the United States Naval Academy, with a guide to explain the points of interest. \$1.50 per person round trip; minimum number 15.
- 2. Gettysburg (Pa.) tour.** Leave Mayflower Hotel 8:30 a.m., Friday, returning 6:30 p.m. Includes lunch at Gettysburg, tour with guide over the battlefield, and visit to the Barbara Fritchie House in Frederick, Md. \$4.15 per person. Minimum number 15.
- 3. Tour to Luray Caverns and Skyline Drive,** leaving Saturday, 8:00 a.m. and returning at 6:00 p.m. Includes lunch and admission to the Caverns and 31 miles of Skyline Drive. \$5.50 per person; minimum number 15.
- 4. Three-day trip through Virginia.** This includes Old Point Comfort, Yorktown, Williamsburg, Jamestown, Richmond, Charlottesville, Wakefield, and Fredericksburg. This trip will be arranged starting Saturday morning at 8:00 a.m., returning about 6:00 p.m., Monday. Meals and rooms at hotels included. \$24.25 per person; minimum number 15.



Congressional Country Club

SPORTS AND ENTERTAINMENT

Sports and social activities of the convention will center at the beautiful Congressional Country Club situated in Maryland, near the banks of the historic Potomac and almost in sight of the Capitol dome. Club facilities include spacious grounds and gardens, a large outdoor swimming pool, and a commodious club house.

Arrangements have been made for golf tournaments for the Mershon and Lee trophies, and also a tournament for the Mershon tennis trophy and a variety of men's and ladies' single and double tennis events. The qualifying round for the Mershon and Lee trophies is scheduled for 1:00 p.m. Monday, June 20. See Electrical Engineering, May issue, p. 222 for the proposed sports program.

The Entertainment Committee has provided, in addition to the usual program of a dinner-dance at the Congressional Country Club on Tuesday evening, a tea at Burgundy Farm, Alexandria, Va., on Wednesday afternoon and a final social gathering of the convention, a formal dinner on Thursday evening, which will be the occasion of the presentation of the Gaston Planté Medal to Doctor George W. Vinal by the French Ambassador and the award of prizes for the sports events.

LADIES' ENTERTAINMENT

In addition to the entertainment features included in the schedule of events, the ladies' entertainment committee has arranged an attractive program, including visits to places of interest in Washington, a bridge-luncheon at the Congressional Country Club preceding the dinner-dance held at the club in the evening, and a tea at Burgundy Farm in nearby Virginia. The ladies of the local Section will provide transportation and personally conduct individual tours that the visiting women may wish to take.

GENERAL INFORMATION

The committee requests that tickets be secured early for the entertainment features in order that proper reservations may be made.

Tuesday, June 21

Luncheon Bridge—tickets not later than Monday, 6:00 p.m.
Country Club Dinner-Dance—tickets not later than Tuesday noon.

Wednesday, June 22

Tea at Burgundy Farm—tickets not later than Wednesday, 10:00 a.m.

Thursday, June 23

Dinner—Mayflower Hotel—tickets not later than Thursday, 10:00 a.m.

HOTEL RESERVATIONS

All members planning to attend the convention should make their own hotel reservations and the committee urges that this be done well in advance. For a list of the principal hotels in Washington and their rates (European plan), as well as information regarding the Mayflower Hotel, convention headquarters, see ELECTRICAL ENGINEERING for May, p. 221.

ADVANCE REGISTRATION

Members who will attend the convention are urged to register in advance by promptly returning the enclosed **Mail Registration Card**. This will be helpful to the committees and will permit badges to be made ready in advance thus avoiding congestion at the Registration Desk. Please register promptly upon arrival at the convention.

A registration fee of \$2.00 will be charged all non-members except Enrolled Students and the immediate families of members.

H. H. HENLINE, National Secretary.

Summer Convention Committee

William McClellan, Honorary Chairman
H. W. Osgood, Chairman
C. A. Robinson, Vice-Chairman
G. L. Weller, Secretary
A. F. E. Horn, Treasurer

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R. C. Bailey	J. F. Meyer
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N. E. Funk	H. M. Southgate
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Chairmen of Subcommittees

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J. H. Stephens (Transportation)	R. W. Prince (Inspection Trips)
W. J. Ellenberger (Registration and Housing)	F. M. Defandorf (Technical Programs)
H. E. Way (Publicity)	S. K. Brown (Entertainment)
R. C. Marshall, Jr. (Women's Entertainment)	

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