



Summer General Meeting

JUNE 20-24, 1949

Swampscott, Mass.

Headquarters
New Ocean House



New Ocean House, Swampscott, Mass.

MEETING FEATURES

The 1949 A.I.E.E. summer general meeting, which will be held in Swampscott, Mass., June 20-24, will provide a technical program of broad interest, with opportunity for inspection trips, sports and social recreation. Swampscott, on Boston's north shore, affords unlimited opportunity for healthful outdoor enjoyment. It is located at the center of the great historical and educational background of New England. The New Ocean House, meeting headquarters, is located right on the Atlantic Ocean. It has a private beach, extensive grounds, and an excellent 1,000-yard golf course. Points of historical interest, such as Lexington, Concord, Marblehead, Salem, Gloucester, Plymouth, Cambridge, and "White Court," formerly the summer home of President Coolidge, contribute toward making Swampscott a location of outstanding interest.

REGISTRATION FEES REQUIRED: Members and nonmembers should register in advance by filling in the advance registration card sent to you with the mailed announcement. In accordance with the policy as set up by the Board of Directors, a registration fee of \$3.00 will be required for members and a fee of \$5.00 for nonmembers. This is to help make the meeting self-supporting and obviate the need for raising the annual dues. Student members and the immediate families of members will not be required to pay any fee.

ENTERTAINMENT AND BANQUET: *Monday evening* — Informal Dancing in the Ballroom, for the purpose of getting acquainted with the various members and establishing friendships.

Tuesday evening — Gala Entertainment Event. Old-Fashioned Barn Dance in true New England style, literally and figuratively. In fact, this will be the chance of a lifetime to get acquainted with what a barn actually looks like. Costumes will add much to the occasion and they may be simple or elaborate as desired, with the understanding that reward is its own merit and prizes for costumes will certainly be awarded. In true New England tradition music will be furnished by the Wayside Inn Early American Dance Orchestra.

There will be souvenir dance programs for the ladies, ample instruction in old-style dancing, and in general a complete, full and satisfying New England evening. Do not miss this gala occasion since it will be one of those once in a lifetime events.

Wednesday evening — President's Reception in the Ballroom. Banquet in the Main Dining Room at which the feature speaker will be President Killian of Massachusetts Institute of Technology. The cost will be \$4.75 per person, and reservations may be made at the registration desk.

Thursday evening — Informal Dancing which will include one hour of typical New England entertainment by a special novelty orchestra as definitely New England as is the one for the Old-Fashioned Barn Dance.

SPORTS: The annual competitions for the Mershon Golf and Tennis Trophies will be held during the week of the meeting. In addition, nearby country clubs will be available for individual play. Adjacent to the headquarters hotel, facilities for horseshoe pitching, bowling, table tennis and a "pitch and putt" golf course will be arranged. If indi-

AIEE SUMMER GENERAL MEETING

viduals are interested in sailing or motor boating, the committee will help make arrangements for the hiring or chartering of boats from local yards.

LADIES' ENTERTAINMENT:

Monday, June 20

3-5 P.M. Get Acquainted Tea.

Tuesday, June 21

9 A.M.-12:45 P.M. Conducted Tour—Historic Salem and Marblehead.

2:30-6 P.M. Inspection Trip WBZ Television Station, Allston, Mass.

Wednesday, June 22

2:30 P.M. Handwriting Analyst—Bridge and Prizes.

Thursday, June 23

10:00 A.M. Book Review.

1:30-6:00 P.M. Conducted Tour—North Shore and Gloucester.

Friday, June 24

Special conducted tours as requested.

From Monday through Friday, special adjoining meeting rooms will be available for the ladies' use, for cards, special entertainment, etc., to be used exclusively for ladies' entertainment.

Arrangements for sports, such as golf and tennis will be made for those interested.

NOTE: A nominal charge of \$1.00 will be made for each trip involving transportation.

INSPECTION TRIPS: Inspection trips to the following places have been arranged. Others will be announced at the convention.

1. Boston Naval Shipyard—One of the Navy's oldest yards. A rope walk and anchor factory are among the many interesting things to be shown. The historical old Ironsides is one of the first. This trip is on Monday, June 23, 9:30 a.m.

2. M.I.T. and Harvard—The activities of these two institutions are world famous. The inspection trip will include radar laboratories, computation laboratories, nuclear research facilities, museums, and several other places on the campuses. This trip is on Tuesday, June 21, 9:30 a.m.

3. WBZ Television—One of Boston's largest and most modern television stations. The studio as well as the broadcasting facilities will be visited. This trip is on Tuesday, June 21, 1:30 p.m.

4. Lynn Telephone Exchange—The working of a modern crossbar telephone exchange will be shown. This trip is on Wednesday, June 22, 1:30 p.m.

5. The Mystic Station Boston Edison Company—The Mystic Station has about three large generators, two of 57500 KVA and one of 71875 KVA. The distribution system includes two 110,000 volts transformer equipment which are for changing under loads. This trip will include inspection of these facilities. This trip is on Thursday, June 23, 9:30 a.m.

6. The General Electric Company—This trip will include visits to both Lynn Plant Divisions of the company, which will include meters, instruments, motors, aircraft gas turbines, lighting and rectifiers, and turbines. This trip is on Thursday, June 23, 1:30 p.m.

7. Excursion boat trip around historical Marblehead Harbor will be available to those desiring it.

HOTEL ACCOMMODATIONS: Members should make their plans early. A hotel reservation card is enclosed for your convenience. Special A.I.E.E. meeting rates at the New Ocean House, including room and meals, will be as follows:

	Daily Per Person	
Double room with bath, twin beds	\$ 9.50	and \$10.00
Double room with bath, twin beds, ocean front	10.50	
Large room with bath, three beds	8.75	and 9.00
Large room with bath, four beds	8.50	and 8.75
Double room with running water, twin beds	8.75	and 9.00
Suite, 2 double rooms, bath between, four beds	9.00	and 9.50
Suite, 2 double rooms, bath between, six beds	8.50	and 8.75
Choice corner or bay window room with bath, twin beds	11.00	and 12.00
Single room with bath	12.00	and 13.00

STUDENT ACTIVITIES: Student members of the A.I.E.E. are extended a cordial welcome to attend the Summer General Meeting in Swampscott. A special room will be set aside where students may gather throughout the meeting. All meetings, inspection trips, and social affairs are open to Student members. Of particular interest will be the inspection trip to M.I.T. where all laboratories will be open for inspection.

Friday, June 24, will be a full day of activities for Students. In the morning the winners of the District prizes from the odd-numbered Districts (this being an odd-numbered year) will present their papers before a joint student and member session. The afternoon will start with a special luncheon, as guests of the General Electric Company at the Thompson Club, Nahant, Massachusetts. Transportation will be provided. The day will wind up with either a boat trip or field day where tennis, baseball, or swimming can be enjoyed on the grounds of the Thompson Club. The wives of students are cordially invited to attend.

Students **outside of District No. 1**, who plan to attend on Friday, June 24, please write to Professor E. W. Boehne, Massachusetts Institute of Technology, Cambridge, Mass. If you desire quarters other than the New Ocean House, please include this information in your reply. Student Committee: A. H. Howell, Tufts; F. B. Naka, Harvard; C. E. Richards, Northeastern; E. W. Boehne, M.I.T., Chairman.

Advance Registration—In order to save time and to assist the various committees arranging for the accommodation and entertainment of those who attend, space has been provided on the attached Registration card for pertinent information. These cards should be filled out and mailed as promptly as possible to the committee chairman (A. L. O'Banion, Box 218, Astor Station, Boston 23, Mass.). Registration fee will be \$3 for members and \$5 for non-members. Everyone attending or participating will be requested to register, but no charge will be made for students or for families of Institute members.

General Information—Information on all features may be obtained at the registration desk. A table for mail and memoranda will be maintained as well as a special bulletin board for the posting of personal messages and notices. Schedule of inspection trips and entertainment features will also be displayed.

SUMMER GENERAL MEETING COMMITTEE

E. W. Davis, *General Chairman* M. A. Princi, *Vice Chairman*
R. E. Muehlig, *Secretary-Treasurer*

	Members at Large	
R. G. Porter	R. G. Slauer	F. P. Taugher
Committee Chairmen		
<i>Registration</i>	<i>Hotels</i>	
A. L. O'Banion	R. G. Connors	J. O'R. Coleman
<i>Publicity</i>	<i>Inspection</i>	
H. B. McIntyre	J. R. Macintyre	F. S. Bacon, Jr.
<i>Entertainment and Banquet</i>	<i>Finance</i>	
G. J. Crowdes	C. A. Corney	Mrs. F. B. Haeussler
<i>Transportation</i>	<i>Students</i>	
A. B. Whitehouse	E. W. Boehne	A. F. Lukens
		<i>Ladies</i>
		<i>Sports</i>

TECHNICAL PROGRAM

ADVANCE COPIES OF PAPERS

Members may obtain preprints of technical papers at the uniform price of 30¢ each (60¢ each to nonmembers) by sending remittance to the AIEE Order Department, 33 West 39th Street, New York 18, N. Y. Conference papers denoted by CP.** are intended for presentation only, and are not available. Mail orders (particularly from out-of-town members) are advisable, inasmuch as an adequate supply of each paper at the meeting cannot be assured. Coupon books in \$9.00 denominations are available for those who wish to avoid remittance by check or otherwise. Most of the papers ultimately will be published as AIEE PROCEEDINGS and in the TRANSACTIONS.

Monday, June 20

9:30 a.m.—Switchgear

- 49-128. Field Tests of Oil Circuit Recloser Substantiate Analytical Coordination Method. G. G. Auer, R. A. Branflick, L. J. Woodward, General Electric Company; W. C. McKinley, Central Electric Cooperative, Inc.
- CP.** Metal Clad Switchgear Manufacture, Test, and Inspection. B. I. Hayford, Westinghouse Electric Corporation.
- CP.** Selective Tripping of Low Voltage Air Circuit Breakers for Power Station Auxiliaries. J. M. Geiger, L. L. Fountain, Westinghouse Electric Corporation.
- CP.** Guide for the Application of Low Voltage Air Circuit Breakers. Committee Report.

9:30 a.m.—Electric Welding

- CP.** Arc Metal Transfer Analyzer. R. C. McMaster, D. C. Martin, A. Leatherman, Battelle Memorial Institute.
- 49-129. Characteristics of Arcs Between Moving Electrodes. ACO.* W. B. Kouwenhoven, T. B. Jones, The Johns Hopkins University.
- CP.** Operational Timing Pattern for Electronic Resistance Welding Control. H. B. Hills, General Electric Company.
- CP.** Electrical Advantages of Low Frequency Welding Converters. C. B. Stadum, Westinghouse Electric Corporation.

9:30 a.m.—ECPD Accrediting of Electrical Engineering Curricula

- CP.** ECPD Accrediting Program. D. E. Prentice, President Emeritus, Rose Polytechnic Institute and Past Chairman, ECPD Committee on Engineering Schools.
- CP.** What the Accrediting Visitor Sees. E. L. Moreland, Executive Vice-President, M.I.T. and Senior Partner, Jackson and Moreland, Engineers.

9:30 a.m.—Instruments and Measurements

- 49-130. The Measurement of Dielectric Loss at High Frequencies and Under Changing Temperatures. J. B. Whitehead, W. Rueggeberg, The Johns Hopkins University.
- 49-131. Instrumentation for the Evaluation of the Stability of the Welding Arc. Lauriston P. Winsor, L. McDonald Schetky, Robert A. Wyant, Rensselaer Polytechnic Institute.



WBZ Radio and Television Center to be visited on Tuesday, June 21

- 49-132. A Wide Band DC Amplifier Stabilized for Gain and For Zero. A. J. Williams, Jr., W. G. Amey, W. McAdam, Leeds and Northrup Company.

CP.** Unusual Applications of the Cathode-Ray Oscillograph in the Electrical Industry. P. S. Christaldi, W. J. Fockler, Allen B. DuMont Laboratories, Inc.

2:00 p.m.—Insulated Conductors

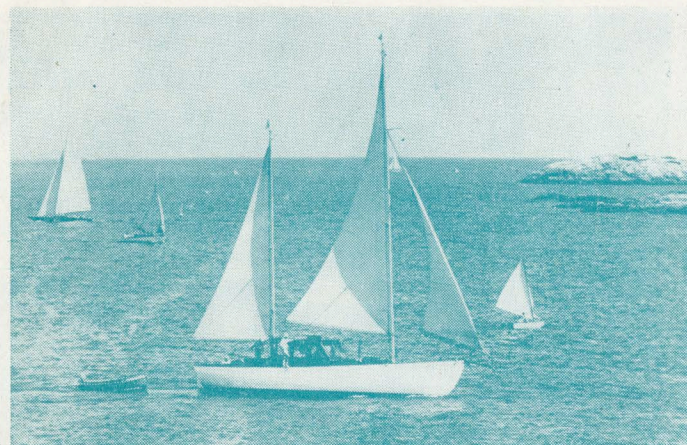
- 49-133. Transformer Manholes and Vaults—Design and Ventilation. L. F. Porter, Consolidated Edison Company of New York, Inc.
- 49-134. The Temperature Rise of Cables in a Duct Bank. J. H. Neher, Philadelphia Electric Company.
- 49-135. A-C Resistance of Segmental Cables in Steel Pipe. L. Meyerhoff, G. S. Eager, Jr., General Cable Corporation.
- 49-136. 69 KV Pipe-Type Cable Circuits in Philadelphia. A. H. Kidder, G. S. Van Antwerp, Philadelphia Electric Company.
- 49-137. Observations on Recent Developments and the Trends in High Voltage Cable Transmission. P. H. Chase, Philadelphia Electric Company.

2:00 p.m.—Industrial Control and Servomechanisms

- 49-138. Dynamic Braking Control of D-C Series Motors—Experimental Study of Speed-Torque Curves. G. W. Heumann, General Electric Company.
- 49-197. Instrument Inaccuracies in Feedback Control Systems with Particular Reference to Backlash. H. T. Marcy, Morris Yachter, Jerome Zauderer, The M. W. Kellogg Company.
- 49-196. Comparison of Steady-State and Transient Performance of Servomechanisms. R. W. Mayer, H. Chestnut, General Electric Company.
- CP.** Characteristics of Some Magnetic-Fluid Clutch Servomechanism Systems. A. J. Parziale, P. D. Tilton, Massachusetts Institute of Technology.

2:00 p.m.—Substations

- 49-141. Aluminum Alloy Substation Structures. A. M. ACO.* Baker, Pennsylvania Electric Company.



Approaching Marblehead Harbor

- 49-142. Application of the "Multiplex" Scheme at Urban ACO.* Distribution Substations in Baltimore. M. Mortara, Consolidated Gas Electric Light and Power Company of Baltimore.
- 49-143. Automatic Grounding and Air Break Switches for Protection of Transformer Stations. E. A. Ricker, The Hydro-Electric Power Commission of Ontario.
- 49-144. A New Two-Signal Supervisory Control System. W. A. Derr, Westinghouse Electric Corporation.

2:00 p.m.—Conference on Nucleonics

- CP.** Problems in Health Physics Instrumentation. Samuel Levin, Massachusetts Institute of Technology.
- CP.** Some Electronic Aids to the Nuclear Physicist. Emil de Agazio, Massachusetts Institute of Technology.
- CP.** Thickness Gauges in Industry Employing Radioactivity. J. R. Carlin, Tracerlab, Inc.
- CP.** Scintillation Counters. William G. Cross, Harvard University.

Tuesday, June 21

9:30 a.m.—Institute Publicity

(Meeting of Section Delegates)

1. Purpose of Meeting. J. C. Strasbourger.
2. Institute Public Relations. R. K. Honaman.
3. Specific Section Publicity Problems.
4. Mechanics of News Releases.
5. News Stories for Electrical Engineering. C. S. Rich.
6. Discussion of Publicity Material. G. T. Minasian.
7. Summary.

9:30 a.m.—Symposium on Fundamental and Functional Design of Relay Switching Circuits

- 49-145. The Logic of Relay Circuits. W. Keister, Bell Telephone Laboratories, Inc.

- 49-146. Sequential Aspects of Relay Circuits. A. E. Ritchie, Bell Telephone Laboratories, Inc.
- 49-147. Relay "Trees" and Symmetric Circuits. S. H. Washburn, Bell Telephone Laboratories, Inc.
- 49-148. Counting with Relays. G. R. Frost, Bell Telephone Laboratories, Inc.
- 49-149. Codes and Translations. Oscar Myers, Bell Telephone Laboratories, Inc.

9:30 a.m.—Carrier Current

- 49-150. Loss Measurements Made on Underground-Cable Overhead-Conductor 132 Kv Transmission Line at Carrier Current Frequencies. H. A. Cornelius, B. Wade Storer, Commonwealth Edison Company.
- 49-151. Power Line Carrier for Relaying and Joint Usage —1. G. W. Hampe, B. Wade Storer, Commonwealth Edison Company.

- CP.** Microwave Equipment for 900 and 2000 Megacycles. W. E. Sutter, R. V. Rector, General Electric Company.
- CP.** Design and Plans for the Bonneville Microwave System. T. W. Stringfield, Bonneville Power Administration.
- CP.** A Place for Microwave Radio in the Power Industry. D. R. Pattison, Pennsylvania Electric Company.
- CP.** A Development of Microwave Equipment for Power System Applications. M. H. Wood, F. B. Gunter, Westinghouse Electric Corporation.

9:30 a.m.—Radio Telemeter Instrumentation

- CP.** Upper Air Meteorological Telemetering. B. K. Hawes, National Bureau of Standards.
- 49-152. Automatic Range-Adjusting Radiosonde Recorder. George E. Beggs, Jr., Leeds and Northrup Company.
- CP.** A Pulse Width Modulation Telemetering System. Walter Hausz, General Electric Company.
- CP.** An FM-FM Telemetering System. W. J. Mayowells, Johns Hopkins Applied Physics Laboratory.

2:00 p.m.—Relays

- 49-153. Relaying of Transmission Lines From the New Sunbury Generating Station. H. H. Green, J. A. G. Oewel, O. Ramsaur, Pennsylvania Power and Light Company.
- 49-154. Graphical Method for Estimating the Performance of Distance Relays During Faults and Power Swings. A. R. vanC. Warrington, General Electric Company.
- CP.** A New Loss of Excitation Relay for Synchronous Generators. C. R. Mason.
- CP.** Practice and Extent of Loss of Excitation on Rotating Machines. G. B. Miller.

2:00 p.m.—Wide-Band Communication Media

- 49-155. BI Alarm and Control System for Remote Control of Coaxial Cable Stations. R. B. Hearn, Laurence A. Weber, Bell Telephone Laboratories, Inc.
- 49-156. Power Supplies for Coaxial Systems. H. H. Spencer, Bell Telephone Laboratories, Inc.

- 49-157. Power Supplies for Microwave Relay Systems. H. M. Ward, The Western Union Telegraph Co.
- 49-158. A Microwave Communication Relay System. W. P. Boothroyd, H. J. Churchill, Philco Research Division.

2:00 p.m.—Sections Committee Meeting

2:00 p.m.—Instruments and Measurements

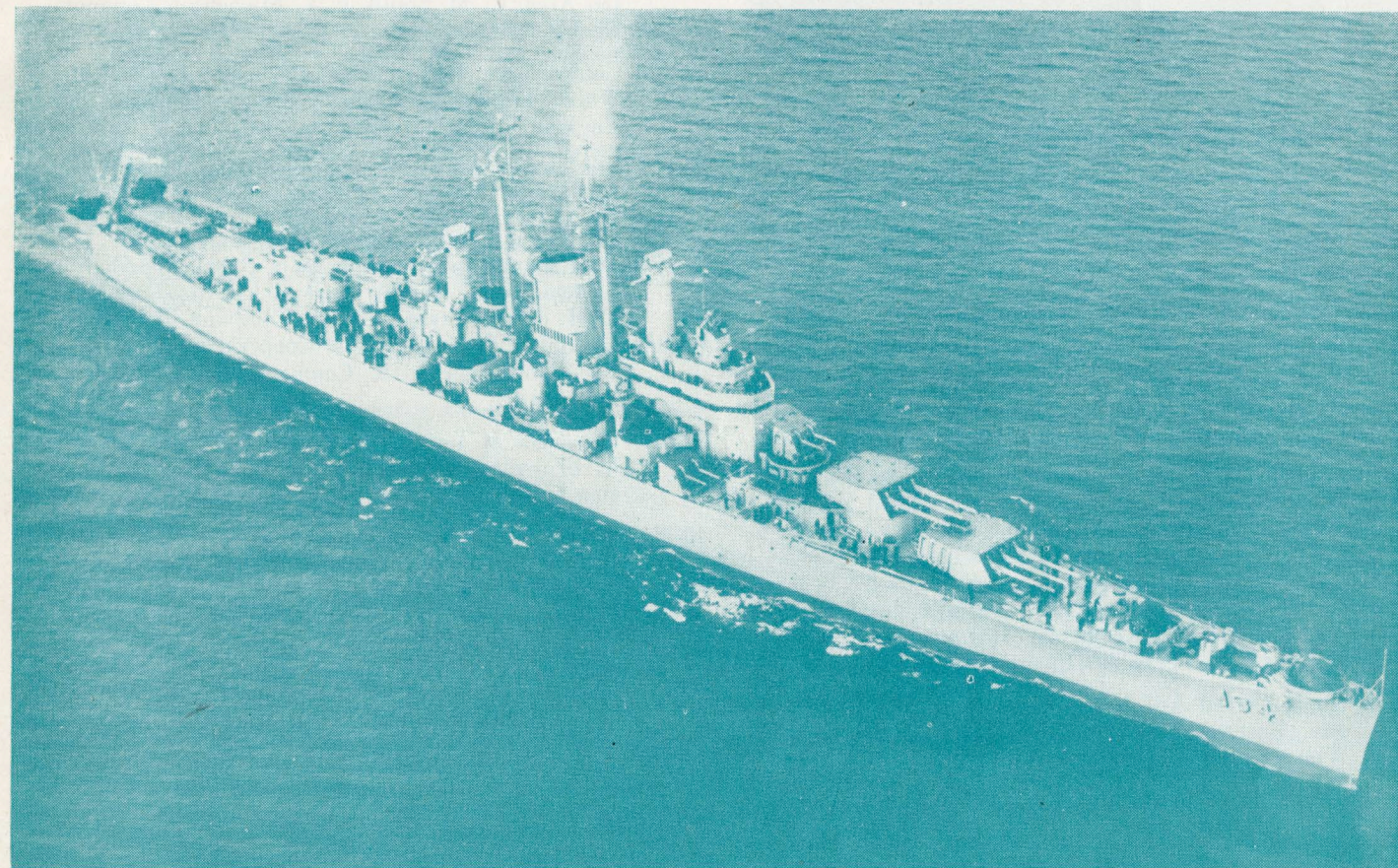
- 49-159. A New Thermal Converter for Telemetering and Totalizing. W. C. Downing, Jr., Sangamo Electric Company.
- 49-160. Heat Flow Ratio as a Design Parameter in Thermal Demand Meters. J. S. Nelson, General Electric Co.
- 49-161. A New Expanded Scale A-C Voltmeter. N. P. Millar, General Electric Company.
- 49-162. A New Instrument Mechanism. Allen Stimson, ACO.* F. B. Jennings, C. W. McCarty, General Electric Company.
- CP.** Theoretical Considerations in the Use of an Ergometer. J. Schroeder, Naval Ordnance Laboratory.

Wednesday, June 22

10:00 a.m.—General Session

1. Report of Board of Directors. H. H. Henline, Secretary.
2. Report of Treasurer. W. I. Slichter.

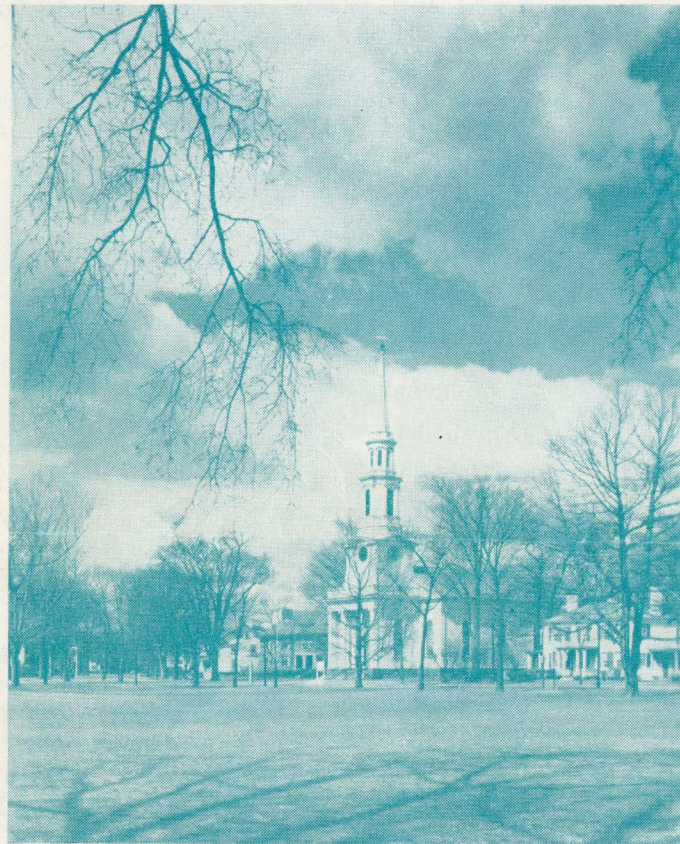
3. Report of Committee of Tellers on vote for nominees for A.I.E.E. offices.
4. (a) Introduction of, and presentation of, President's badge to J. F. Fairman.
(b) Response by Mr. Fairman.
5. Presentation of Lamme Medal to V. K. Zworykin, Vice President and Technical Consultant, RCA Laboratories.
(a) The Establishment of the Medal. N. S. Hibshman, Chairman, Lamme Medal Committee.
(b) The Career of the Medalist.
(c) Presentation of Medal and Certificate by President Lee.
(d) Response by Mr. Zworykin.
6. Any other business that may be presented.
7. Address, "The Expanding Horizons in Engineering Education," W. F. Ryan, Engineering Manager, Stone and Webster Engineering Corp.
8. President's Address. Everett S. Lee.



USS Des Moines

Official United States Navy Photo

Digests of most papers will appear in **ELECTRICAL ENGINEERING**



The Village Green, Lexington, Mass.

49-166. Summary of Transformations Useful in Constructing Electrical Analogs of Linear Vibration Problems. J. P. Corbett, Northwestern University. Presentation by title only.

2:00 p.m.—Basic Science

- 49-167. Formulas and Tables for the Calculation of the Magnetic Field Components of Circular Filaments and Solenoids. F. W. Grover, Union College.
- 49-168. General Theory, and Experimental Confirmation, of the Moving Coil Fluxmeter. T. J. Higgins, Glenn Robertson, University of Wisconsin.
- 49-169. Nomenclature for the Symbolic Treatment of Sinusoids. W. R. LePage, Syracuse University.
- 49-170. Non-Harmonic Oscillations as Caused by Magnetic Saturation. Reinhold Rudenberg, Harvard University.

Thursday, June 23

9:30 a.m.—Transmission and Distribution and System Engineering

- 49-171. Planned Development of a Power System. N. N. ACO.* Smeloff, Pennsylvania Power and Light Company.
- 49-172. A 66-Kv Sub-Transmission Plan for a Metropolitan Area. K. M. Smith, E. L. Michelson, Commonwealth Edison Company.
- 49-173. Comparative Performance Records of Steel and Wood Transmission Lines. C. A. Booker, New England Power Service Company.
- 49-174. Stationary Networks and Transmission Lines Along Uniformly Rotating Reference Frames. Gabriel Kron, General Electric Company.
- 49-175. Overcurrent Investigation on a Rural Distribution System. G. F. Lincks, General Electric Company; D. R. Edge, Graybar Electric Company, Inc.; W. C. McKinley, Central Electric Cooperative, Inc.; J. H. Leh, General Electric Company. Presentation by title only.
- 49-61. Advances in Technique of Lighting Measurements. T. Brownlee, General Electric Company. Presentation by title only.
- 49-177. Short Circuit Currents and Recovery Voltages on Rural Distribution Systems. W. H. Eason, I. B. Johnson, J. W. Kalb, General Electric Company; H. A. Peterson, University of Wisconsin. Presentation by title only.

9:30 a.m.—Symposium on Electrical Properties of Semiconductors and the Transistor

(A) Nature of the Conductivity in Semiconductors, particularly Silicon and Germanium

- CP.* The Conductivity of Silicon and Germanium as Affected by Chemically Introduced Impurities. G. L. Pearson, Bell Telephone Laboratories, Inc.
- CP.** Nucleon-bombarded Semiconductors. K. Lark-Horvitz, Purdue University.

2:00 p.m.—Transformers

- CP.** Progress Report on Proposed Transformer Standards. A.I.E.E. Transformer Committee.
- 49-188. Economic Loading of a Transformer System. D. L. Levine, H. E. Smith, Commonwealth Edison Co.
- 49-189. Heating of Transformers Under Short-Circuit Conditions. V. M. Montsinger, G. H. Halsey, General Electric Company.
- 49-190. Standardization of Reactor Ratings. F. H. Kierstead, J. L. Thomason, General Electric Company.
- 49-191. Transformer Audio Noise Problems on an Electric Power System. C. S. Murray, Consolidated Edison Company of New York, Inc.

2:00 p.m.—Computing Devices

- 49-163. A New Fourier Coefficient Harmonic Analyzer. S. Sharp, The Franklin Institute.
- 49-164. An Improved A-C Network Analyzer. W. A. Morgan, Bureau of Reclamation; F. S. Rothe, J. J. Winsness, General Electric Company.
- CP.** The Bell Computer, Model VI. E. G. Andrews.
- 49-165. Application of the Cal-Tech Electric Analog Computer to Nonlinear Mechanics and Servomechanisms. G. D. McCann, C. H. Wilts, B. N. Locanthi, California Institute of Technology. Presentation by title only.

CP.** The Control of the Conductivity of Oxide Semiconductors by Admixture of Other Oxides. N. C. Jamison, Phillips Laboratories.

(B) Photo Effects in Semiconductors

- CP.** General Features of Photoconductivity and Photoemission in Semiconductors. Lloyd Smith, Cornell University.
- CP.** External Photoelectric Effects in Semiconductors.
- CP.** Internal Photoeffects in Germanium. J. N. Shive, Bell Telephone Laboratories, Inc.

2:00 p.m.—Transformers

- 49-192. Use of Thyrite in Power Transformers. J. R. Meador, General Electric Company.
- 49-193. Controlled Temperature and Insulation Protection in the Operation of Power Transformers. W. W. Satterlee, R. D. Reed, Westinghouse Electric Corp.
- 49-194. A Small High-Voltage Bushing Design for High Altitude. F. J. Vogel, Illinois Institute of Technology and H. A. Hart, Armour Research Foundation.
- 49-195. Extremes in the Insulation Co-ordination of Oil Insulated Transformers. F. J. Vogel, Illinois Institute of Technology.

2:00 p.m.—Symposium on Electrical Properties of Semiconductors and the Transistor

(C) Semiconductor Rectifiers

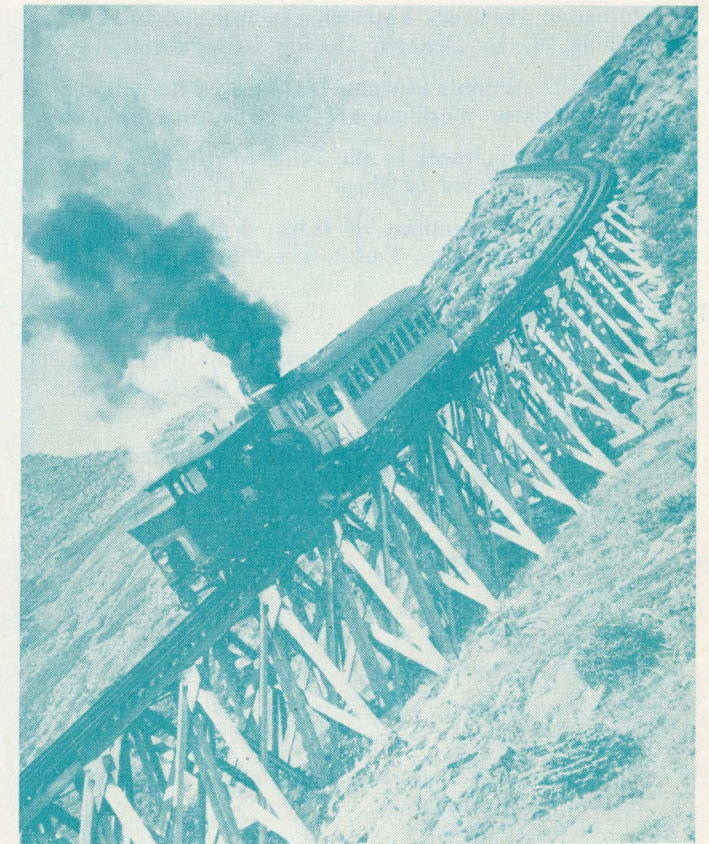
- CP.** Theory of Rectification. F. Seitz, Carnegie Institute of Technology.
- CP.** A Comparison Between the Schottky Rectifier Theory and Measurements Upon Cuprous Oxide Cells. S. J. Angello, Westinghouse Research Laboratories.
- CP.** Boundary Layers in Rectifiers. H. Y. Fan, Purdue University.
- CP.** Noise in Semiconducting Contacts. P. H. Miller, University of Pennsylvania.

(D) The Transistor

- CP.* Theory of Transistor Action. W. Shockley, Bell Telephone Laboratories, Inc.
- CP.** Equivalent Circuits for Transistor Action and Noise. R. M. Ryder, Bell Telephone Laboratories, Inc.
- CP.** The Possible Significance of Transistors in the Power Field. J. A. Hutcheson, Westinghouse Research Laboratories.

2:00 p.m.—Land Transportation and Lighting

- 49-176. Industrial Plants Prefer Diesel-Electric Switching Locomotives. Thomas J. Woods, Westinghouse Electric Corporation.
- 49-186. Measurements of Erythral Energy. Hoyt S. Scott, General Electric Company.



Mt. Washington Scenic Railway

49-187. Saving Time in Testing Life of Incandescent Lamps. W. R. Purcell, Sylvania Electric Products.
(Presentation of the above papers will be followed by a meeting of the Land Transportation Committee.)

Friday, June 24

9:30 a.m.—Symposium on Primary Network Systems

- 49-178. Improvements to Oklahoma City Primary Network. Bryce Brady, Oklahoma Gas and Electric Company.
- 49-179. Primary Networks on the Duquesne Light Company System. W. P. Holben, J. E. Lange, Duquesne Light Company.
- 49-180. Design and Experience with 4Kv Primary Network Systems in the Washington Area. W. J. Lank, Potomac Electric Power Company.
- 49-181. Primary Network Installations on the Boston Edison Company's System. L. J. Weed, Boston Edison Company.

9:30 a.m.—District Branch Prize Papers

Presentation of District Branch Prize papers by the winners from the odd-numbered Districts, Nos. 1, 3, 5, 7, and 9.

9:30 a.m.—Infra-Red Radiation.

CP.** The Basic Optics of Infrared Radiation. R. C. Lord, Massachusetts Institute of Technology Spectroscopy Laboratory.

SUMMER GENERAL MEETING, SWAMPSCOTT, MASS.

- CP.** Radiation Detectors Applicable to Infrared Investigations. A. R. Dennett, Eppley Laboratories.
- CP.** A New Thermionic Detector for Infrared Radiation. E. D. Wilson, Westinghouse Electric Corporation.
- CP.** New Military Needs in the Infrared. C. S. Woodside, Navy Bureau of Ships.
- CP.** Industrial Applications of Infrared Spectroscopy. Van Zandt Williams, Perkin-Elmer Corporation.

9:30 a.m.—Pulp and Paper

- CP.** Subcommittee Report on Electric Equipment for Paper Mill Super-calenders, Part I. V. B. Baker, Westinghouse Electric Corporation.
- CP.** Subcommittee Report on Electric Equipment for Paper Mill Winders. C. D. Beck, General Electric Company.

2:00 p.m.—Electric Heating

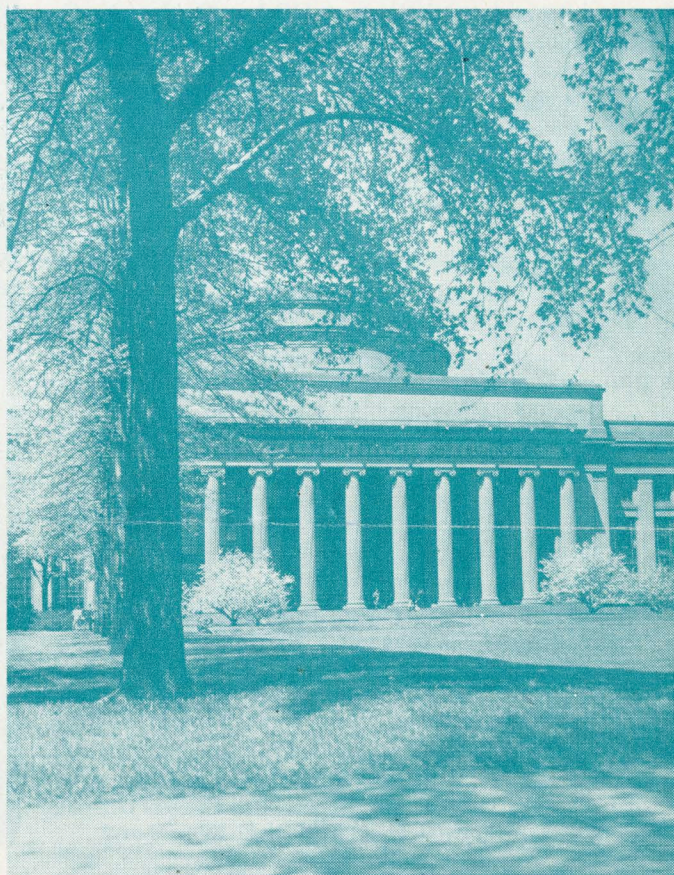
- 49-182. Reduction of Interference from Radio-Frequency Heating Equipment. G. W. Klingaman, Radio Corporation of America.
- CP.** High Temperature Ceramic Insulations. Hans Thurnauer.
- CP.** Electrode Type Electric Steam Boilers and Water Heaters. S. A. Williams.
- CP.** Temperature Measurement for Infrared Heating Processes. W. F. Hicks.
- CP.** Some Problems in the Measurement of Low Intensity Fields at Ultra-High Frequencies. C. W. Frick.

2:00 p.m.—Magnetic Amplifiers

- 49-183. Fundamentals of the Amplistat, A Magnetic Amplifier. R. E. Morgan, General Electric Company.
- 49-140. Self-Saturation in Magnetic Amplifiers. W. J. Dornhoefer, Vickers, Inc.
- 49-139. Analytical Determination of Characteristics of Magnetic Amplifiers with Feedback. D. W. Ver Planck, L. A. Finzi, D. C. Beaumariage, Carnegie Institute of Technology.
- 49-198. A Method for Designing Pulse Transformers. H. S. Kirschbaum, C. E. Warren, The Ohio State University.

2:00 p.m.—Storage Batteries

- CP**. Railway Battery Maintenance. E. K. Bloss, Boston and Maine Railroad Company.
- CP**. Prolonging Battery Life. Dr. Eugene Willihnganz, Gould Storage Battery Company.
- CP**. Design and Application of Dry Disc Rectifiers. H. H. Zielinsky, E. A. Harty, General Electric Co.



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2:00 p.m.—Applied Mathematics

- CP.** Introduction. M. G. Maiti, Cornell University.
- CP**. History and Coordination of Operational and Transform Methods.
- CP**. Application of Operational and Transform Methods. L. A. Pipes, University of California.
- 49-184. A Derivation of Heaviside's Operational Calculus Based on The Generalized Functions of Schwartz. J. J. Smith, P. L. Alger, General Electric Company.
- 49-185. Correlation of the Methods of Operational Calculus. ACO.* W. A. Lewis, Illinois Institute of Technology.

CP.** Conference paper; no advance copies are available; not intended for publication in Transactions.

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Issued by

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS
33 West 39th Street, New York 18, N. Y.

PRINTED IN U.S.A.