American Institute of Electrical Engineers

WINTER GENERAL MEETING

Program

Please retain for use during entire meeting

NEW YORK, N. Y.

JANUARY 30 - FEBRUARY 3

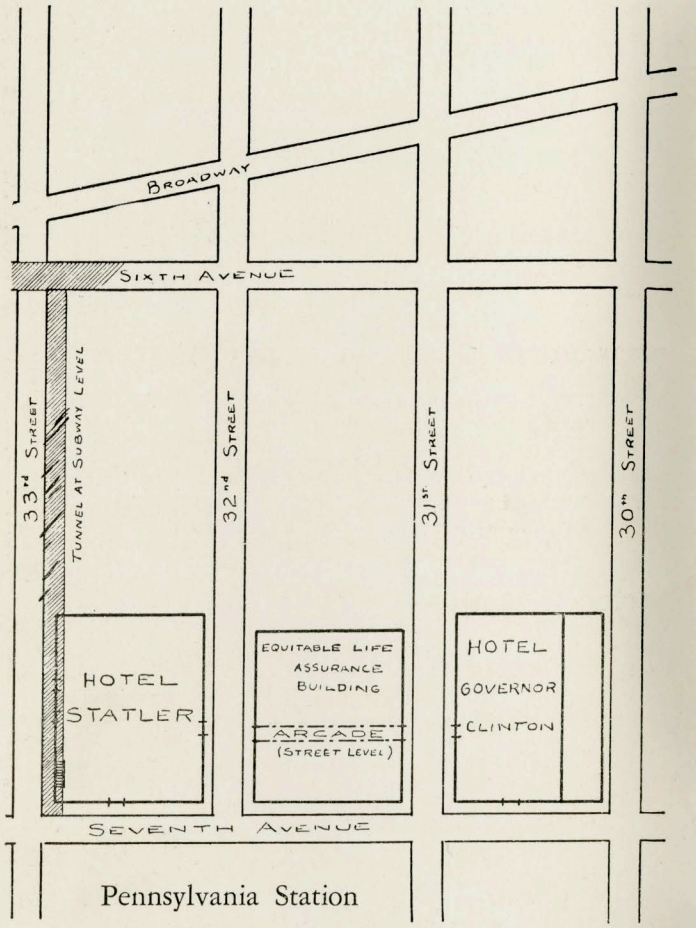
1956

Meeting Headquarters

HOTEL STATLER

1706 1956

Commemorating the 250th Anniversary of the birth of Benjamin Franklin



GENERAL INFORMATION

Our Winter General Meeting this year features the largest technical program ever organized for an Institute meeting. A group of inspection trips has also been arranged closely allied with the technical sessions. On the social side, there will be the Eta Kappa Nu Dinner, a dinner-dance, a smoker, theater tickets and special entertainment for the ladies.

Mr. Roger M. Blough, Chairman of the Board of Directors of the United States Steel Corporation, will deliver the principal address at the General Session to be held at 2:00 p.m., Monday, January 30, 1956. At this session also, the Alfred Noble Prize will be presented to Mr. R. L. Bright of the Westinghouse Electric Corporation, an honorary membership will be awarded to Past President James F. Fairman and the Institute Paper Prizes will be presented. President M. D. Hooven will preside.

In determining the technical sessions and committee meetings you wish to attend, please note that several have been assigned to the Hotel Governor Clinton, 7th Avenue and 31st Street.

REGISTRATION FEES REQUIRED. In accordance with the policy as set up by the Board of Directors, a registration fee of $5.00 has been established for members and a fee of $8.00 for nonmembers. This is to help make the meeting self-supporting. Student members and the immediate families of members will not be required to pay any fee.

INFORMATION on all features may be obtained at the registration desk. Efforts will be made to deliver telegrams and messages promptly. Members who expect to receive mail are asked to inquire frequently at the mail and registration desk.

BROADCAST TICKETS have been obtained for many of the principal broadcasts in various evenings during the week. These are available at the entertainment desk. Some prior reservations and theater tickets are still available.

TECHNICAL SESSIONS AND DISCUSSIONS are covered by the "Technical Sessions Guide" at the discretion of the presiding officers. Usually 10 minutes will be allowed for the presentation of each paper and 5 minutes for each discussion. To receive consideration for publication, discussion on TRANSACTIONS Papers in duplicate must be left with the chairman and/or sent to Edward C. Day, Assistant Secretary, Committee on Technical Operations, AIEE, 33 W. 39th Street, New York 18, N. Y., before February 17, 1956. Discussions received later may not be included, depending upon the printing schedule of the paper to which the discussion is directed. The original typewritten double-spaced copy, together with original illustrations as photographs or inked tracings should be submitted.

ADVANCE COPIES OF PAPERS may be purchased by members at the technical papers desk at the uniform price of $.40 each ($.80 each to nonmembers). Only numbered papers are 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 $10.00 denominations are available for those who wish to avoid remittance by check or otherwise. Mail orders should be addressed to the AIEE Order Department, 33 West 39th Street, New York 18, N. Y. The TRANSACTION Papers will also be published in the Bimonthly Publications. Note: Unnumbered Conference Papers (CP.*) may be available for sale at or after the meeting, if copies are provided by the author. They are not intended for publication in the TRANSACTIONS and are not presently scheduled for reproduction in any form by the Institute.

SCHEDULE OF EVENTS

For Entertainment, Inspection Trips and Points of Interest, See Separate Folder

MONDAY

10:00 A.M.

Carrier Current
Penn Top North
System Engineering
Ballroom
General Circuit Theory
*Chelsea Room**
Instr. and Meas.
West Room
Solid State Devices
Penn Top South
Land Transportation
Keystone Room
Communication Switching
*Florentine Room**
Corrosion of Line Hardware
Skytop
Steel Industry Power Sys.
*Governor Room**
Ethics
East Room
Wire Communications and Transmission and Distribution
Georgian Room

TUESDAY

9:30 A.M.

Section Delegates Conference
Penn Top North
Substations
Penn Top South
Insulated Conductors
Georgian Room
330 Kv System
Ballroom
Linear Circuit Theory
*Chelsea Room**
Instr. and Meas.
*Greeley Room**
Management
Skytop
New Electron Tubes
East Room
Land Transportation
West Room
Telegraph Systems
*Florentine Room**
Industrial Power Systems
Keystone Room
System Engineering and Computers
*Governor Room**

WEDNESDAY

9:30 A.M.

Rotating Machinery Insulation
*Florentine Room**
Transmission & Distribution
Ballroom
Power Generation
Georgian Room
Gaseous Dielectrics
Penn Top South
Education
Skytop
Magnetic Computer Circuits—
East Room
Domestic and Commercial Applications
*Governor Room**
Communication Theory
*Greeley Room**
Industrial Power Rectifiers
Penn Top North
Radio Communications
*Chelsea Room**
Lighting in Television
West Room
Electrothermal Processes
Keystone Room

THURSDAY

9:30 A.M.

Synchronous Machines
Penn Top South
Transmission & Distribution
*Governor Room**
Switchgear
Georgian Room
Research and Education
Ballroom
Analog Computer Applications
West Room
Metallic Rectifiers
Keystone Room
World Television & Color TV
East Room
Feedback Control
Skytop
Transformers
*Florentine Room**
Coordinating Committee No. 4
Penn Top North
Preventive Maintenance of Large Rectifier—Substations in Electrolytic Plants
*Chelsea Room**

FRIDAY

9:30 A.M.

DC Machines
*Florentine Room**
Transmission & Distribution
Ballroom
Transformers
Georgian Room
Switchgear
*Governor Room**
Thermal Evaluation of Magnet Wire
Skytop
Magnetic Amplifiers
Keystone Room
Medicine and Biology
East Room
Wire Communications
Penn Top South
Industrial Control
West Room
Electronic Circuits and Systems
Penn Top North
Computer Devices and Applications
*Chelsea Room**

* Located in the Hotel Governor Clinton, Seventh Avenue and 31st Street

2:00 P.M.

General Session
Ballroom

1:45 P.M.

Edison Medal Presentation to L. A. Umansky
Georgian Room

2:30 P.M.

Section Representatives—Public Relations Forum
Penn Top North
Insulated Conductors
Georgian Room
Relays
Ballroom
General Basic Sciences
*Chelsea Room**
Instruments and Measurements
*Greeley Room**
Safety
Penn Top South
Land Transportation
West Room
Telegraph Systems
*Florentine Room**
Electric Welding
Keystone Room
System Engineering and Power Generation
*Governor Room**
Electrostatic Processes
Skytop
New Electron Tubes
East Room

2:00 P.M.

Synchronous Machines and Insulation
East Room
Transmission & Distribution
Ballroom
Power Generation
Georgian Room
Liquid Dielectrics
Penn Top South
Research
Skytop
New Curricula in Engineering Education
*Governor Room**
Digital Computer—Circuits and Input-Output
*Greeley Room**
Marine Transportation
Keystone Room
Radio Communications
*Chelsea Room**
Industrial Power Rectifiers
Penn Top North
Research and Chemical Industry
*Florentine Room**

2:00 P.M.

Synchronous Machines
Penn Top South
Transmission & Distribution
*Governor Room**
Digital Computer in Transformer Design
West Room
Symposium on Field Breakers
Georgian Room
Solid Dielectrics
Penn Top North
Magnetic Amplifiers
Ballroom
Industrial TV and Broadcast Transmitters
East Room
Research
Keystone Room
Feedback Control
Skytop
Chemical Processes
*Florentine Room**
Electromagnetic Radiation from High Frequency Cables
*Chelsea Room**

2:00 P.M.

Computers in the Design of Machines and Systems
*Florentine Room**
Transmission & Distribution
Ballroom
Transformers
Georgian Room
Switchgear
*Governor Room**
Thermal Evaluation of Insulation
Skytop
Magnetic Amplifiers
Keystone Room
Wire Communications
Penn Top South
Industrial Control
West Room
Electronic Circuits and Systems
Penn Top North

* Located in the Hotel Governor Clinton, Seventh Avenue and 31st Street

Monday, January 30

10:00 a.m.—Carrier Current

Committee on Carrier Current
Penn Top North
G. E. FARMER, Presiding

56-64. III Attenuation Measurements, Bureau of Reclamation, Alva B. Adams Tunnel, 69KV Cable. R. W. Beckwith, D. C. Pinkerton. General Electric Co. and C. H. Murray, Bureau of Reclamation.

56-65. III The Application of Power Line Carrier to a Combined Cable and Overhead Circuit. J. D. Moynihan, Sprague Electric Co., and E. G. Allyn, Detroit Edison Co.

56-11. III Bibliography of Power System Communication Literature. Subcommittee on Bibliography.

CP.* Symposium—Application of Microwave Equipment to Power Systems. T. A. Cramer, General Electric Co.

10:00 a.m.—System Engineering

Committee on System Engineering
Ballroom
A. P. FUGILL, Presiding

56-158. III A New Approach to Forecasting Daily Peak Loads. D. K. A. Gillies, B. Bernholtz and P. J. Sandiford, The Hydro-Electric Power Commission of Ontario.

56-58. III What Do Losses Cost in Hydro, Thermal and Combined Systems? V. W. Ruskin, British Columbia Electric Co., Ltd.

CP56-159. An Equitable Method for the Distribution of Power Pool Savings. H. W. Phillips, Philadelphia Electric Co.

CP56-160. The Calculation of Block Tariffs. T. D. Oswald, Electricity Department, Singapore.

CP56-161. Maintenance Costs as an Electrical Design Consideration. C. J. Slatt, W. S. Acton and C. C. Diemond, Bonneville Power Administration.

10:00 a.m.—General Circuit Theory

Committee on Basic Sciences
Chelsea Room
S. B. BATDORF, Presiding

CP56-117. Analysis of Electric Circuits Containing Nonlinear Resistance. L. A. Pipes, University of California.

CP56-118. The Existence of an Electric Analogue of a Magnetic Circuit Established by the Basic Laws Defining Magnetostatics. E. C. Koenig, Allis-Chalmers Mfg. Co.

CP56-119. An Analysis and Design of the Ferroelectric Resonant Trigger Pair. C. E. Gremer, USN, Naval Guided Missile School.

CP56-120. Eddy Currents in a Frog-Leg Winding. A. I. Dvoracek, Research and Resettlement Branch, USAREUR.

56-121. I Representation of Non-linear Characteristics by Linear Elements. M. S. M. Abou-Hussein, University of Cairo.

56-122. I Impedance Tensor of General Electric Machine. Yao-nan Yu, National Taiwan University.

10:00 a.m.—Instruments and Measurements

Committee on Instruments and Measurements
West Room
E. B. CURDTS, Presiding

CP56-97. Electric Potential Changes at Surfaces as a Means of Measuring Odorous Atmospheric Contamination. C. R. Chapman and J. R. Eaton, Purdue University.

56-98. I Two New Total Radiation Pyrometers. W. Derganc and S. N. Howell, Servo Corp. of America.

CP56-99. Segmental Multi-Recording Instruments. George Keinath, Larchmont, N. Y.

CP56-321. Automatic Digital Recording of Flight Test Data. S. Cohen and L. Goldfischer, General Precision Labs., Inc.

MON. (contd.)

10:00 a.m.—Solid State Devices

Committee on Solid State Devices
Penn Top South
L. A. GRIFFITH, Presiding

CP.* High Frequency Junction Transistors. J. M. Early, Bell Telephone Labs., Inc.

CP.* Discussion of a New Type Power Transistor. Joseph Maupin, Minneapolis-Honeywell Regulator Co.

CP.* Recent Developments in Silicon Power Rectifiers. R. L. Bright, Westinghouse Electric Corp.

CP.* Partial Transistorization of a Communication Receiver. G. A. Allard, General Electric Co.

CP56-276. Temperature Stabilization in Transistor Amplifiers. L. M. Vallese, Polytechnic Institute of Brooklyn.

CP56-94. Transistor Power Amplifiers with Switched Mode of Operation. A. G. Milnes, Carnegie Institute of Technology.

56-252. I Field Effect Transistor Application. Chaang Huang, Melvin Marshall and B. H. White, Sylvania Electric Corp. Re-presented for discussion.

56-251. I Power Transistor Switching Circuits. Edwin Slobodzinski and Chaang Huang, Sylvania Electric Corp. Re-presented for discussion.

55-667. I Optimum Design of Common Emitter Transistor Audio Amplifiers. L. M. Vallese, Polytechnic Institute of Brooklyn. Re-presented for discussion.

56-261. I Transistor Analogue Computing Amplifiers for Flight Simulators. R. C. Weyrick, Goodyear Aircraft Corp. Re-presented for discussion.

10:00 a.m.—Land Transportation

Committee on Land Transportation
Keystone Room
J. C. PRICE, Presiding

CP56-95. Modernization of the Long Island Rail Road Passenger Car Fleet. P. H. Hatch, Long Island Railroad Co.

CP56-256. The Light Weight Train—Its Power Supply and Auxiliaries. J. L. Swarner, Pullman Standard Car Mfg. Co.

CP56-96. Outline of Improvements Made in the Design, Maintenance and Operation of the Milwaukee Railroad Electrification. Laurence Wylie, Chicago, Milwaukee, St. Paul and Pacific R. R.

55-627. II Harmonics from Railroad Rectifiers on Power System Reduced by Filters. S. J. Bozzella, Long Island Lighting Co., J. L. Kennedy, Long Island Railroad Co., M. Mahr, Jr., New York Telephone Co., and H. W. Wahlquist, Ebasco Services, Inc.

10:00 a.m.—Communication Switching Systems

Committee on Communication Switching Systems
Florentine Room
W. KEISTER, Presiding

56-162. I Several-Valued Combinational Switching Circuits. C. Y. Lee, Bell Telephone Labs., Inc. and W. H. Chen, University of Florida.

CP.* A Serial Method for Numbering the Slots on a Magnetic Drum. J. J. Yostpille and A. E. Joel, Bell Telephone Labs., Inc.

CP.* New Telephone Network Switching Facilities. A. E. Batchelet, C. A. Collins and E. R. Taylor, Bell Telephone Labs., Inc.

CP.* Principles of Operation of the North By-Path Crossbar System. Eric Brooke, North Electric Co.

10:00 a.m.—Corrosion of Line Hardware

Committee on Transmission and Distribution
Skytop
J. A. RAWLS, Presiding

56-230. III Corrosion as it Affects Insulator and Conductor Hardware. A. W. Bardeen and J. M. Sheadel, The Ohio Brass Co.

MON. (contd.)

CP56-270. Field Experience with Corrosion of Distribution Material. A. S. Hadfield, Virginia Electric and Power Co.

CP.* Trends in the Availability, Cost and Use of Longer-Life Materials for Overhead System Construction. L. P. Schmitt, D. B. Hamister and D. H. Fletcher, The Joslyn Co.

CP.* Corrosion Considerations in the Design of Electrical Distribution Equipment. R. M. Amundson, Line Material Co.

CP.* Corrosion of Line Hardware. John Eberle, Hubbard Co.

10:00 a.m.—Power Systems for the Steel Industry

Committees on Mining and Metal Industry and Industrial Power Systems

Governor Room

W. E. MILLER, Presiding

CP.* Distribution Systems Practice in Steel Plants. B. J. Auburn, Auburn and Associates, Inc.

CP.* Power Generation in the Steel Industry. W. P. Gavit and R. R. Wagstaff, United Engineers and Constructors, Inc.

CP56-66. The Application of Reactance in the Design of Steel Mill Distribution Systems. G. B. Scheer, Kaiser Engineers.

56-22. II Economic Studies Applied to Industrial Power Systems. H. B. Backenstoss, Jackson & Moreland.

10:00 a.m.—Ethics in Engineering Practice

Committee on Code of Principles of Professional Conduct

East Room

H. W. BIBBER, Presiding

CP.* The Unfinished Business of Engineering Ethics. P. L. Alger.

Panel Discussion of Case Problems. Opportunity for audience to express views on problems of ethics in discussion from the floor and through the "opinion meter." Members of Panel: C. T. Chave, M. S. Coover, D. F. Langenwalter, C. F. Savage and E. C. Starr.

10:00 a.m.—Wire Communications and Transmission and Distribution

Committees on Wire Communication Systems and Transmission and Distribution

Georgian Room

L. B. GREW, Presiding

56-237. I Coordinated Protection for Open Wire Joint Use—Present Trends. W. R. Bullard, Ebasco Services, Inc. and H. E. Weppler, American Tel. & Tel. Co.

56-239. I Coordinated Protection for Open Wire Joint Use—Minneapolis Tests. A. E. Dietz, Bell Telephone Labs., Inc., E. G. Albrecht, Northwestern Bell Telephone Co., E. W. Christoferson and J. C. Slothower, Northern States Power Co.

56-238. I Coordinated Protection for Open Wire Joint Use—Ontario Tests. H. M. Ellis, R. E. Treen, Hydro-Electric Power Commission of Ontario, J. W. Phelps, Bell Telephone Labs., Inc. and C. L. Roach, Bell Telephone Co., Ltd. of Canada.

2:00 p.m.—General Session

Ballroom

President M. D. HOOVEN, Presiding

"Address." President M. D. Hooven.

Presentation of the Institute Paper Prizes

Communication Division:
1st Prize Paper by: M. J. Kelly, Sir W. Gordon Radley, G. W. Gilman and R. J. Halsey.
2nd Prize Paper by: G. H. Huber, W. F. Miller and C. W. Schramm.

General Applications Division:
1st Prize Paper by: M. Simon.
2nd Prize Paper by: C. G. Martin.

Industry Division:
1st Prize Paper by: A. R. Kelly.
2nd Prize Paper by: T. H. Lee.

Power Division:
1st Prize Paper by: A. H. Kidder and J. H. Neher.
2nd Prize Paper by: E. D. Early, R. E. Watson and G. L. Smith.

Science and Electronics Division:
1st Prize Paper by: R. L. Bright.
2nd Prize Paper by: R. W. Roberts and R. I. Van Nice.

Student Division:
1st Prize Paper by: M. C. Biedebach.
2nd Prize Paper by: Arvin Grabel.

Presentation of the Alfred Noble Prize to R. L. Bright, Westinghouse Electric Corp. by Mr. E. R. Needles, President, American Society of Civil Engineers.

Honorary Membership Presentation to Past President James F. Fairman, Vice-President, Engineering and Rates, Consolidated Edison Company of New York, Inc.

"Address." Roger M. Blough, Chairman of the Board of Directors, U. S. Steel Corp.

Tuesday, January 31

9:30 a.m.—Section Delegates Conference

Sections Committee

Penn Top North

DIXON LEWIS, Presiding

9:30 a.m.—Substations

Committee on Substations

Penn Top South

I. S. MENDENHALL, Presiding

56-123. III Short Circuit Tests on 138 Kv Busses. D. W. Taylor and C. M. Stuehler, Public Service Electric and Gas Co.

56-7. III New Design of Control Installations in Transmission Stations. G. M. Mulhern and D. W. O'Neill, Electricity Supply Board, Ireland.

CP56-42. Location and Design of Distribution Substations in Residential Areas. J. W. Erven, Los Angeles Dept. of Water and Power; C. S. Fiske, Baltimore Gas and Electric Co.; P. F. Hargreaves, Puget Sound Power & Light Co.; E. M. Hunter, General Electric Co.; P. R. Pierson, Westinghouse Electric Corp.; and O. J. Rotty, Union Electric Co. of Missouri.

9:30 a.m.—Insulated Conductors

Committee on Insulated Conductors

Georgian Room

L. E. FOGG, Presiding

56-67. III The Penetration of Electromagnetic Radiation into Ferro-Magnetic Material. C. A. Adams, Philadelphia, Penn.

56-68. III Oil Flow and Pressure Calculations for Self-Contained Oil-Filled Cable Systems. F. H. Buller, General Electric Co., J. H. Neher, Philadelphia Electric Co., and F. O. Wollaston, Britsh Columbia Electric Co., Ltd.

56-69. III Charging Current Limitations in Operation of High-Voltage Cable Lines. C. S. Schifreen and W. C. Marble, Philadelphia Electric Co.

9:30 a.m.—330 Kv System

Power Division

Ballroom

T. J. BROSNAN, Presiding

56-231. III Lightning and Corona Performance of 330 Kv Lines on the American Gas and Electric and Ohio Valley Electric Corporation Systems. W. S. Price, S. C. Bartlett and E. S. Zoble, American Gas & Electric Service Corp.

56-232. III Line Dropping Tests on a 330 Kv Oil Circuit Breaker. Otto Naef, American Gas & Electric Service Corp. and R. E. Friedrich, Westinghouse Electric Corp.

56-233. III 330 Kv Power Transformer with Compensation to Provide Accurate Low Voltage Metering Potential. P. S. Pugh, American Gas & Electric Service Corp. and T. G. Gerwing, Westinghouse Electric Corp.

TUES. (contd.)

56-234. III Relay Protection for the Ohio Valley Electric Corporation 330 Kv System. H. C. Barnes, A. Hauspurg and J. H. Kinghorn, American Gas and Electric Service Corp.

56-235. III Sleet Melting on 330-Kv Lines of American Gas and Electric Co. and Ohio Valley Electric Corp. Systems. C. F. DeSieno, C. A. Imburgia and G. H. McDaniel, American Gas & Electric Service Corp.

9:30 a.m.—Linear Circuit Theory

Committee on Basic Sciences
Chelsea Room
W. R. LE PAGE, Presiding

CP56-124. Non-Singular Transformation from Primitive to Network Equations. N. B. Saunders, Weston, Mass.

56-125. I Some Mathematical Properties of Root Loci for Control-System Design. F. M. Reza, Syracuse University. Re-presented for discussion.

56-126. I Synthesis of Transfer Functions with Poles Restricted to the Negative Real Axis into Two Parellel R-C Ladders and an Ideal Transformer. M. G. Malti, Cornell University and H. H. Sun, Drexel Institute of Technology.

CP56-127. Design of a Minimum Transmission Loss Tschebycheff Two-Pole Matching Network. J. L. Dautremont and P. H. Rogers, University of Michigan.

56-128. I Note on the Approximation Problem. Norman Balabanian, Syracuse University. Re-presented for discussion.

9:30 a.m.—Instruments and Measurements

Committee on Instruments and Measurements
Greeley Room
J. H. MILLER, Presiding

56-60. I Galvanometer Efficiency as a Design Parameter. F. K. Harris, National Bureau of Standards.

CP56-100. Advanced Design in a Small Clamp Volt-Ammeter. R. F. Estoppey, Weston Electrical Instrument Corp.

CP56-101. A Miniaturized Temperature Compensated Meter Rectifier. E. L. Pagano, Bradley Labs., Inc.

CP56-102. Differential Speed Indicator. A. H. Wolferz, Weston Electrical Instrument Corp.

56-265. I. An Instrument for Measuring Spot Size. R. B. Kuhn and D. Levine, Goodyear Aircraft Corp. Re-presented for discussion.

9:30 a.m.—Management

Committee on Management
Skytop
L. R. GATY, Presiding

CP.* Effective Salary Administration. C. J. Beller, Cleveland Electric Illuminating Co.

CP.* Systems Engineering Administration. J. H. Rubel, Hughes Aircraft Co.

9:30 a.m.—New Electron Tubes

Committee on Electronics
East Room
W. G. DOW, Presiding

56-86. I Application of Statistical Techniques to Electron Tubes for Use in a 4,000 Mile Transmission System. W. Van Haste, Bell Telephone Labs., Inc. Re-presented for discussion.

CP.* Design of a Five-Kilowatt Ceramic Power Tetrode. F. C. Johnstone, Eitel-McCullough, Inc.

CP.* Microwave Applications of Gaseous Discharges. P. E. Dorney, Roger White Electron Devices, Inc.

CP.* Developments in the Retarding-Field Oscillator. C. J. Carter and W. H. Cornetet, Jr., Ohio State University.

CP.* Some Characteristics and Uses of Traveling Wave Tubes. R. E. White, Roger White Electron Devices, Inc.

TUES. (contd.)

9:30 a.m.—Land Transportation

Committee on Land Transportation
West Room
D. F. HANEY, Presiding

CP.* Modernization of Electrical Equipment on Diesel Electric Locomotives. W. A. Kirsch, Westinghouse Electric Corp.

CP.* Modernization of Electrical Equipment on Alco Diesel-Electric Locomotives. J. F. Russell, Alco Products, Inc.

CP.* Modernization During Factory Rebuilding of Diesel-Electric and Electric Locomotives. K. O. Anderson, General Electric Co.

9:30 a.m.—Telegraph Systems

Committee on Telegraph Systems
Florentine Room
R. B. SHANCK, Presiding

CP.* Tests of Intercity Transmission of Teletypesetter Signals at 600 Words Per Minute. H. A. Rhodes, American Tel. & Tel. Co.

CP.* Transmission of Synchronous Teleprinter Signals Through a Channel of a Time-Division Multiplex Without Intersystem Synchronization. E. N. Dinley, Jr., U. S. Department of Defense.

56-28. I Simplified Printing Telegraph Switching and Integrated Data Processing. J. B. Booth and R. H. Klich, Teletype Corp.

CP.* Transistor-Type Printing Telegraph Transmitter-Distributor. H. C. Isaacs, Western Union Telegraph Co.

9:30 a.m.—Industrial Power Systems

Committee on Industrial Power Systems
Keystone Room
C. I. MAUST, Presiding

CP56-129. Low-Voltage Switching and Protective Device Characteristics. H. W. Huening, Jr., General Electric Co.

CP.* Electric Power Distribution in New York's Mammoth Coliseum Building. H. D. Kurt and L. E. Fisher, General Electric Co.

CP56-277. Selection of Utilization Voltages for Large Commercial Buildings with Primary Service. D. L. Johnson and D. Beeman, General Electric Co.

CP56-130. Molded Case Circuit Breakers and Their Application in Commercial Buildings. N. J. Schwartz, Heinemann Electric Co. and J. B. Clapp, General Cable Corp.

CP56-250. Fault Protection in Large Buildings Supplied by 265/460V Network. William Deans, I-T-E Circuit Breaker Co., J. DeLellis and A. J. Bisson, Consolidated Edison Co. of New York, Inc.

CP.* Emergency Service for Commercial Buildings. E. P. Peabody, General Electric Co.

9:30 a.m.—System Engineering and Computers

Committees on Computing Devices and System Engineering
Governor Room
E. E. GEORGE, Presiding

56-163. III Loss Evaluation—IV. Economic Dispatch Computers Principles and Application. E. L. Harder, Westinghouse Electric Corp. and W. H. Osterle, West Penn Power Co.

56-57. III Loss Evaluation—V, Economic Dispatch Computer—Design. R. B. Squires, R. T. Byerly, Westinghouse Electric Corp., H. W. Colborn and W. R. Hamilton, West Penn Power Co.

56-164. III Digital Computer Solution of Power Flow Problems. J. B. Ward and H. W. Hale, Purdue University.

56-18. III The Use of Analogue Computers in Power System Studies. J. E. Van Ness, Northwestern University and W. C. Peterson, Michigan State University.

TUES. (contd.)

1:45 p.m.—Edison Medal Presentation to L. A. Umansky

Georgian Room
President M. D. HOOVEN, Presiding

Establishment of the Edison Medal. E. P. Yerkes, Chairman, Edison Medal Committee.

Career of the Medalist. F. M. Roberts, Manager, Systems Application Engineering Section, General Electric Co.

Presentation of Medal and Certificate, President M. D. Hooven.

Response of the Medalist. L. A. Umansky.

2:30 p.m.—Section Representatives—Public Relations Forum

Sections Committee
Penn Top North
DIXON LEWIS, Presiding

2:30 p.m.—Insulated Conductors

Committee on Insulated Conductors
Georgian Room
M. W. CHEN, Presiding

56-70. III Experimental 138 Kv Cable and Accessories. Herman Halperin, Commonwealth Edison Co.

56-48. III Guide to Joint Design for Rubber, Varnished Cambric and "Solid" Type Paper Insulated Cable. J. E. Johnson, Philadelphia Electric Co.

56-71. III Application of Polyethylene-Insulated High Voltage Power Cable in Chemical Plants. S. J. Rosch, Anaconda Wire & Cable Co.

56-8. III Current Rating of Aluminum Multiplex Cable. L. F. Roehmann, Kaiser Aluminum & Chemical Corp.

2:30 p.m.—Relays

Committee on Relays
Ballroom
FRANK VON ROESCHLAUB, Presiding

56-13. III A Survey of Relay Test Methods. Project Committee on Relay Test Methods.

56-165. III Relay Protection of Motors in Steam Power Stations with 4 KV Grounded Neutral Systems. W. F. Neff, Ohio Valley Electric Corp., S. H. Horowitz, American Gas and Electric Service Corp. and R. B. Squires, Westinghouse Electric Corp.

CP56-280. New Thermal Overload Relay with Instantaneous Magnetic Trip on Faults. W. L. Smith and C. A. Lister, Electric Controller and Mfg. Co.

CP.* Application of Low Voltage Switchgear for Motor Control. E. W. Davis, E. I. duPont de Nemours and Co., Inc.

CP.* A Transistor Controlled Negative Phase Sequence Alarm Relay. W. C. Morris and M. E. Hodges, General Electric Co.

2:30 p.m.—General Basic Sciences

Committee on Basic Sciences
Chelsea Room
W. C. DUNLAP, Jr., Presiding

56-131. I Electrical Formulas in Inch Units of Length. J. W. Williamson, Cleveland, Ohio.

56-133. I Magnetic Effects of Compressional Stress at Low Field Intensities. R. E. Fischell, Naval Ordnance Laboratory.

CP.* Economics of Multimillion Watt-Second Inductive Energy Storage. H. C. Early and R. C. Walker, University of Michigan.

56-49. I Analogue Computer Synthesis and Error Matrices. P. M. Honnell, Washington University and R. E. Horn, Westinghouse Electric Corp.

2:30 p.m.—Instruments and Measurements

Committee on Instruments and Measurements
Greeley Room
H. SOHON, Presiding

56-25. I An A-C Kelvin Bridge for the Audio Frequency Range. B. L. Dunfee, National Bureau of Standards.

MON. (contd.)

CP56-103. Wattmeter, Voltmeter, and Ammeter Bridge Circuit. N. Vrana, Cornell University.

56-26. I The Use of an A-C Bridge to Measure Core Loss at High Inductions. I. L. Cooter and W. P. Harris, National Bureau of Standards.

56-104. I Measuring 1,800,000 Kw Demand. J. A. Morris and H. C. Thomas, General Electric Co.

CP56-287. A Voltage-Dip Amplifier. H. R. Lenz, Philadelphia Electric Co.

2:30 p.m.—Safety

Committee on Safety
Penn Top South
H. H. WATSON, Presiding

56-72. III Electrostatic Explosion Controls in Hospital Operating Rooms. Robin Beach, Robin Beach Engineers Associated. Re-presented for discussion.

56-6. III Effect of Capacitor Discharges on the Heart. W. B. Kouwenhoven, The Johns Hopkins University.

CP56-278. Emergency Power for Hospitals. N. L. Griffin, U. S. Department of Health, Education and Welfare.

CP.* Emergency and Exit Lighting in Theatres. S. R. Todd, City of Chicago.

CP56-279. Throwover Equipment and Unit Equipment for Emergency Lighting. Carl Ippolito, Dual-Lite Co., Inc.

2:30 p.m.—Land Transportation

Committee on Land Transportation
West Room
J. C. FOX, Presiding

CP56-105. An Air-Cleaning Blower for Ventilating Traction Equipment. J. J. Gallagher, General Electric Co.

CP56-286. A High Voltage D.C. Insulation Tester and Its Application tion to Railway Electrical Equipment. J. K. Hewson, Hewson Co., Inc. and D. E. Stafford, National Electric Coil Co.

CP56-372. D. C. High Voltage Testing and Maintenance of D. C. Traction Motors. W. Schneider, Westinghouse Electric Corp.

56-36. III On Wire Banding. E. C. Appleby and P. G. Lessmann, Westinghouse Electric Corporation.

2:30 p.m.—Telegraph Systems

Committee on Telegraph Systems
Florentine Room
R. B. SHANCK, Presiding

56-106. I Static Elimination on Bell System Teletypewriters. H. Bayley, Massachusetts Dept. of Labor and Industries, D. B. Perry, American Tel. & Tel. Co. and B. S. Swezey, Bell Telephone Labs., Inc.

56-107. I Delay Distortion Correction. W. D. Cannon, Western Union Telegraph Co.

56-108. I A Flat-Bed Facsimile Telegraph Transmitter. W. D. Buckingham, Western Union Telegraph Co.

CP.* Effect of Multipath Transmission on Facsimile Signals. P. R. Marzan, Times Facsimile Corp.

2:30 p.m.—Electric Welding

Committee on Electric Welding
Keystone Room
E. J. LIMPEL, Presiding

CP56-109. Influence of Atmospheric Water Vapor on High Current D-C Arcs. R. H. Benner II, Erlton, New Jersey and T. B. Jones, The Johns Hopkins University.

56-110. II Cathode Instability in Argon Atmospheres. H. C. Ludwig, Westinghouse Electric Corp.

56-111. II Let-Go Currents and Voltages. C. F. Dalziel, University of California and F. P. Massoglia, San Francisco Naval Shipyard.

TUES. (contd.)

1:45 p.m.—Edison Medal Presentation to L. A. Umansky

Georgian Room
President M. D. HOOVEN, Presiding

Establishment of the Edison Medal. E. P. Yerkes, Chairman, Edison Medal Committee.

Career of the Medalist. F. M. Roberts, Manager, Systems Application Engineering Section, General Electric Co.

Presentation of Medal and Certificate, President M. D. Hooven.

Response of the Medalist. L. A. Umansky.

2:30 p.m.—Section Representatives—Public Relations Forum

Sections Committee
Penn Top North
DIXON LEWIS, Presiding

2:30 p.m.—Insulated Conductors

Committee on Insulated Conductors
Georgian Room
M. W. CHEN, Presiding

56-70. III Experimental 138 Kv Cable and Accessories. Herman Halperin, Commonwealth Edison Co.

56-48. III Guide to Joint Design for Rubber, Varnished Cambric and "Solid" Type Paper Insulated Cable. J. E. Johnson, Philadelphia Electric Co.

56-71. III Application of Polyethylene-Insulated High Voltage Power Cable in Chemical Plants. S. J. Rosch, Anaconda Wire & Cable Co.

56-8. III Current Rating of Aluminum Multiplex Cable. L. F. Roehmann, Kaiser Aluminum & Chemical Corp.

2:30 p.m.—Relays

Committee on Relays
Ballroom
FRANK VON ROESCHLAUB, Presiding

56-13. III A Survey of Relay Test Methods. Project Committee on Relay Test Methods.

56-165. III Relay Protection of Motors in Steam Power Stations with 4 KV Grounded Neutral Systems. W. F. Neff, Ohio Valley Electric Corp., S. H. Horowitz, American Gas and Electric Service Corp. and R. B. Squires, Westinghouse Electric Corp.

CP56-280. New Thermal Overload Relay with Instantaneous Magnetic Trip on Faults. W. L. Smith and C. A. Lister, Electric Controller and Mfg. Co.

CP.* Application of Low Voltage Switchgear for Motor Control. E. W. Davis, E. I. duPont de Nemours and Co., Inc.

CP.* A Transistor Controlled Negative Phase Sequence Alarm Relay. W. C. Morris and M. E. Hodges, General Electric Co.

2:30 p.m.—General Basic Sciences

Committee on Basic Sciences
Chelsea Room
W. C. DUNLAP, Jr., Presiding

56-131. I Electrical Formulas in Inch Units of Length. J. W. Williamson, Cleveland, Ohio.

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56-111. II Let-Go Currents and Voltages. C. F. Dalziel, University of California and F. P. Massoglia, San Francisco Naval Shipyard.

56-132. Properties of a D.C. Arc in a Magnetic Field. L. P. Winsor, I Rensselaer Polytechnic Institute and T. H. Lee, General Electric Co.

56-112. Inert Gas-Shielded Welding Arc Behavior and Metal Transfer II Characteristics. G. M. Skinner and D. M. Yenni, Linde Air Products Co.

2:30 p.m.—System Engineering and Power Generation
Committees on System Engineering and Power Generation
Governor Room
H. C. Otten, Presiding

56-19. Evaluation of Unit Capacity Additions. M. J. Steinberg and III V. N. Cook, Consolidated Edison Co. of N. Y., Inc.

CP.* A New Automatic Dispatching System for Electric Power Systems. B. R. Shepard, D. W. Halfhill and K. N. Burnett, General Electric Co.

CP56-166. Stability Considerations in Reactive Support Programs. D. W. Spence, D. D. Nadkarni and J. E. Ziegler, Syracuse University.

2:30 p.m.—Electrostatic Processes
Committee on Electronics
Skytop
H. J. WHITE, Presiding

CP.* Measurements of Charge Imparted to Fine Particles by a Corona Discharge. G. W. Penney and R. D. Lynch, Carnegie Institute of Technology.

CP.* The Charging of Small Particles for Electrostatic Precipitation. G. W. Hewitt Westinghouse Electric Corp.

56-113. A New Technique for the Measurment of Corona Field I Strength and Current-Density in Electrical Precipitation. P. Cooperman, Research-Cottrell, Inc.

CP.* Proposed Industry Standard for Electrostatic Precipitation Power Supply Equipment. J. W. Farr, General Electric Co. and G. R. Monroe, Westinghouse Electric Corp.

56-114. Practical Applications of Electrostatic Phenomena to Par- I ticulate Matter. O. C. Ralston, Bureau of Mines.

CP56-116. A New Scrapless Lamination for Transformers. H. L. Garbarino, Armour Research Foundation.

2:30 p.m.—New Electron Tubes
Committee on Electronics
East Room
D. S. PECK, *Presiding*

CP.* Electrical Loss Problems Encountered in UHF Ceramic Tube Development. R. L. Bailey, General Electric Co.

CP.* Hot Cathode Design for Gas Tubes. S. Goldberg and K. J. Germeshausen, Edgerton, Germeshausen and Grier, Inc.

CP.* A New Subminiature Thyratron for Airborne Applications. H. J. Prager, Radio Corp. of America.

CP.* A New Micro-Miniature Ceramic Triode. J. M. Connelly, General Electric Co.

Wednesday, February 1

9:30 a.m.—Rotating Machinery Insulation
Committee on Rotating Machinery
Florentine Room
C. E. ASBURY, Presiding

56-45. Experience and Development in Non-Destructive D-C Test- III ing for Maintenance of High-Voltage Stators. A. W. W. Cameron and A. M. Sinclair, The Hydro-Electric Power Commission of Ontario.

56-51. Testing of Main Turbine Generator Insulation. J. E. Mul- III avey, The Detroit Edison Co.

CP.* Compatibility in Motor Insulation Systems. H. R. Sheppard and G. L. Mullen.

WED. (contd.)

CP.* Evaluation of Modified Silicone Insulation Systems and Motors. H. R. Sheppard and G. L. Mullen.

56-177. A Statistical Method for Predicting Insulation Life from III Experimental Data. W. H. Horton, Westinghouse Electric Corp. Re-presented for discussion.

9:30 a.m.—Transmission and Distribution
Committee on Transmission and Distribution
Ballroom
E. R. HENDRICKSON, Presiding

56-3. Operating Experience with 14.4/24.9 Kv as a Rural Dis- III tribution Voltage. W. M. Edmunds and L. B. Crann, Rural Electrification Admin. Re-presented for discussion.

56-167. 4 Kv vs 13.8 Kv Distribution on the Boston Edison Company III System. L. J. Weed, Boston Edison Co.

56-168. Overhead Distribution at 14.6 Kv and 12.47 Kv in Urban III Areas. J. R. Oberholtzer and F. E. Sanford, Commonwealth Associates, Inc.

56-169. Improve Existing 4 Kv Expand at 12 Kv. G. A. Davis III Southern Calif. Edison Co.

CP.* General Purpose Overhead Distribution Above 5 Kv. W. R. Bullard, Ebasco Services, Inc.

CP56-170. Higher Voltage Primary Distribution. A. J. Pansini, Long Island Lighting Co.

56-171. Is Conversion to Higher Distribution Voltage Justified? H. III G. Dallas and J. W. Gallagher, Philadelphia Electric Co.

56-172. Use of Distribution Voltages Above 4 Kv. E. V. Sayles, Con- III sumers Power Co.

9:30 a.m.—Power Generation
Committee on Power Generation
Georgian Room
J. H. KINGHORN, Presiding

56-136. The Operations Recorder—A High Speed Printing Annunci- III ator. J. R. Leslie and G. M. Keyser, The Hydro-Electric Power Commission of Ontario.

CP56-137. Operation of Large Synchronous Generators in the Dynamic Stability Region with a Modern Amplidyne Voltage Regulator—Part I—Recommendations for Setting the Under-excited Reactive Ampere Limit. R. A. Phillips and A. S. Rubenstein, General Electric Co.

CP56-138. Operation of Large Synchronous Generators in the Dynamic Stability Region with a Modern Amplidyne Voltage Regulator—Part II—Operating Tests and Analytical Studies. K. R. McClymont, P. L. Dandeno, The Hydro-Electric Power Commission of Ontario, R. A. Phillips and A. S. Rubenstein, General Electric Co.

56-146. Economic Comparison of Steam Turbine vs. Motor Driven III Boiler Feed Pumps. A. G. Mellor, R. C. Muir, J. F. O'Mara and J. F. Ransom, General Electric Co.

9:30 a.m.—Gaseous Dielectrics
Committee on Dielectrics
Penn Top South
T. W. LIAO, Presiding

CP.* On the Electric Breakdown of Electronegative Gases. R. W. Crowe and J. C. Devins, General Electric Co.

CP56-291. Electrical Breakdown of Gases and Vapors of Chloro-fluoro-hydrocarbons. C. N. Works and E. W. Lindsay. Westinghouse Electric Corp.

CP.* The Effect of Solid Insulation and Contaminants on Gaseous Insulation in Insulation Structures. G. Camilli and T. W. Liao, General Electric Co.

56-115. Calculations of Corona Starting Voltage in Air-Solid Dielec- I tric Systems. M. C. Halleck, General Electric Co.

56-258. Considerations in Specifying Corona Tests. C. W. Ross and E. B. Curdts, J. G. Biddle Co.

WED. (contd.)

9:30 a.m.—The Management of Cooperative Engineering Education Program

Committee on Education
Skytop
E. W. BOEHNE, Presiding

CP.* Cooperative Education in the United States. H. H. Armsby, U. S. Office of Education.

CP56-284. Philosophy and Operation of an Undergraduate Cooperative Program of Engineering Education. J. A. M. Lyon and C. E. Watson, Northwestern University.

CP.* The Role of Elective Cooperative Programs in Modern Engineering Education. S. B. Wiltse, Rensselaer Polytechnic Institute, E. M. Strong, Cornell University and E. W. Boehne, Massachusetts Institute of Technology.

CP.* An Industry View of Cooperative Engineering Education. H. G. Hutton, General Electric Co.

9:30 a.m.—Magnetic Computer Circuits—Analogue and Digital

Committee on Computing Devices
East Room
J. W. MAUCHLY, Presiding

56-134. I Transcendental Function Analogue Computation with Magnetic Cores. D. H. Schaefer and R. L. Van Allen, U. S. Naval Research Lab.

CP.* A Dual Link Magnetic Circuit and Its Application. R. D. Kodis, Raytheon Mfg. Co.

CP.* Megacycle Data Processing with Magnetic Amplifiers Part I —General. T. H. Bonn and R. D. Torrey, Sperry Rand Corp.

CP.* Megacycle Data Processing with Magnetic Amplifiers Part II —Power Gain Calculation. R. D. Torrey and R. W. Spencer, Sperry Rand Corp.

CP.* Megacycle Data Processing with Magnetic Amplifiers Part III —Typical Computer Circuits. W. F. Steagall, Sperry Rand Corp.

9:30 a.m.—Domestic and Commercial Applications

Committee on Domestic and Commercial Applications
Governor Room
B. H. MARTIN, Presiding

CP.* Service to All-Electric Home. W. R. New, Tennessee Valley Authority.

CP56-236. Heat as a Means of Air Purification. J. C. Beckett, Wesix Electric Heater Co. and C. E. Clifton, Stanford University.

CP56-253. Trends in Electric Space Heating Controls. J. C. Beckett, Wesix Electric Heater Co.

CP.* Panel Discussion—Electric Space Heating and Air Conditioning. J. E. Goff, Ceil-heat, Inc., R. L. Boyd, Jr., Commercial Controls Corp., C. F. Kreiser, Edwin L. Wiegand Co. and J. E. Woodward, Union Electric Co. of Missouri.

9:30 a.m.—Communication Theory

Committee on Communictaion Theory
Greeley Room
L. G. ABRAHAM, Presiding

56-73. I A First Look at Random Noise. S. O. Rice, Bell Telephone Labs., Inc.

CP.* Photographic Simulation of One Type of Bandwidth Reduction of Television Signals. W. C. Morrison, K. Karstad and J. W. Tuska, RCA Labs.

56-74. I Principles of Noise Reduction in Communication Channels. L. S. Schwartz, New York University.

9:30 a.m.—Industrial Power Rectifiers

Committee on Industrial Power Rectifiers
Penn Top North
G. M. ZINS, Presiding

56-44. II Rectifier Power Supply for a Modern Rod Mill. R. A. Buchanan and W. R. Hodgson, Westinghouse Electric Corp.

WED. (contd.)

56-173. II Sealed Ignitron Principles Extended to Large Tubes. J. L. Boyer and A. P. Colaiaco, Westinghouse Electric Corp.

CP.* Application of Power Rectifiers to Regenerative Drives. A. Schmidt, Jr. and M. M. Morack, General Electric Co.

CP56-174. Service Life of Pumpless Ignitrons. E. J. Remscheid, General Electric Co.

9:30 a.m.—Radio Communications

Committee on Radio Communications Systems
Chelsea Room
E. D. BECKEN, Presiding

CP.* Time Division Multiplex/ARQ. A. Kahn and A. Liguori, RCA Labs.

CP.* Design and Application of Ruggedized Traveling Wave Tubes. A. G. Peiffer and W. N. Weber, Federal Telephone & Radio Co.

CP.* Radial Transmission Line Cavities—Non-symmetrical Modes. H. Havstad, Federal Telephone & Radio Co.

56-32. I Standing-Wave-Ratio of Inaccessible Load. C. Polk, University of Pennsylvania.

56-257. I Design of Electronic Equipment for Radio Interference Reduction. A. L. Albin and H. M. Sachs, Armour Research Foundation. Re-presented for discussion.

9:30 a.m.—Light Amplifiers, Flourescent Light, Radio Interference and TV Studio Lighting

Committees on Production and Application of Light and Television and Aural Broadcasting Systems
West Room
I. S. COGGESHALL, Presiding

CP.* Light Amplifying Phospors. F. E. Williams, General Electric Research Labs.

56-75. II Evaluation of Radio Influence Voltages in Fluorescent Lighting Installations. F. H. Wright and S. A. Zimmermann, General Electric Co.

56-76. I Conversion of Studio Lighting from Black and White to Color TV. P. W. Wygant, TV Station WBAP-TV.

CP.* Reduction of TV Studio Temperatures Using Heat Control Coatings. G. T. Howard, General Electric Co. and A. F. Turner, Bausch and Lomb Optical Co.

9:30 a.m.—Electrothermal Processes

Committee on Chemical Industry
Keystone Room
E. J. BORREBACH, Presiding

CP.* Transformers for Electric Furnaces. E. F. Christensen and G. Kardsaen, Jr., General Electric Co.

CP.* Electric Arc Furnace Controls. C. W. Vokac, Whiting Corp.

CP56-249. The Synchronous Condenser for Arc Furnace Loads. S. E. McDowell, Allis-Chalmers Mfg. Co.

CP.* Problems Associated with Arc Furnace Melting of Copper. F. D. Shaw, American Smelting & Refining Co.

1:15 p.m.—ETA KAPPA NU FILM

Georgian Room
"Engineering—A Career for Tomorrow"

2:00 p.m.—Synchronous Machines and Insulation

Committee on Rotating Machinery
East Room
J. W. JONES, Presiding

56-12. III On Some Poly-Field A.C. Amplifiers. E. Mishkin, Polytechnic Institute of Brooklyn.

56-175. III The Theory of Anisotropic Field Structures in Synchronous Machines. J. F. H. Douglas, Marquette University.

56-5. III Physical Effects of Thermal Cycling on Stator Coil Insulation of Turbine Generators. J. S. Johnson and J. C. Botts, Westinghouse Electric Corp. Re-presented for discussion.

56-176. III Corrections for Dielectric Absorption in High Voltage D-C Insulation Tests. F. R. Schleif, U. S. Bureau of Reclamation.

WED. (contd.)

2:00 p.m.—Transmission and Distribution

Committee on Transmission and Distribution

Ballroom

H. L. DAVIS, Presiding

56-178. III Residential Distribution—An Analysis of Systems to Serve Expanding Loads. S. B. Griscom and R. F. Lawrence, Westinghouse Electric Corp.

56-179. III Economic Comparison of Secondary Voltages, Single- and Three-Phase Distribution for Residential Areas. R. A. Zimmerman and H. E. Lokay, Westinghouse Electric Corp.

56-180. III The Primary Service Unit System for Residential Distribution. A. M. Lockie and H. B. Thacker, Westinghouse Electric Corp.

56-181. III Unbalanced Open-Wye Open-Delta Transformer Banks. J. C. Neupauer, Westinghouse Electric Corp.

56-182. III Calculating and Factors Affecting Customer Minutes Outage in Radial Feeders. R. A. Hamilton, General Electric Co.

2:00 p.m.—Power Generation

Committee on Power Generation

Georgian Room

K. J. GRANBOIS, Presiding

CP56-144. Generator Field Tests in a One-Unit Hydro Plant. H. O. Britt, U. S. Bureau of Reclamation.

56-145. III Pump/Turbine Unit 2 Addition at TVA Hiwassee Hydro Plant. L. R. Sellers and J. E. Kirkland, Jr., Tennessee Valley Authority.

CP56-275. Alignment Tolerances for Vertical Hydroelectric Generators. J. J. Hart, Westinghouse Electric Corp. and J. Fisch, S. Morgan Smith Co.

2:00 p.m.—Liquid Dielectrics

Committee on Dielectrics

Penn Top South

F. M. CLARK, Presiding

56-139. I Area Effect and Its Extremal Basis for the Electric Breakdown of Transformer Oil. K. H. Weber and H. S. Endicott, General Electric Co.

CP.* The Effect of Electrode Configuration on the Electric Strength of Hexane. A. H. Sharbaugh, E. B. Cox, R. W. Crowe and P. L. Auer, General Electric Research Lab.

CP.* The Effect of Hydrostatic Pressure and Applied Voltage Duration on the Breakdown Strength of Insulating Oil. P. K. Watson, National Research Council of Canada.

CP56-140. Phenomena Accompanying Transient Low-Voltage Discharges in Liquid Dielectrics—II. Cathode Phenomena at Low Currents. E. M. Williams and R. E. Smith, Carnegie Institute of Technology.

CP56-141. A New Technology of Insulating Oils of Petroleum Origin. F. C. Doble, Doble Engineering Co.

2:00 p.m.—Research

Committee on Research

Skytop

W. G. DOW, Presiding

CP56-294. Research for the Electric Power Industry in Foreign Countries. Ivar Herlitz, Allmänna Svenska Elektriska Artiebolaget and Gunnar Jancke, Swedish State Power Board.

CP56-267. Research by the Central Electricity Authority. J. S. Forrest, Central Electricity Research Labs.

CP.* Applied Research in the Italian Power Industry. Edilio Pautrie, Societa Edison.

CP56-282. Research for the Electric Utility Industry and Other Electric Power Industry in Japan. K. Masui, Central Research Institute of Electric Power Industry.

WED. (contd.)

2:00 p.m.—New Curricula in Engineering Education.

Committee on Education

Governor Room

J. F. CALVERT, PRESIDING

CP.* A New Educational Program in Energy Conversion. A. Kusko and D. C. White, Massachusetts Institute of Technology.

CP.* Course Content and Modern Aims in Electrical Engineering Education. L. A. Finzi and E. R. Schatz, Carnegie Institute of Technology.

CP56-290. The Engineering Science Curriculum at The Pennsylvania State University. E. A. Walker and W. E. Wilson, The Pennsylvania State University.

CP56-281. Science Engineering at the University of Michigan. H. W. Welch, Jr., University of Michigan.

2:00 p.m.—Digital Computer—Circuits and Input-Output

Committee on Computing Devices

Greeley Room

J. C. McPHERSON, Presiding

CP.* Megacycle Data Processing with Magnetic Amplifiers Part IV—Core Design. T. H. Bonn, Fred Bernstein and D. M. Lipkin, Sperry Rand Corp.

56-142. I Shifting Counters. C. Eldert, H. J. Gray, Jr., H. M. Gurk and M. Rubinoff, University of Pennsylvania.

CP.* A Paper Tape Leader Using Germanium Photo Diodes and Transistor Amplifiers. A. E. Slade and R. D. Potts.

56-21. I Cyclic Decimal Codes for Analog to Digital Converters. J. A. O'Brien, Radio Corporation of America.

56-143. I A New Five-Digit Plugboard System for Card-Programmed Calculator. S. B. Williams and N. M. Noonan, General Electric Co.

2:00 p.m.—Marine Transportation

Committee on Marine Transportation

Keystone Room

J. E. JONES, Presiding

56-183. II Aluminum for Marine Switchgear. H. F. Harvey, Jr. and E. J. Dawson, Newport News Shipbuilding and Dry Dock Co.

56-184. II Shipboard Use of 400 Cycle Electric Power. J. M. Apple and E. W. Lusby, Navy Dept.

CP.* Complete Ship Wiring with Mineral Insulated Cable. L. M. Goldsmith, The Atlantic Refining Co.

2:00 p.m.—Radio Communications

Committee on Radio Communications Systems

Chelsea Room

R. D. CAMPBELL, Presiding

CP.* An Explanation of Microwave Fading and Its Correction by Frequency Diversity. Henry Magnuski, Motorola, Inc.

CP.* A Low Cost Microwave Radio Communications System. C. N. Gillespie and D. W. Smith, Raytheon Mfg. Co.

CP.* New Low Cost 960 Mc. Multiplex Radio System. William Fingerle, Budelman Radio Corp.

CP.* Microwave for Telephone Companies. W. C. Fisher, Lenkurt Electric Co., Inc.

56-16. I A Seventy-Two Channel Radio System for Toll Telephone Service. M. C. Harp and M. H. Kebby, Lenkurt Electric Co., Inc. Re-presented for discussion.

2:00 p.m.—Industrial Power Rectifiers

Committee on Industrial Power Rectifiers

Penn Top North

WILLIAM FRASER, Presiding

56-185. II A New High Power Cathode Circuit Breaker. L. D. McConnell, Canadian Westinghouse Co., Ltd. and J. D. Findley, Westinghouse Electric Corp.

56-186. II Tests and Operating Experience with the Triple-Diametric Rectifier. R. V. Wachter, Aluminum Co. of America, C. S Hague and C. R. Marcum, Westinghouse Electric Corp.

56-187. Methods of Measuring Arc-Drop Voltage on Mercury-Arc
II Rectifiers. H. Winograd, Allis-Chalmers Mfg. Co. and W. E. Lawton, Aluminum Co. of America. Re-presented for discussion.

56-188. Harmonic Analysis by Direct Area Measurement. I. K. Dor-
I tort, I-T-E Circuit Breaker Co.

CP56-189. A New Method for Reducing Arc-Back Currents in Rectifiers. A. Schmidt, Jr., General Electric Co. and L. J. Harris, Aluminum Co. of America.

2:00 p.m.—Research and Chemical Industry

Committees on Research and Chemical Industry
Florentine Room
R. M. WAINWRIGHT and M. S. OLDACRE, Presiding

Part I—Research on Unconventional Energy Sources

CP.* Galvanic Fuel Cells. Friedrich Kornfeil, Signal Corps Labs.

CP.* Nuclear Batteries. William Shorr, Signal Corps Labs.

Part II—Panel Discussion of Cathodic Protection Energy Sources

CP.* Rectifiers with Impressed Current Anodes. R. M. Wainwright, University of Illinois, J. P. Oliver, National Carbon Co., and W. A. Luce, Duriron Co.

CP.* Sacrificial Anodes. Bert Douglas, Dow Chemical Co. and H. W. Wahlquist, Ebasco Services, Inc.

Thursday, February 2

9:30 a.m.—Synchronous Machines

Committee on Rotating Machinery
Penn Top South
G. F. TRACY, Presiding

56-199. Third Harmonic Voltage Generation in Salient Pole Synchro-
III nous Machines. G. Angst and J. L. Oldenkamp, General Electric Co.

56-50. Harmonics of the Salient-Pole Synchronous Machine and
III Their Effects—Part I—MMF Harmonics Produced by the Armature and Damper Winding. M. Liwschitz-Garik, Polytechnic Institute of Brooklyn.

56-1. Hunting of a Salient-Pole Synchronous Machine During
III Starting. C. Concordia, General Electric Co.

56-56. A New Approach to the Calculation of Synchronous Machine
III Reactances—Part II. M. E. Talaat, Elliott Co.

56-259. Calculation of Fault Currents for Internal Faults in Motors.
III R. A. Schmidt, General Electric Co.

9:30 a.m.—Transmission and Distribution

Committee on Transmission and Distribution
Governor Room
E. R. COOP, Presiding

56-2. Planning Kilovars and Capacitors for the Southern California
III Edison System. J. H. Drake and G. A. Davis, Southern California Edison Co.

55-711. D-C Circuit Gives Easy Method of Determining Value of
III Capacitors in Reducing I^2R Losses. R. A. Schmidt, General Electric Co. Re-presented for discussion.

56-63. Pennsylvania Electric Company's Capacitor Program. I. L.
III Phillips and F. M. Reed, General Public Utilities System.

56-193. Some Considerations in the Protection of High-Voltage Ca-
III pacitor Banks. N. R. Sheppard and N. R. Schultz, General Electric Co.

56-194. The Natural Frequency of Parallel Capacitor Banks. W. H.
III Cuttino and Miles Maxwell, Westinghouse Electric Corp.

56-17. Bibliography on Power Capacitors—1952-1954. AIEE Work-
III ing Group of the Capacitor Subcommittee.

THURS. (contd.)

9:30 a.m.—Switchgear

Committee on Switchgear
Georgian Room
J. D. WOOD, Presiding

56-33. High Voltage Power System Fault Current Asymmetry. M. J.
III Lantz, Bonneville Power Administration.

56-34. Calculation of Electric Power System Short Circuits During
III the First Few Cycles. Report of Working Group on Circuit Breaker Application.

56-27. Calculated Symmetrical and Asymmetrical Short Circuit Cur-
III rent Decrement Rates on Typical Power Systems. Report of Working Group on Circuit Breaker Application.

9:30 a.m.—Research and Education

Committees on Research and Education
Ballroom
W. A. LEWIS, Presiding

Note: Special Publication S82 will be 80¢ per copy, $1.20 to nonmembers.

S-82. Needs and Supply of Engineers for Electric Utilities. Frank Sanford, Commonwealth Services, Inc.

S-82. Megawatts vs. Microwatts. C. R. Joy and C. C. Boone, Ebasco Services, Inc.

CP.* Engineers in Our Company. Murray Joslin, Commonwealth Edison Co.

S-82. The Personal Problem of the Public Utilities in the Colleges. J. D. Ryder, Michigan State University.

S-82. The Electric Utility and the Student Engineer. J. S. Johnson, Purdue University.

9:30 a.m.—Analog Computer Applications and Developments

Committee on Computing Devices
West Room
G. D. McCANN, Presiding

56-20. A Modern D-C Network Analyzer. C. H. Hoffman, Public
III Service Electric & Gas Co. and M. Lebenbaum, Airborne Instrument Lab., Inc.

56-147. Linear Programming on an Electronic Analog Computer. I. B.
I Pyne, Princeton University.

56-148. Analog Computer Generation of Probability Distributions for
I Operations Research. N. D. Diamantides, Goodyear Aircraft Corp.

CP56-149. Electronic Analog Solution of Free Surface Problems. W. J. Karplus, University of California.

CP.* Solution of Spherical Polygons by an Electromechanical Analog Computer. T. A. Hawkes.

9:30 a.m.—Metallic Rectifiers

Committee on Metallic Rectifiers
Keystone Room
D. E. TRUCKSESS, Presiding

56-77. High-Temperature Selenium Rectifiers—A Survey of Manu-
I facturers Data. T. S. Shilliday, Battelle Memorial Institute.

56-78. Germanium Rectifiers for Industrial Applications. L. W. Bur-
I ton, General Electric Co.

CP.* Performance Analysis of Selenium Rectifiers at High Temperature. N. F. Bechtold and E. W. Morris, Signal Corps Engineering Labs.

CP.* On the Dynamic Characteristics of Rectifiers. Bruce Seddon, General Electric Co.

CP56-285. The Rectaloy Rectifier—An Improved Copper Oxide Device C. L. Meyer, K. E. Hassler and T. S. Shilliday, Battelle Memorial Institute.

THURS. (contd.)

9:30 a.m.—World Television and Color TV
Committee on Television and Aural Broadcasting Systems
East Room
C. E. DEAN, Presiding

CP.* TV in World Today. C. J. Hirsch, Hazeltine Labs.

CP56-271. Color Television System Performance Requirements. R. C. Kennedy, National Broadcasting Co., Inc.

CP.* The Vitascan Live Flying-Spot Color Scanner. J. H. Haines and G. R. Tingley, Allen B. DuMont Labs., Inc.

9:30 a.m.—Feedback Control
Committee on Feedback Control Systems
Skytop
H. W. CORY, Presiding

56-195. Two Types of Zero-Velocity-Error Servomechanisms. E. Levin-
II son, Sperry Gyroscope Co.

56-196. Block Diagram Transformations for Systems with One Non-
II linear Element. T. M. Stout, Schlumberger Instrument Co.

56-197. Analysis and Performance of a Valve-Controlled Hydraulic
II Servomechanism. D. V. Stallard, Massachusetts Institute of Technology.

56-198. A Study of a Predictor-Type Air Frame Controller Designed
II by Phase-Space Analysis. A. M. Hopkin and Morimi Swama, University of California.

9:30 a.m.—Transformers
Committee on Transformers
Florentine Room
W. C. SEALEY, Presiding

56-262. The Poly-Unit Saturable Reactor. K. I. Selin, The Royal In-
III stitute of Technology.

56-263. Experimental Characteristics of the Three-Phase Poly-Unit
III Saturable Reactor. K. I. Selin, The Royal Institute of Technology and A. Kusko, Massachusetts Institute of Technology.

56-264. A New Apparatus Bushing with Improved Voltage Distribu-
III tion. L. W. Spooner and J. E. Bergain, General Electric Co.

CP56-88. Design of the Resistively Loaded Static Frequency Doubler. P. P. Biringer, University of Toronto.

CP.* Proposed Guide for Maintenance of Insulating Oils. Insulating Fluids Subcommittee.

9:30 a.m.—Coordinating Committee No. 4
Committee on Standards
Penn Top North
F. J. VOGEL, Presiding

CP56-247. Problems of AIEE Standards Coordinating Committee No. 4 in Revising AIEE Standard No. 1. A Progress Report of Coordinating Committee No. 4

56-248. Guiding Principles in the Thermal Evaluation of Electrical
I Insulation. L. J. Berberich and T. W. Dakin, Westinghouse Electric Corp.

CP.* Evaluation of Thermal Life of Systems. G. L. Moses, Westinghouse Electric Corp.

CP.* Evaluation of Thermal Life of Materials. J. F. Dexter, Dow-Corning Corp.

9:30 a.m.—Symposium—Preventive Maintenance of Large Rectifier-Substations in Electrolytic Plants
Committee on Chemical Industry
Chelsea Room
W. E. GUTZWILLER and R. N. WAGNER, Presiding

1:15 p.m.—ETA KAPPA NU FILM
Georgian Room
"Engineering—A Career for Tomorrow"

2:00 p.m.—Synchronous Machines
Committee on Rotating Machinery
Penn Top South
W. L. RINGLAND, Presiding

56-190. The Design and Performance of Modern Large Turbine Gen-
III erators. B. M. Cain and Dean Harrington, General Electric Co.

THURS. (contd.)

56-53. Gap-Pickup Conductor Cooling of Turbine-Generator Fields;
III Ventilation Arrangements and Analysis of Performance. D. M. Willyoung, General Electric Co.

56-191. Liquid Cooling of Turbine Generator Armature Windings.
III C. E. Kilbourne and C. H. Holley, General Electric Co.

56-192. Operation of Large Steam Turbine-Generators. J. H. Carter
III and R. E. Gorman, General Electric Co. Re-presented for discussion.

56-293. Operation and Maintenance of Hydrogen Systems for Tur-
III bine-Generators. S. C. Barton and W. H. M. Olson, General Electric Co. Re-presented for discussion.

2:00 p.m.—Transmission and Distribution
Committee on Transmission and Distribution
Governor Room
H. A. FREY, Presiding

56-200. Potential of a Transmission Line Tower Top When Struck
III by Lightning. E. F. Koncel, Commonwealth Edison Co.

56-201. Anomalous Flashovers on Transmission Lines. C. J. Miller,
III Jr., The Ohio Brass Co.

56-202. Switching Surges and Arrester Performance on High Voltage
III Stations. L. O. Barthold, I. B. Johnson and A. J. Schultz, General Electric Co.

56-203. Impulse Flashover of Combinations of Line Insulators, Air
III Gaps and Wood Structural Members. AIEE Lightning and Insulator Subcommittee.

CP.* Reduced Insulation in Power Systems. The Problem it Presents. P. L. Bellaschi, Portland, Oregon.

2:00 p.m.—Digital Computer in Transformer Design
Committees on Computing Devices and Transformers
West Room
P. A. ABETTI and J. H. CHILES, Jr., Presiding

CP.* Digital Computers as an Aid in Transformer Design. G. L. Tauscher, Allis-Chalmers Mfg. Co.

56-59. Transformer Reactance Calculations with Digital Computers.
III L. Rabins, General Electric Co.

56-80. Application of Digital Computers to Transformer Design.
I S. B. Williams, P. A. Abetti and E. F. Magnusson, General Electric Co.

56-79. Application of a Digital Computer to the Design of Power
I Transformers to Specification. C. L. Moore, W. T. Duboc and P. A. Zaphyr, Westinghouse Electric Corp.

CP.* Digital Computer Design of Repetitive Manufacture Power Transformers. J. C. Dutton and E. F. Magnusson, General Electric Co.

2:00 p.m.—Symposium on Field Breakers
Committee on Switchgear
Georgian Room
C. E. ASBURY, Presiding

56-52. Introduction of Hydraulic Operation to Low Voltage Air
III Circuit Breakers. H. L. Peek and M. G. Dyer, Allis-Chalmers Mfg. Co.

CP.* Application of Field Discharge Circuit Breakers to Electrical Machines. M. Temoshok and B. S. Beall III, General Electric Co.

CP56-289. Application of Main-Field Breakers to Synchronous Machines. R. F. Karlicek, Westinghouse Electric Corp.

CP.* Application of Air Circuit Breakers to Excitation Systems of Salient Pole Synchronous Machines. C. L. Killgore and H. O. Britt, U. S. Bureau of Reclamation.

2:00 p.m.—Solid Dielectrics
Committee on Dielectrics
Penn Top North
J. R. PERKINS, Presiding

56-150. The Flashover Strength of Solid Dielectrics. L. J. Frisco and
I J. J. Chapman, The Johns Hopkins University.

THURS. (contd.)

56-151. Tracking Resistance Test Methods. M. W. Albright and W. T.
I Starr, General Electric Co. Re-presented for discussion.

CP.* Dielectric Effects Produced by Solidifying Certain Organic Compounds in Electric or Magnetic Fields. W. McMahon, Bell Telephone Labs., Inc.

CP.* Recent Developments in Polyethylene Insulating Materials. J. A. Snyder and R. J. Lurie, Bakelite Co.

CP.* The Dielectric Properties of Polyethylene. D. W. McCall, Bell Telephone Labs., Inc.

2:00 p.m.—Magnetic Amplifiers

Committee on Magnetic Amplifiers
Ballroom
P. L. SCHMIDT, Presiding

56-204. The Operation of the Self-Balancing Magnetic Amplifier.
I A. D. Krall and E. T. Hooper, U. S. Naval Ordnance Lab.

56-205. A Magnetic Amplifier Switching Matrix. David Katz, Bell
I Telephone Labs., Inc.

56-10. Analysis of Instability and Response of Reactors with Rec-
I tangular Hysteresis Loop Core in Series with Capacitance. J. T. Salihi, University of California.

56-206. Hysteresis Loops in Dielectric Amplifiers. Earl Wingrove,
I General Electric Co., L. Depian and W. L. Shevel, Carnegie Institute of Technology.

CP56-207. A Single-Transistor Magnetic-Coupled Oscillator. Kan Chen, Westinghouse Electric Corp. and A. J. Schiewe, Purdue University.

2:00 p.m.—Industrial TV and Broadcast Transmitters

Committee on Television and Aural Broadcasting Systems
East Room
H. A. AFFEL, Presiding

CP.* Engineering iiTV Installations. J. W. Belcher, General Precision Labs.

CP.* A New Color Camera and TV System for Closed Circuit Applications. L. E. Anderson, Radio Corp. of America.

CP.* Electron Color Microscope. John Christensen, CBS Labs.

CP.* A 50 KW Ampliphase Broadcast Transmitter. T. J. Boerner, Radio Corp. of America.

2:00 p.m.—Research

Committee on Research
Keystone Room
J. E. HOBSON, Presiding

CP.* Need for Research in the Field of Fuels. Engene Ayres, Gulf Oil Co.

CP56-266. Electro-Chemical Cells as Energy Converters. A. M. Adams, Central Electricity Research Labs.

CP.* Solar Energy—A Supplementary Energy Source. H. B. Sargent, American and Foreign Power Co.

2:00 p.m.—Feedback Control

Committee on Feedback Control Systems
Skytop
J. R. RAGAZZINI, Presiding

56-208. Synthesis and Critical Study of Sampled-Data Control Sys-
II tems. E. I. Jury, University of California.

56-209. Factors in the Design of Digital Controllers for Sampled-
II Data Feedback Systems. J. E. Bertram, Columbia University.

56-210. Digital Compensation of Continuous-Data Feedback Control
II Systems. K. K. Maitra and P. E. Sarachik, Columbia University.

56-211. Syntheses of Feedback Control System by Gain-Contour and
II Root-Contour Methods. V. C. Yeh, New York University.

2:00 p.m.—Chemical Processes

Committee on Chemical Industry
Florentine Room
J. N. FOGG, Presiding

CP.* The Gas Turbine—A Versatile Servant for the Process Industries. W. B. Wilson, General Electric Co.

CP56-14. Electrical Inspection of Petrochemical Plant Construction. N. D. Casdorph and J. H. Wieting, Carbide & Carbon Chemicals Co.

CP.* Automatic Control in the Chemical Industry. W. A. Crawford, E. I. DuPont de Nemours and Co.

CP.* Electricity and Titanium. W. H. Gorga, Mallory-Sharon Titanium Corp.

CP.* Titanium Today. H. B. Goodwin, Battelle Memorial Institute.

2:00 p.m.—Electromagnetic Radiation from High Frequency Cables

Committee on Electronics
Chelsea Room
MILTON TENZER, Presiding

CP56-288. Electromagnetic Radiation from Coaxial Cables—Surface Transfer Impedance. J. P. Quine, Rensselaer Polytechnic Institute.

CP56-268. Analysis of Interference from Flexible Coaxial Cables. A. V. Eastman, University of Washington.

CP56-246. Investigation of Measurement Techniques for the Shielding Effectiveness of Flexible Coaxial Cables. O. D. Cozine.

CP56-283. Measurement of Energy Leakage from Radio Frequency Cables at VHF and Microwave Frequencies. J. W. E. Griemsmann. S. Greenblatt, Polytechnic Institute of Brooklyn and L. Birenbaum, New York Naval Shipyard.

CP.* Radiation Fields from a Coaxially Shielding. M. E. Taylor and E. R. Shartz,

Friday, February 3

9:30 a.m.—DC Machines

Committee on Rotating Machinery
Florentine Room
M. A. BAKER, Presiding

CP56-39. Determination of Stray Load Loss in Direct-Current Machines. R. L. Sieron, Connecticut Light and Power Co. and D. A. Grant, Worcester Polytechnic Institute.

56-38. The Null Point Method of Commutation Adjustmen. S. J.
III Roumanis, General Electric Co.

56-36. On Wire Banding. E. C. Appleby and P. G. Lessmann, West-
III inghouse Electric Corp.

CP56-254. Basis and Background of the Proposed Revision of Test Code for D-c Machines, AIEE-501. E. P. Smith, General Electric Co.

CP56-255. Revision of Test Code for D-c Machines. AIEE-501. Report of D. C. Machinery Subcommittee.

56-4. Determining the Parameters of a Short-Circuited Winding
III that Represents Eddy-Current Paths. K. A. Fegley, University of Pennsylvania.

9:30 a.m.—Transmission and Distribution

Committee on Transmission and Distribution
Ballroom
E. L. KANOUSE, Presiding

56-212. Quantitative Relationships in Conductor Vibration Damping.
III J. S. Tompkins, Aluminum Co. of America, L. L. Merrill, Stevens Institute of Technology and B. L. Jones, Jones-Hettelsater Construction Co.

56-213. Progress Report on the Investigation of Galloping of Trans-
III mission Line Conductors. A. T. Edwards and A. Madeyski, The Hydro-Electric Power Commission of Ontario.

FRI. (contd.)

CP56-214. Wind Tunnel Investigation of Conductor Vibration Using Rigid Models. F. B. Farquharson and R. E. McHugh, Jr., University of Washington. III

56-215. An Economic Study of High-Voltage Transmission. J. M. Henderson and A. J. Wood, General Electric Co. III

56-216. Power Supply Development for the Atomic Energy Commission's Paducah Area Gaseous Diffusion Plant. E. E. George, Ebasco Services, Inc., K. E. Hapgood, Tennessee Valley Authority, and F. W. McCloska, Sargent & Lundy. III

9:30 a.m.—Transformers

Committee on Transformers
Georgian Room
J. R. MEADOR, Presiding

56-62. The Performance of Transformer Oil under Special Conditions. W. E. Elliott, F. J. Vogel and D. N. Hiu, Allis-Chalmers Mfg. Co. III

CP.* A Study of the Coordination of Modern Arresters and Transformer Insulation. E. J. Adolphson and F. J. Vogel, Allis-Chalmers Mfg. Co.

56-54. Coordination of Dry-Type Transformer Models with Transformer Geometry. L. C. Whitman, General Electric Co. III

56-29. A Study of Models for Use in Evaluating Dry-Type Transformer Insulating Systems. T. R. Walters and A. L. Scheideler, General Electric Co. III

CP56-61. Silicones in Combination with Organic Based Materials for Use in Dry-Type Transformers. H. M. Broderick, A. L. Scheideler and G. F. Simmons, General Electric Co.

9:30 a.m.—Switchgear

Committee on Switchgear
Governor Room
J. C. WOODS, Presiding

56-47. A New Top Rating for the 161 Kv Oil Circuit Breaker with Multi-Break Type Interrupters—15,000 MVA. G. J. Easley and F. L. Reese, Westinghouse Electric Corp. III

56-40. Control of Voltage Gradients in High-Voltage, Watch Case, Multi-Break Oil Circuit Breakers. B. P. Baker and R. E. Friedrich, Westinghouse Electric Corp. III

56-217. A New Canadian Compressed Air Circuit Breaker. C. C. Smith and D. H. McKeough, Canadian Westinghouse Co., Ltd. III

56-55. Development of a Three-Cycle High Voltage Airblast Breaker with Interrupting Ratings up to 25000 MVA. H. E. Thommen and W. R. Streuli, Brown Boveri. III

9:30 a.m.—Thermal Evaluation of Magnet Wire

Committee on Dielectrics
Skytop
L. J. BERBERICH, Presiding

56-152. Magnet Wire Performance in Product Life Tests. R. L. Balke, General Electric Co. Re-presented for discussion. I

56-153. Thermal Evaluation of Enameled Magnet Wire. J. F. Dexter, Dow Corning Corp. Re-presented for discussion. I

CP.* Long Range Heat Aging Tests on Alkanex. W. W. Wareham, General Electric Co.

CP.* Report of Results of Cooperative Test Program on Test Procedure for Evaluation of the Thermal Stability of Rectangular Magnet Wire. Working Group Report.

CP.* The Thermal Classification of Enamelled Magnet Wire. Working Group Report.

9:30 a.m.—Magnetic Amplifiers

Committee on Magnetic Amplifiers
Keystone Room
L. W. BUECHLER, Presiding

56-9. Full-Wave Bridge Magnetic Amplifiers with Inductive Loads. H. H. Woodson, Massachusetts Institute of Technology. I

FRI. (contd.)

56-218. Measurements on High-Speed Magnetic Servo Amplifiers with Two-Phase Motor Load. W. A. Geyger, U. S. Naval Ordnance Lab. I

56-219. Flux Reversal in Magnetic Amplifier Cores. F. J. Friedlaender, Purdue University. I

56-220. Low Impedance Operational Characteristics of Toroidal Cores Used in Magnetic Amplifiers. C. L. Boyajian, General Electric Co. I

CP56-272. Dynamic Core Behavior and Magnetic Amplifier Performance. L. A. Finzi and D. L. Critchlow, Carnegie Institutee of Technology.

9:30 a.m.—Medicine and Biology

Committee on Electrical Techniques in Medicine and Biology
East Room
T. H. ROGERS, Presiding

CP.* Control of Radio Interference from Medical Electronic Equipment. A. L. Albin and H. M. Sachs, Armour Research Foundation.

CP.* The Use of Radio Frequency Power in Making Lesions in the Brain. Saul Aronow, Massachusetts General Hospital.

CP.* Radar Radiation Health Hazard. H. P. Schwan and Kam Li, University of Pennsylvania.

CP.* Radiation Monitoring Aboard the U. S. S. Nautilus. M. E. Hayes, Westinghouse Electric Corp.

CP56-23. Performance of a Large Area Photoconductive X-Ray Pick-up Tube. J. E. Jacobs and Harold Berger, General Electric Co.

56-81. Physical Response Requirements of Pressure Transducers for the Reproduction of Physiological Phenomena. E. H. Wood, University of Minnesota. Re-presented for discussion.

9:30 a.m.—Wire Communications

Committee on Wire Communications Systems
Penn Top South
W. T. SMITH, Presiding

56-240. Objectives and General Description of the Type PI Carrier System. R. C. Boyd, Bell Telephone Labs., Inc. I

56-241. Application of Type P1 Carrier System to Rural Telephone Lines. J. D. Howard, American Tel. & Tel. Co. I

56-242. Circuit and Equipment Descriptions of the Type P1 Carrier System. E. K. Eberhart, F. J. Hallenbeck and E. H. Perkins, Bell Telephone Labs., Inc. I

56-243. Power Supplies for the Type P1 Carrier System. D. H. Smith, Bell Telephone Labs., Inc. I

CP.* Field Trial Experience with the Type P1 Carrier System. T. W. Thatcher, Jr., Bell Telephone Labs., Inc.

9:30 a.m.—Industrial Control

Committee on Industrial Control
West Room
L. H. MATTHIAS, Presiding

CP56-82. Design of Heavy Duty Electric Brake. L. J. Parkinson, General Electric Co.

56-31. Interruption Tests on High-Voltage Air-Break Contactor. C. A. Lister, Electric Controller & Mfg. Co. II

CP56-83. Analysis of the Shading Coil Magnet. H. J. Kubiak, University of Wisconsin.

CP56-269. Applying Industrial Controllers for Safe Operation. G. W. Heumann, General Electric Co.

56-84. A Two-Motor A-C Mine Hoist Control System. A. H. Myles, Electric Controller & Mfg. Co. Re-Presented for Discussion. II

FRI. (contd.)

9:30 a.m.—Electronic Circuits and Systems
Committee on Electronics
Penn Top North
H. L. FLOWERS, Presiding

CP56-292. Magnetic Trip Amplifier. R. B. Hodson and E. W. Manteuffel, General Electric Co.

56-41. I Transistor Voltage Regulator. R. H. Spencer and T. S. Gray, Massachusetts Institute of Technology.

CP56-85. Magnetic Voltage and Frequency Regulator for an Aircraft Inverter. E. W. Manteuffel, General Electric Co.

CP.* System Engineering for Guided Missle Installations. J. Kraus, Vitro Labs.

CP.* A CW Radar Rate-of-Climb Meter for Vertical Take-Off Aircraft, S. H. Logue, CONVAIR.

CP.* Micropower Operation of Silicon Transistors. E. Keonjian, General Electric Co.

9:30 a.m.—Computer Devices and Applications
Committee on Computing Devices
Chelsea Room
MORRIS RUBINOFF, Presiding

CP.* The RCA Bizmac Electronic Accounting System. W. K. Halstead, J. W. Leas, J. N. Marshall and E. E. Minett, Radio Corp. of America.

CP.* Magnetic Tape Handling Equipment in the RCA Bizmac System. J. A. Brustman, R. E. Montijo and J. M. Uritis, Radio Corp. of America.

CP.* Computer Simulation of a Switching Network. S. Katz, American Cyanamid Co.

56-156. I Automatic Network Analysis with a Digital Computation System. S. Y. Wong, Philco Corp. and M. Kochen, Paul Rosenberg Associates.

2:00 p.m.—Computers in the Design of Machines and Systems
Committee on Computing Devices
Florentine Room
E. L. HARDER, Presiding

56-154. III Synchronous Motor Starting Performance Calculation. J. C. White, General Electric Co.

56-43. III Fundamental Equations for Analog Studies of Synchronous Machines. D. B. Breedon and R. W. Ferguson, Westinghouse Electric Corp.

56-155. I A Digital Computer Program for Determining Atomic Wave Functions. W. W. Piper, General Electric Co.

CP.* System Synthesis with the Aid of Digital Computers. J. B. Dennis, R. F. Nease, Massachusetts Institute of Technology and R. M. Saunders, University of California.

CP.* Computive Applications to Induction Motor Design. W. J. Martiny, Jr., General Electric Co.

2:00 p.m.—Transmission and Distribution
Committee on Transmission and Distribution
Ballroom
I. B. JOHNSON, Presiding

56-221. III Field Studies of Noise at Television Frequencies from Power Circuits. J. R. Leslie and P. W. Waddington, The Hydro-Electric Power Commission of Ontario.

56-222. III The Calculation of the Radio Interference Level of Transmission Lines Caused by Corona Discharges. G. E. Adams, General Electric Co.

56-223. III Variations in Radio and Television Interference from Transmission Lines. H. H. Newell, Worcester Polytechnic Institute and F. W. Warburton, New England Power Service Co.

CP.* Relationship Between Corona & Radio Noise on Transmission Lines—Laboratory Studies—Part I—Point & Conductor Corona. T. W. Liao, General Electric Co.

FRI. (contd.)

CP.* Application of Power System Harmonic Filters. R. W. Ferguson and W. A. Munson, Westinghouse Electric Corp.

2:00 p.m.—Transformers
Committee on Transformers
Georgian Room
D. L. LEVINE, Presiding

56-87. III Methods for Measuring the "Q" of Large Reactors. Chester Peterson, B. L. Dunfee and F. L. Hermach, National Bureau of Standards.

CP.* Switching Surges and Continuous Possibilities of Transformer Insulation. W. C. Farneth and F. J. Vogel, Allis-Chalmers Mfg. Co.

56-89. III Controlled Temperature and Insulation Protection in the Operation of Power Transformers. J. A. Klingensmith, Westinghouse Electric Corp.

56-90. III Leakage Reactance of Transformers. A. A. Halacsy, Jeffries Transformer Co.

2:00 p.m.—Switchgear
Committee on Switchgear
Governor Room
J. D. WOOD, Presiding

56-46. III Short Circuit Protection of Busway Systems with Current Limiting Fuses. J. B. Cataldo and N. Shackman, BullDog Electric Products Co.

56-224. III Use and Properties of Extruded High Strength Aluminum for Electrical Bus Conductors. W. Switney and C. L. Carlson, Westinghouse Electric Corp.

56-225. III Vacuum Switches for Power Systems. J. E. Jennings, Jennings Radio Mfg. Corp., A. C. Schwager, Schwager-Wood Corp. and H. C. Ross, Jennings Radio Mfg. Corp.

56-35. III New Type Current Transformers for Low Oil Content-Circuit Breaker. A. N. Arman, Pirelli-General Cable Works, Ltd. and W. H. Clagett, Pacific Oerlikon Co.

CP.* Testing Large Air Circuit Breaker Trip Devices. C. H. Titus and L. H. Sparrow, General Electric Co.

2:00 p.m.—Thermal Evaluation of Insulation
Committee on Dielectrics
Skytop
J. F. DEXTER, Presiding

CP.* Evaluation of Insulating Materials in Simple Combinations. K. N. Mathes, General Electric Co.

CP.* A Fundamental Description of the Mechanical Behavior of Silicone Resins. J. R. McLoughlin, General Electric Co.

56-157. I Effects of Insulation Thickness on the Aging of Organic Insulation in Air. L. C. Whitman and A. L. Scheideler, General Electric Co.

CP.* A Statistical Approach to Insulation Evaluation. E. F. Seaman, Dept. of Navy.

CP56-260. Measurement of the Complex Dielectric Constant of Very High Dielectric Constant Material at Microwave Frequencies. Isidore Bady, Oakhurst, N. J.

2:00 p.m.—Magnetic Amplifiers
Committee on Magnetic Amplifiers
Keystone Room
W. J. DORNHOEFER, Presiding

56-226. I A Signal Discriminating Magnetic Amplifier. G. E. Lynn and J. F. Ringelman, Westinghouse Electric Corp.

56-227. I A Line Voltage Regulator Having Magnetic Amplifier Control. F. W. Anderson, Bell Telephone Labs., Inc.

CP56-30. The Pulse Stretch Coupling Circuit. H. W. Patton, Airpax Products Co.

CP56-228. Core Volume Derivation for Magnetic Pulse Modulators. J. E. Sunderlin, Westinghouse Electric Corp.

FRI. (contd.)

CP56-229. Magnetic Frequency Multipliers and Their Rating—Part I—Frequency Triplers. W. McMurray, General Electric Co.

2:00 p.m.—Wire Communications

Committee on Wire Communication Systems

Penn Top South

C. H. McGUIRE, Presiding

CP.* Objectives, Progress and Promises of Telephone Transmission. H. R. Huntley, American Tel. & Tel. Co.

56-244. I Development of Transcontinental Communications in Canada. J. W. Noyes, S. Bonneville and G. Gaudet, Bell Telephone Co. of Canada, Ltd.

56-245. I A New Four-Channel Open-Wire Carrier System Employing Transistors. R. S. Caruthers, W. S. Chaskin and H. K. Krengel, Lenkurt Electric Co., Inc.

2:00 p.m.—Industrial Control

Committee on Industrial Control

West Room

J. W. PICKING, Presiding

CP56-91. Magnetic Logic Circuits for Industrial Control Systems. W. G. Evans, W. G. Hall and R. I. Van Nice, Westinghouse Electric Corp.

CP56-273. Overcurrent Protection of Adjustable Speed D.C. Motors Operating from Phase Controlled Rectifiers. D. R. Kanitz and A. G. Mueller, Square D Co.

CP56-274. Proposed Standard for Electronic Motor Control. Electronics Sub-Committee.

56-15. II An Automatic Output Regulator for Power Oscillators. E. G. Hopkins, New South Wales University of Technology and H. J. Fraser, Amalgamated Wireless Valve Co., Pty., Ltd.

2:00 p.m.—Electronic Circuits and Systems

Committee on Electronics

Penn Top North

J. F. REINTJES, Presiding

CP56-92. A Magnetic-Amplifier Simulator. R. E. Fitts, Rome, New York.

56-24. I DC Graphical Analysis of Junction Transistor Flip-Flops. T. R. Bashkow, Bell Telephone Labs., Inc.

CP.* Three-Dimensional Flight Simulator Supply. E. P. Longerich, Bendix Aviation Corp.

CP56-93. VHF Transistor Noise-Figure Test Set. E. J. Burke, General Electric Co.

56-37. I A Comparison of Three Common Emitter Transistor Servo Pre-amplifiers. A. N. DeSautels, Minneapolis-Honeywell Regulator Co.

Note: The TRANSACTIONS papers will be printed in the bimonthly publications as follows:

I COMMUNICATIONS AND ELECTRONICS.

II APPLICATIONS AND INDUSTRY.

III POWER APPARATUS AND SYSTEMS.

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COMMITTEE MEETINGS

Sunday, January 29

8:00 p.m.—Standards Committee Special Subcommittee ..... Villiage Room

Monday, January 30

9:30 a.m.—Switching Surges Working Group..... Empire Suite I

9:30 a.m.—Power Generation ..... Dartmouth Room

9:30 a.m.—Lightning Arrester Application Guide Working Group..... Room E*

9:30 a.m.—Publication ..... Pennsylvania Room

10:00 a.m.—Sections ..... Cornell Room

10:00 a.m.—Member-For-Life Medal ..... Empire Suite II

10:00 a.m.—Nominating ..... Hudson Room

12:00 noon—Luncheon—System Planning Subcommittee ..... Empire Suite I

12:00 noon—Luncheon—Communications Switching Systems ..... Herald Room*

12:00 noon—Luncheon—System Operations Subcommittee.. Room E*

12:00 noon—Luncheon—Sections ..... Cornell Room

12:00 noon—Luncheon—Instruments and Measurements ..... Pennsylvania Room

12:00 noon—Luncheon—System Controls Subcommittee.... Room D*

12:00 noon—Luncheon—Metal Industries Subcommittee ..... Empire Suite II

12:00 noon—Luncheon—General Session ..... Dartmouth Room

12:00 noon—Luncheon—Code of Principles of Professional Conduct ..... Town Room

4:00 p.m.—System Engineering ..... Pennsylvania Room

4:00 p.m.—Dielectric Devices Subcommittee..... Dartmouth Room

4:00 p.m.—Lightning Arrester Application Guide Working Group ..... Empire Suite I

4:00 p.m.—Instrumentation for Resistance Welding Subcommittee ..... Schuyler Room

4:00 p.m.—Fundamental Arc Research Subcommittee... Town Room

4:00 p.m.—Carrier Current Executive ..... Villiage Room

4:00 p.m.—Land Transportation ..... Empire Suite II

4:00 p.m.—Ad-Hoc Subcommittee on Standardization Procedures ..... Hudson Room

5:00 p.m.—Sections Get-Together ..... Chelsea Room*

Tuesday, January 31

8:00 a.m.—Breakfast—Canadian Members ..... Pennsylvania and Cornell Rooms

8:00 a.m.—Breakfast—System Economic Subcommittee ..... Empire Suite II

8:00 a.m.—Breakfast—Computer Application Subcommittee ..... Empire Suite I

9:00 a.m.—General Industry Applications..... Herald Room*

9:00 a.m.—Planning and Coordination..... Dartmouth Room

9:00 a.m.—Core Matching and Grading Working Group ..... Greeley Annex*

9:00 a.m.—Lightning and Insulator Subcommittee..... Room J*

9:00 a.m.—Power Division ..... Cornell Room

9:30 a.m.—General Systems Subcommittee ..... Room D*

9:30 a.m.—Electric Welding ..... Pennsylvania Room

9:30 a.m.—Lightning Arrester Application Guide Working Group ..... Room E*

9:30 a.m.—Fundamental Arc Research W. G..... Room T*

9:30 a.m.—Safety ..... Hudson Room

9:30 a.m.—Carrier Current Subcommittee #3 ..... Boston Room

9:30 a.m.—Sections Representatives ..... Penn Top North

9:30 a.m.—Electrical Techniques in Medicine and Biology ..... Town Room

9:30 a.m.—Towers, Poles and Conductors Subcommittee ..... Buffalo Room

9:30 a.m.—Magnetics Subcommittee ..... Room K*

9:30 a.m.—Distribution Subcommittee ..... Schuyler Room

10:00 a.m.—Communication Division ..... Empire Suite I

12:00 noon—Luncheon—Registration of Engineers... Empire Suite II

12:00 noon—Luncheon—Industrial Power Systems.... Herald Room*

12:00 noon—Luncheon—R. M. Insulation Subcommittee.. Room D*

12:00 noon—Luncheon—Planning and Coordination ..... Dartmouth Room

12:00 noon—Luncheon—Science and Electronics Division ..... Cornell Room

12:00 noon—Luncheon—Communication Division.... Empire Suite I

12:00 noon—Luncheon—Edison Medal ..... Pennsylvania Room

2:00 p.m.—Sections Representatives—Public Relations Forum ..... Penn Top North

2:00 p.m.—Carrier Current ..... Buffalo Room

2:00 p.m.—Education ..... Hudson Room

2:00 p.m.—Planning and Coordination ..... Dartmouth Room

2:00 p.m.—Lightning Arrester Application Guide Working Group ..... Room E*

2:00 p.m.—Chemical Industry ..... Boston Room

2:00 p.m.—Transmission and Distribution ..... Pennsylvania Room

2:00 p.m.—Transmission Substation Subcommittee..... Room J*

2:00 p.m.—Distribution Substation Subcommittee ..... Room K*

2:00 p.m.—Conversion Substation Subcommittee ..... Room S*

2:00 p.m.—ASA C-5 Lightning Protection Working Group ..... Schuyler Room

2:00 p.m.—Automatic and Supervisory Control Subcommittee ..... Room T*

4:30 p.m.—Liquid Dielectrics Subcommittee ..... Town Room

Wednesday, February 1

8:00 a.m.—Breakfast—Research ..... Pennsylvania Room

9:00 a.m.—Industry Division ..... Cornell Room

9:30 a.m.—Student Branches ..... Dartmouth Room

9:30 a.m.—Substations Executive Subcommittee ..... Town Room

9:30 a.m.—Telegraph Systems ..... Room E*

9:30 a.m.—Magnetic Amplifier Materials Subcommittee... Room D*

9:30 a.m.—Research ..... Hudson Room

9:30 a.m.—Cathodic Protection ..... Village Room

9:30 a.m.—Lamme Medal ..... Boston Room

9:30 a.m.—Recording and Controlling Instruments Group Sub Committee No. 3..... Room K*

9:30 a.m.—Wiring Diagrams of AAR ..... Room 1101**

9:30 a.m.—Membership ..... Schuyler Room

9:30 a.m.—AIEE #4 Subcommittee ..... Empire Suite II

9:30 a.m.—Fault Limiting Devices Subcommittee... Empire Suite I

9:30 a.m.—Lightning Protection of Aerial Cable W. G..... Room J*

9:30 a.m.—Lightning Protection in Multi-Line Stations W. G. ..... Greeley Annex*

12:00 noon—Luncheon—Telegraph Systems ..... Room E*

12:00 noon—Luncheon—Television and Aural Broadcasting ..... Village Room

12:00 noon—Luncheon—Domestic and Commercial Applications ..... Town Room

12:00 noon—Luncheon—Production and Application of Light ..... Greeley Annex*

12:00 noon—Luncheon—Technical Operations ..... Herald Room*

12:00 noon—Luncheon—Thermal Evaluation of Insulating Materials Subcommittee ..... Pennsylvania Room

12:00 noon—Luncheon—Electrostatic Processes Subcommittee ..... Schuyler Room

12:00 noon—Luncheon—Public Relations ..... Room D*

12:00 noon—Luncheon—ASA C57 ..... Cornell Room

2:00 p.m.—Magnetic Amplifier Theory Subcommittee ..... AIEE Board Room**

2:00 p.m.—Lightning Protective Devices Subcommittee ..... Empire Suite II

2:00 p.m.—Textile Subcommittee, Electrical Panel ..... Room T*

2:00 p.m.—Printing Telegraph Subcommittee ..... Room E*

2:00 p.m.—Substations ..... West Room

2:00 p.m.—Student Branches ..... Dartmouth Room

2:00 p.m.—Magnetic Amplifier Rectifier Subcommittee... Room K*

2:00 p.m.—Relays ..... Hudson Room

2:00 p.m.—Feedback Control Systems ..... Pennsylvania Room

2:00 p.m.—General Applications Division ..... Boston Room

2:00 p.m.—Furnace Transformer Standards W. G..... Room 817**

2:00 p.m.—Wiring Diagrams of AAR ..... Room 1101**

2:00 p.m.—Transfers ..... Empire Suite I

2:00 p.m.—Communication Theory ..... Room J*

4:00 p.m.—Synchronous Machinery Subcommittee . Greeley Annex*

4:00 p.m.—Single Phase and Fractional HP Machinery Subcommittee ..... Room D*

4:00 p.m.—Capacitor Subcommittee ..... Village Room

4:00 p.m.—Hydro Electric Systems Subcommittee... Schuyler Room

4:00 p.m.—Basic Sciences ..... Town Room

4:30 p.m.—Computing Devices ..... Pennsylvania Room

4:30 p.m.—Chemical Processes Subcommittee ..... Chelsea Annex*

4:30 p.m.—Magnetic Amplifier Standards Subcommittee ..... Empire Suite I

5:00 p.m.—Hopkins Alumni Hour ..... Skytop

5:30 p.m.—Carnegie Institute Alumni Cocktail Party Keystone Room

7:30 p.m.—Forum of Technical Committee Chairmen ..... Georgian Room

Thursday, February 2

8:00 a.m.—Breakfast—Electrical Systems for Commercial Buildings ..... Town Room

9:00 a.m.—R. M. Administrative Subcommittee... Empire Suite I

9:00 a.m.—Board of Directors ..... Dartmouth Room

9:00 a.m.—Textile Subcommittee, Electrical Panel... Village Room

9:00 a.m.—Management ..... Boston Room

9:00 a.m.—Protective Devices ..... Hudson Room

9:30 a.m.—Wiring Diagrams of AAR ..... Room 1001**

9:30 a.m.—Wire Communication Conf. Com..... Empire Suite II

9:30 a.m.—Probability Methods Subcommittee..... Buffalo Room

9:30 a.m.—Magnetic Amplifiers ..... Pennsylvania Room

12:00 noon—Luncheon—Board of Directors ..... Dartmouth Room

12:00 noon—Luncheon—Industrial Power Rectifiers ..... Pennsylvania Room

12:00 noon—Luncheon—Induction Machinery Subcommittee ..... Empire Suite I

12:00 noon—Luncheon—Nucleonics ..... Room D*

2:00 p.m.—Board of Directors .....Dartmouth Room
2:00 p.m.—Excitation Systems Subcommittee.....Empire Suite II
2:00 p.m.—Wiring Diagrams of AAR .....Room 1001**
2:00 p.m.—Radio Communications Systems .....Buffalo Room
2:00 p.m.—Metallic Rectifiers .....Town Room
2:00 p.m.—Medicine and Biology Executive.....Schuyler Room
2:00 p.m.—Industrial Control .....Cornell Room
4:00 p.m.—Electrochemical Processes Subcommittee .....Buffalo Room
4:00 p.m.—Rotating Machinery .....Hudson Room
4:00 p.m.—Wire Communications .....Boston Room
4:30 p.m.—Digital Computer Comparison .....Village Room
4:30 p.m.—Dielectrics .....Schuyler Room
4:30 p.m.—Electronic Executive .....Chelsea Room*
6:30 p.m.—Dinner—Electronics .....Chelsea Room*
7:00 p.m.—Magnetic Amplifier Applications Subcommittee .....Hudson Room

Friday, February 3

8:00 a.m.—Breakfast—D. C. Machinery Short Circuit Characteristics Guide .....Town Room
9:00 a.m.—Magnetic Coupling Subcommittee .....Village Room
9:00 a.m.—Excitation Systems Working Group.....Empire Suite II
12:00 noon—Luncheon—Gaseous Dielectrics Subcommittee .....Town Room
12:00 noon—Luncheon—Volta Scholarship Trustees...Herald Room*
12:00 noon—Luncheon—D. C. Machinery Subcommittee .....Empire Suite I

*Located in the Hotel Governor Clinton, Seventh Avenue and 31st Street.

**Located in the Engineering Societies Building, 33 West 39th Street.

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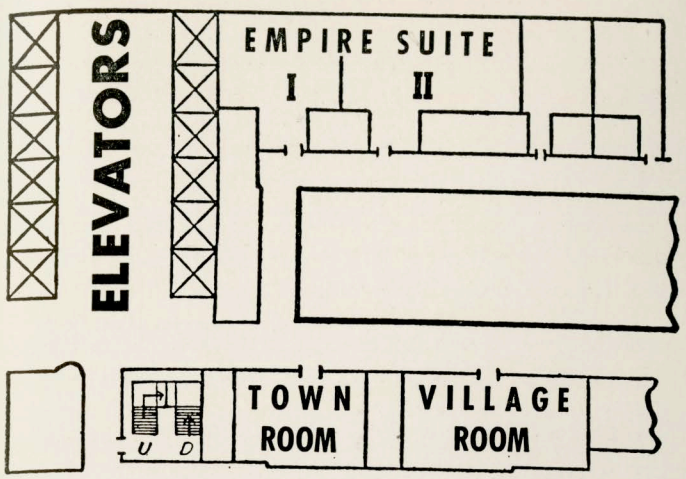

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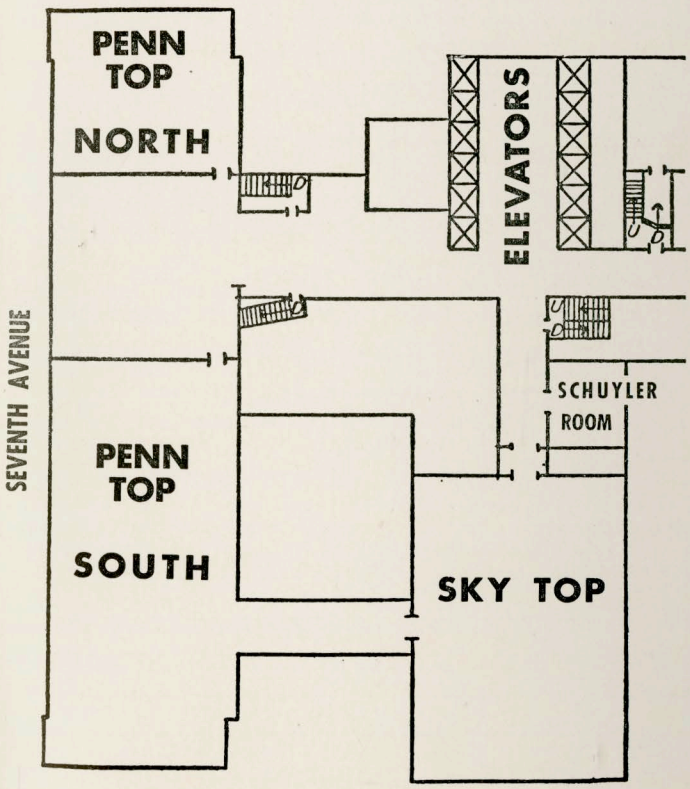

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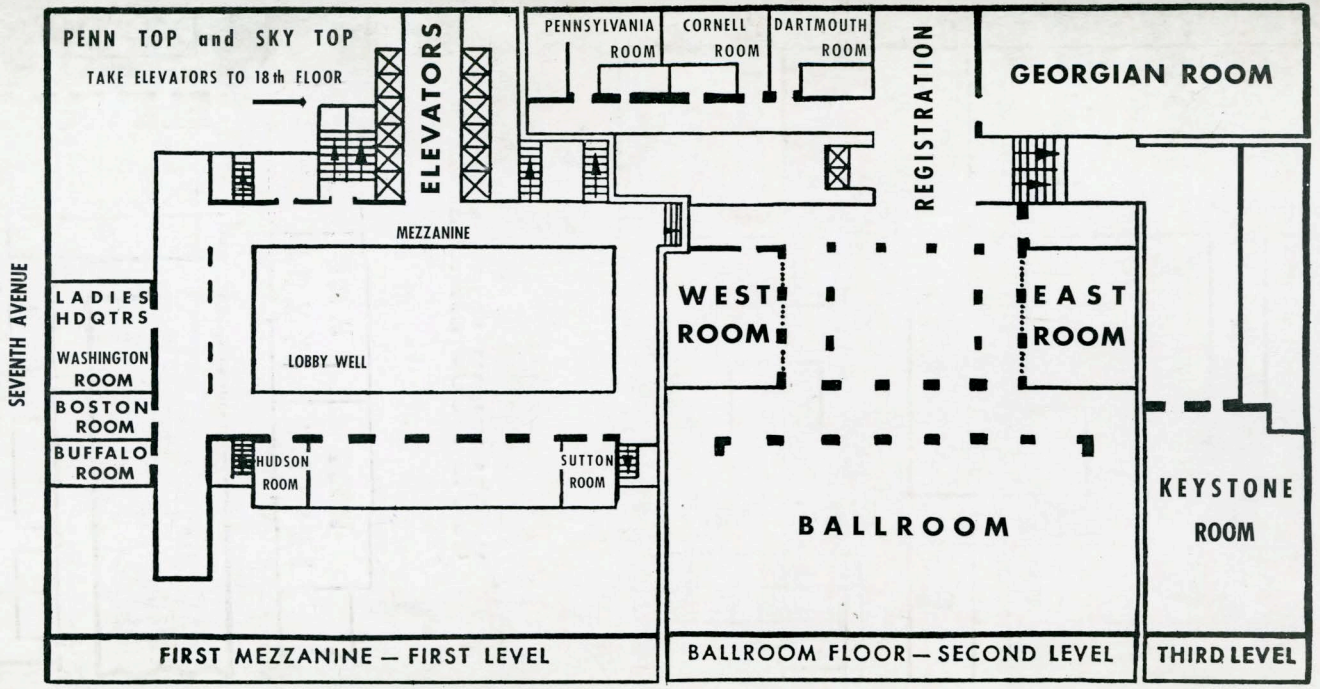
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