

American Institute of Electrical Engineers



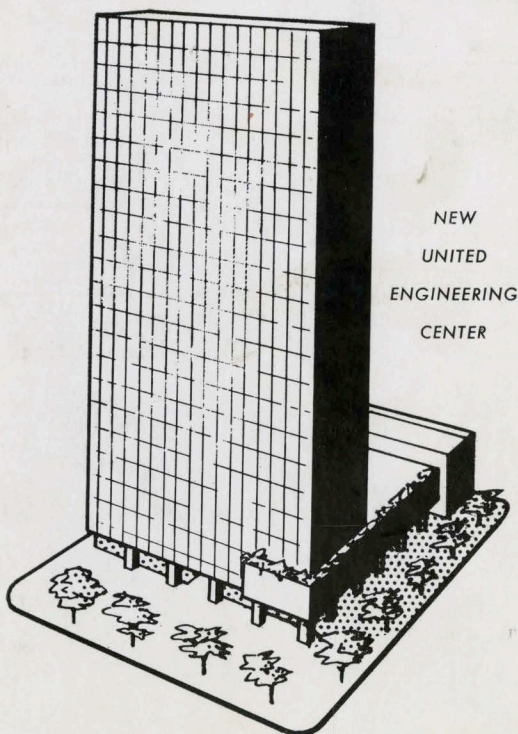
WINTER GENERAL MEETING

Program

*Please retain for use during
entire meeting*

NEW YORK, N. Y.
FEBRUARY 2 - FEBRUARY 7
1958

Meeting Headquarters
HOTEL STATLER



GENERAL INFORMATION

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

Mr. Thomas J. Watson, Jr., President of the International Business Machines Corporation, will deliver the principal address at the General Session to be held at 2:00 p.m. Monday, February 3rd, 1958. At this session also, the Edison Medal will be presented to John K. Hodnette, Vice-President and General Manager, Westinghouse Electric Corporation. The Institute Paper Prizes will also be awarded and President Walter J. Barrett will address the members assembled.

In determining the technical sessions and committee meetings you wish to attend, please note that several have been assigned to the Sheraton-McAlpin Hotel, Broadway and 34th Street.

Note: In fairness to all concerned and due to the lack of display space, only Institute notices will be permitted during the meeting. This will prohibit the posting of any advertising or position opportunity notices.

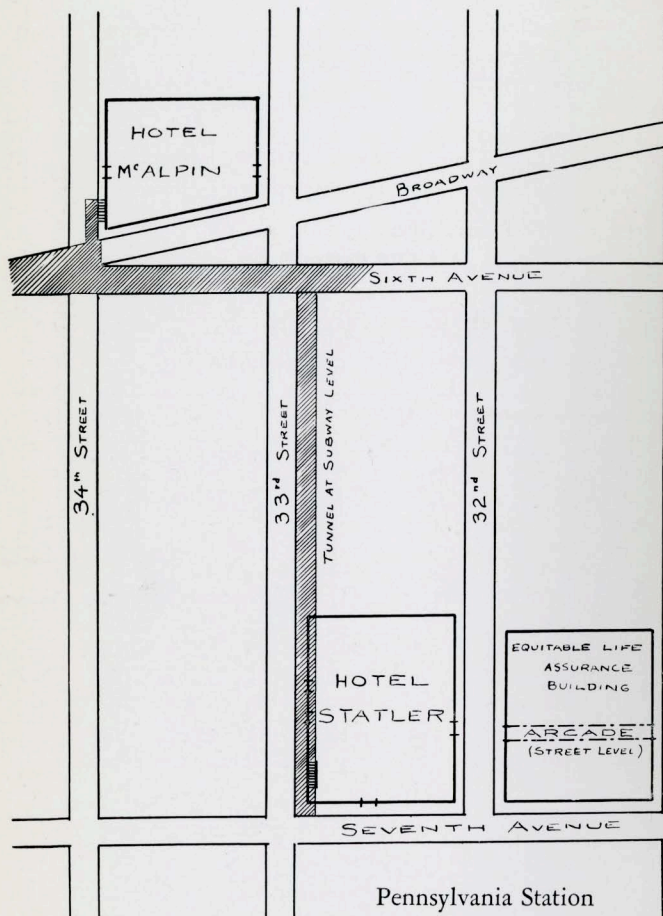
REGISTRATION, FEES REQUIRED. In accordance with the policy as set up by the Board of Directors, a registration fee of \$5.00 has been established for members and a fee of \$8.00 for nonmembers. This is to help make the meeting self-supporting. Student members and the immediate families of members will 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 information desk.

BROADCAST TICKETS have been obtained for many of the principal broadcasts in various evenings during the week. These are available at the Information Desk.

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 sent to Edward C. Day, Assistant Secretary, Technical Operations Department, AIEE, 33 West 39th Street, New York 18, New York, before February 21, 1958. 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 should be addressed to the AIEE Order Department, 33 West 39th Street, New York 18, New York. The TRANSACTIONS 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.



HOTEL LOCATIONS

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

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
<p>10:00 A.M. Electric Welding <i>Crystal Room*</i> Mining Metal Industry <i>Penn Top North</i> Petroleum Industry <i>Colonial Room*</i> Protective Relaying <i>Gold Ballroom</i> Protective Devices <i>Penn Top South</i> Ind. Pwr. Rectifiers <i>Skytop</i> Gaseous Dielectrics <i>Georgian Room</i> Electronic Transformers <i>Red Room*</i> Magnetic Amplifiers <i>Ballroom</i> Digital Differential Analyzers <i>Ballroom*</i> Instruments <i>East Room</i> Instruments <i>West Room</i></p>	<p>9:00 A.M. Section Representatives <i>Penn Top North</i> Closed Circuit TV <i>Skytop</i> Electric Space Heating <i>West Room</i> Rectifiers <i>Georgian Room</i> Insulated Conductors <i>Ballroom*</i> Power Generation <i>Penn Top South</i> Substations <i>Gold Ballroom</i> Applied Mathematics <i>Rm. 502 Engrg. Soccs. Bldg.</i> Insulation <i>Crystal Room*</i> Electron Tubes <i>East Room</i> Magnetic Amplifiers <i>Colonial Room*</i> Computer Applications <i>Ballroom</i> Instruments <i>Red Room*</i></p>	<p>9:00 A.M. Broadcasting <i>East Room</i> Industrial Control <i>Red Room*</i> Insulated Conductors <i>Ballroom</i> Pwr. Gen. and Sys. Engrg. <i>Georgian Room</i> Substation & Switchgear <i>Crystal Room</i> Relays <i>Ballroom*</i> Synthetic Insulation <i>Penn Top North</i> Linear Transistors <i>Gold Ballroom</i> Devices for Computers <i>Colonial Room*</i> Management <i>Penn Top South</i> Instruments <i>West Room</i> Industrial Power Rectifiers <i>Skytop</i> Gradient Measurements <i>Rm. 502 Engrg. Soccs. Bldg.</i></p>	<p>9:00 A.M. Safety Symposium <i>Penn Top South</i> Wire Communications <i>Red Room*</i> Prod. & Applic. of Light <i>Rm. 502 Engrg. Soccs. Bldg.</i> Electrochemical Processes <i>Penn Top North</i> Feedback Devices <i>Colonial Room*</i> System Engineering <i>Georgian Room</i> Rotating Machinery <i>Crystal Room*</i> Switchgear <i>Ballroom*</i> Trans. & Dist. <i>Gold Ballroom</i> Transformers <i>Ballroom</i> Radiation on Dielectrics <i>Skytop</i> Electrostatic Processes <i>East Room</i> Computing Communications <i>West Room</i></p>	<p>9:00 A.M. Telegraph & Data Communications <i>Red Room*</i> Cathodic Protection <i>East Room</i> Feedback Control <i>Penn Top South</i> Rotating Mach. <i>Georgian Room</i> Transmission & Distribution <i>Ballroom</i> Transformers <i>Ballroom*</i> Semiconductors <i>Skytop</i> Medicine & Biology <i>Crystal Room</i> ICY Computing <i>Gold Ballroom</i> Computers <i>Colonial Room*</i> Education <i>Penn Top North</i></p>

* Located in the Hotel Sheraton McAlpin, Broadway, 33rd to 34th Streets

<p>2:00 P.M. General Session <i>Ballroom</i></p> <p>7:30 P.M. Magnetic Amplifiers <i>Dallas Room</i></p>	<p>2:00 P.M. Section Representatives <i>Penn Top North</i> TV Broadcasting <i>Skytop</i> Marine Transportation <i>Georgian Room</i> Ind. Pwr. Sys. and T&D <i>West Room</i> Insulated Conductors <i>Ballroom*</i> Power Generation <i>Penn Top South</i> Substations <i>Gold Ballroom</i> Electric Circuit Theory <i>Rm. 502 Engrg. Soccs. Bldg.</i> Insulation <i>Crystal Room*</i> Electron Tubes <i>East Room</i> Magnetic Amplifiers <i>Colonial Room*</i> Research <i>Ballroom</i> Dielectric Tests <i>Red Room*</i></p>	<p>2:00 P.M. Radio Communications <i>East Room</i> Communication Theory <i>Skytop</i> Telegraph Systems <i>West Room</i> Industrial Control <i>Red Room*</i> Pwr. Gen. and Sys. Engrg. <i>Georgian Room</i> Rotating Machinery <i>Penn Top South</i> T & D and Relays <i>Ballroom*</i> Solid Dielectrics <i>Ballroom</i> Switching Circuits <i>Gold Ballroom</i> Effects of Radiation <i>Penn Top North</i> Computers in Contr. Sys. <i>Colonial Room*</i> Industrial Power Sys. <i>Crystal Room*</i> Measurements on Dielectrics <i>Rm. 502 Engrg. Soccs. Bldg.</i></p>	<p>2:00 P.M. Safety Symposium <i>Penn Top South</i> Wire Communications <i>Red Room*</i> Metering D-C Power Sys. <i>Rm. 502 Engrg. Soccs. Bldg.</i> Transistors in F.C.S. <i>Colonial Room</i> Sys. Eng. & Pwr. Gen. <i>Georgian Room</i> Rotating Machinery <i>Crystal Room</i> Switchgear <i>Ballroom*</i> Transmission & Distribution <i>Gold Ballroom</i> Transformers <i>Ballroom</i> Solid State Devices <i>Skytop</i> Thinking Machines <i>West Room</i> Heavy Traction <i>Penn Top North</i> Telegraph Switching Systems <i>East Room</i></p>	<p>2:00 P.M. Telegraph Systems <i>Red Room*</i> Storage Batteries <i>East Room</i> Feedback Control <i>Penn Top South</i> Rotating Machinery <i>Georgian Room</i> Transmission & Distribution <i>Ballroom</i> Computers in Design <i>Gold Ballroom</i> Data Communications <i>Penn Top North</i> Railroad Electrification <i>West Room</i> Switchgear <i>Ballroom*</i> Industrial Control <i>Skytop</i></p>
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* Located in the Hotel Sheraton McAlpin, Broadway, 33rd to 34th Streets

Monday, February 3

10:00 a.m.—Instrumentation for Electric Welding

Electric Welding Committee
Sheraton-McAlpin Crystal Room
J. F. DEFFENBAUGH, Presiding

- CP.* Progress in Development of Recommended Practices for Resistance Welding. R. P. C. Rasmussen.
- CP58-210. A Recommended Program for Resistance Welding Instrumentation. A. Dixon, Westinghouse Electric Co.
- CP.* A Parallel-Type Pickup Coil for Resistance Welding Current Measurements. William Kolb.

10:00 a.m.—Mining and Metal Industry

Mining and Metal Industry Committee
Hotel Statler Penn Top North
E. H. BROWNING, Presiding

- CP.* Recent Advances in Control Systems for Continuous Processing Lines. C. P. Brooks and J. T. Bradford, General Electric Company.
- CP.* Motor Field Control for Large Reversing Mill Motors. L. R. Hulls, Canadian Westinghouse Co.
- CP.* Some Experiences With Magnetic Amplifier Applications. J. A. B. Pinney, Alan Wood Steel Co.
- CP.* The Application of Electrode Positioning Controls for Vacuum Arc Melting Furnaces. E. J. Borrebach, Westinghouse Electric Corp.

10:00 a.m.—Refining and Chemical Processes

Chemical Industry and Petroleum Industry Committees
Sheraton-McAlpin Colonial Room
H. M. STEWART and R. W. SCOTT, Presiding

- CP.* Static Electricity in the Petroleum Industry. J. C. Howard, Standard Oil Co. (Indiana).
- CP58-227. Cypak and its Application in the Petroleum and Chemical Industries. P. G. Hanna and C. R. Olson, Westinghouse Electric Corp.
- CP58-228. Electrical Safety in the Chemical Industry. E. J. Meyers, E. I. DuPont de Nemours and Co., Inc.
- CP.* Selection and Installation of Equipment for Conduit Wiring Systems in Corrosive Locations. R. P. Northup and D. J. Smith, Crouse-Hinds Co.

10:00 a.m.—Microwave Channel Requirements for Protective Relaying

Power System Communications Committee
Hotel Statler Gold Ballroom

Symposium Moderator: T. A. Cramer.

Introduction: G. E. Farmer, TVA.

- CP.* H. W. Lensner, Westinghouse Electric Corp.
- CP.* L. G. Walker, Motorola, Inc.
- CP.* I. T. Corbell, General Electric Co.
- CP.* K. O. Sten, Boston Edison Co.
- CP.* E. W. Downer, The Cleveland Electric Illuminating Co.
- CP.* D. R. Hoopes, Southern Nevada Car Co.

10:00 a.m.—Protective Devices

Protective Devices Committee
Hotel Statler Penn Top South
E. M. HUNTER, Presiding

- 58-69. Lightning Protection of Equipment With Remotely Mounted III Arresters. A. H. Knable, Allis-Chalmers Mfg. Co.
- 57-575. Expanding System Requirements Indicate Need For More III Severe Arrester Tests. G. Fred Lincks, General Electric Co.
- 58-160. Lightning Arrester Field Tests. H. Linck, The Hydro-Electric III Power Commission of Ontario.
- CP58-56. The Frequency Spectrum in Impulse Testing. William J. McKune, Georgia Institute of Technology.

- 58-94. An Experience with Breaker Restriking and Arrester Destruction on the Pennsylvania Power and Light Co. 220 KV System. M. C. Galiyano, C. A. MacArthur and W. F. Mackenzie, Pennsylvania Power and Light Co.

10:00 a.m.—Industrial Power Rectifiers

Industrial Power Rectifiers Committee
Hotel Statler Skytop
R. N. WAGNER, Presiding

- CP58-216. Performance of Pumpless Ignitron Rectifiers. W. L. Blatz and E. J. Remscheid, General Electric Co.
- 58-137. Superposition Applied to Mechanical Rectifier Contacts. I. K. II Dortort, I-T-E Circuit Breaker Co.
- CP58-217. Transformer Equipment For Rectifier Substations Serving Electrochemical Plants. W. R. Hodgson and R. D. Morris, Westinghouse Electric Corp.
- 58-218. Analysis of Ignitron Rectifiers For Reversing Mill Drives. II C. G. Hagensick and E. J. Cham, Westinghouse Electric Corp. (Re-presented for discussion).
- CP.* Report of the Working Group on Revision of ASA C-34 Standards. H. Winograd, Allis-Chalmers Mfg. Co.

10:00 a.m.—Gaseous Dielectrics

Dielectrics Committee
Hotel Statler Georgian Room
T. W. LIAO, Presiding

- CP.* Recent Progress on Gaseous Dielectrics. J. J. Chapman and L. J. Frisco, The Johns Hopkins University.
- CP.* On the Electric Strengths of Gases at High Pressures I, Nitrogen. P. K. Watson and A. H. Sharbaugh, General Electric Co.
- CP.* Current Pulse Shapes of Discharges in Air Gaps Limited by Series Dielectrics. J. C. Devins, General Electric Co.
- CP.* Ionization in Gas Switching Tubes. David J. Rose, Bell Telephone Labs.
- CP.* Experience With the AIEE Subcommittee Test Cell for Gaseous Dielectrics. M. L. Manning, Pennsylvania Transformer Company.

10:00 a.m.—Electronic Transformers

Electronics Committee
Sheraton-McAlpin Red Room
L. W. KIRKWOOD, Presiding

- CP.* Computer Design of Small Electronic Transformers. Wade Etchison, M. B. Meunier and Reuben Lee, Westinghouse Electric Corp.
- CP.* Reliability of Transformers for Electronic Applications. O. L. Angevine, Caledonia Electronics and Transformer Corp.
- CP.* Evaluation of Factors Affecting the Magnetic Performance and Design of EI Transformer Cores. D. M. Douglas, Amco Steel Corp.
- 58-209. An Experimental Study of Magnetic Materials For Use In I Ultra High Temperature Electronic Transformers. H. B. Harms, General Electric Co.
- CP58-208. Ultra High Temperature Electronic Transformers. G. E. Walter and H. B. Harms, General Electric Company, J. F. Rippin, Jr., Wright Field Development Center.

10:00 a.m.—Magnetic Amplifiers

Magnetic Amplifiers Committee
Hotel Statler Ballroom
V. J. LOUDEN, Presiding

- 58-120. Magnetic Saturable Core Timing Device. John L. Lowrance, I Bendix Aviation Corp.
- 57-921. Core-Reset Functions in Magnetic Amplifier Analysis Part I II—Determination of Amplifier Performance. G. C. Feth, General Electric Co. (Re-presented for discussion).
- 58-96. Self-Balancing Flux-Gate Magnetometers. W. A. Geyger, I U. S. Naval Ordnance Lab.
- CP58-173. Volt-Second Transfer Efficiency In Fast Response Magnetic Amplifiers. Part II: N²/R As A Design Parameter. T. J. Pula, G. E. Lynn, and J. E. Ringelman, Westinghouse Electric Corp.

MONDAY (continued)

10:00 a.m.—Digital Differential Analyzers

Computing Devices Committee
Sheraton-McAlpin Ballroom
S. ROGERS, Presiding

- CP.* What is a DDA? R. Goldman, Bendix Computer Division.
- CP.* Current Applications of Incremental Techniques, Geoffrey Post, Litton Industries.
- CP.* Future Developments in Incremental Techniques. M. Palevsky, Packard-Bell Computer Corp.

10:00 a.m.—Recording and Controlling Instrumentation

Recording and Controlling Instruments Committee
Hotel Statler East Room
R. C. LANGFORD, Presiding

- CP58-15. Digital Systems in the Aircraft Industry. W. P. Hamilton, Leeds and Northrup Co.
- 58-29. Digital and Pictorial Photographic Electronic Recorder.
I R. G. McPherson and I. A. Sonderby, The Magnavox Research Labs.
- CP.* Problems in the Design of a Family of Automatic Null-Balancing Electrical Measuring Instruments. L. E. Jewett, Leeds and Northrup Co.
- CP.* Design Considerations for Miniature Automatic Null-Balancing Electrical Measuring Instruments. D. A. Narducci, Jr., The Bristol Co.

10:00 a.m.—Indicating and Integrating Instruments

Indicating and Integrating Instruments Committee
Hotel Statler West Room
F. H. ROGERS, Presiding

- 58-145. Watthour Meter for Two Phases of a 4-Wire Y 3-Phase System. A. M. McQuarrie, General Electric Co.
- 58-146. New Printing Demand Meter. P. V. Terry, General Electric Co.
- CP58-241. High Impulse Rate Demand Contact Device. William A. Cavagnaro and Edwin B. Judd, General Electric Co.
- CP.* Evaluation of Single-Phase Metering Practices Based on Meter Performance and Load Characteristics. J. M. Vanderleck, The Hydro-Electric Power Commission of Ontario.

2:00 p.m.—General Session

Hotel Statler Ballroom
D. M. QUICK, General Chairman, Presiding

ADDRESS: President Walter J. Barrett

PRESENTATION OF THE INSTITUTE PRIZE PAPER AWARDS

Communication Division:

1st Prize Paper by: W. E. Bloecker and G. A. Caldwell

Power Division:

1st Prize Paper by: M. E. Talaat

2nd Prize Paper by: N. Cohn

3rd Prize Paper by: T. W. Liao, W. A. Keen, Jr., and D. R. Powell

Science and Electronics Division:

1st Prize Paper by: P. P. Cioffi

2nd Prize Paper by: G. C. Feth

Instrumentation Division:

1st Prize Paper by: J. G. Anderson and J. S. Kresge

2nd Prize Paper by: A. F. Rohlf, J. S. Kresge and F. A. Fisher

Industry Division:

1st Prize Paper by: K. Chen

2nd Prize Paper by: P. Sarachik and J. R. Ragazzini

Student Division:

1st Prize Paper by: J. D. Burroughs

2nd Prize Paper by: N. A. Shyne

MONDAY (continued)

PRESENTATION OF THE EDISON MEDAL TO JOHN K. HODNETTE

Establishment of the Edison Medal, Elgin B. Robertson, Chairman, Edison Medal Committee

Career of the Medalist, Mr. Walter H. Sammis, President of the Ohio Edison Company

Presentation of the Medal and Certificate, President Walter J. Barrett

Response of the Medalist, John K. Hodnette

NOMINATING COMMITTEE REPORT

ADDRESS: Thomas J. Watson, Jr., President, International Business Machines Corporation

7:30 p.m.—Theory and Design of Magnetic Amplifiers

Magnetic Amplifiers Committee
Hotel Statler Dallas Room
H. F. STORM, Presiding

The purpose of the meeting is the free interchange of information on the theory and design of magnetic amplifiers. Questions from the floor will be requested.

Tuesday, February 4

9:00 a.m.—Section Representatives

Hotel Statler Penn Top North

9:00 a.m.—Developments in Closed Circuit Television

Television and Aural Broadcasting Systems Committee
Hotel Statler Skytop
C. R. KRAUS, Presiding

- CP.* A New Industrial TV Camera System. J. E. Dilley and G. A. Senior, RCA.
- CP.* Dial Selected Industrial Television For Ticket Reservation Facilities. Joseph W. Alinsky, Thompson Products, Inc.
- CP.* Unusual Applications of Closed Circuit Television. C. L. Ellis, General Electric Co.
- CP.* Wiring a Town for Closed Circuit Movie Distribution. Harvey J. McMains, Southwestern Bell Telephone Co.

9:00 a.m.—Electric Space Heating and Heat Pumps

Domestic and Commercial Applications Committee
Hotel Statler West Room
B. H. MARTIN, Presiding

- CP.* The Challenging Aspects of Electric Space Heating. W. T. Richards, Indianapolis Power and Light Co.
- 58-64. Heat Pump and Heating Cables Installed in the Same Residence; First Year of Comparative Operation. C. W. Jones and E. E. Linden, The Narragansett Electric Co.
- CP.* Operating Cost Calculations and Experience of Air-to-Air Heat Pumps. H. N. Eanes, Alabama Power Co.
- CP.* Large Heat Pumps. H. E. Rex, Carrier Corp.
- CP.* Compound Air Source Heat Pump. R. G. Werden, York Corp.

9:00 a.m.—Industrial Power Rectifiers and Metallic Rectifiers

Industrial Power Rectifiers and Semiconductor Metallic Rectifiers Committees
Hotel Statler Georgian Room
C. C. HERSKIND, Presiding

- 58-219. Current Balancing Reactors For Semi-Conductor Rectifiers.
I I. K. Dortort, I-T-E Circuit Breaker Co.
- 58-220. Power Factor of Rectifiers. A. Schmidt, Jr., General Electric Co.
II Company.
- CP58-221. Semiconductor Rectifiers—Present and Future—For Electrochemical Loads. R. M. Crenshaw and A. L. Munn, General Electric Co.
- CP58-222. Design Considerations for Large Industrial Semiconductor Rectifiers. G. J. Bowar, General Electric Co.

TUESDAY (continued)

CP.* Trip Report on Rectifier Developments in Russia. L. W. Morton, General Electric Co.

9:00 a.m.—Insulated Conductors

Insulated Conductors Committee
Sheraton-McAlpin Ballroom
L. E. FOGG, Presiding

58-72. Control of the Thermal Environment of Buried Cable Systems—II. L. H. Fink and J. J. Smerke II, Philadelphia Electric Co.

CP58-242. Forced Cooling of Underground Cables. O. Nigol and G. H. West, The Hydro-Electric Power Commission of Ontario.

58-73. 69 KV Stop Joint for Connecting Pipe Type Cable to Oil-Filled Cable. R. H. Bolling, Jr., Philadelphia Electric Co.

58-74. Aluminum Conductor Aluminum Sheathed, Triplex Cable III Installation. J. F. Gillespie, Philadelphia Electric Co.

9:00 a.m.—Power Generation

Power Generation Committee
Hotel Statler Penn Top South
A. G. MELLOR, Presiding

58-93. Switchgear With Stored Energy Mechanism Applied to Steam Station Auxiliary Transfer Arrangements. P. G. Brown, J. J. Heagerty, D. G. Lewis and E. M. Smith, General Electric Co.

58-53. Electrical Control Features of the Avon Supercritical Pressure Unit. R. F. Willett, The Cleveland Electric Illuminating Co.

CP58-163. Design and Operation of Gas Turbine Operating Stations. A. W. Barstow and W. D. Marsh, General Electric Co.

58-164. Large Gas Turbines For Central Station Application. Z. Stanley Stys, Brown Boveri Corp.

9:00 a.m.—Substations

Substations Committee
Hotel Statler Gold Ballroom
W. S. SHEERING, Presiding

58-98. Voltage Gradients Through the Ground Under Fault Conditions. AIEE Working Group 56.1, Chairman, Richard F. Stevens, Bonneville Power Administration.

58-33. The Economic Advantages of Standard Substations. B. T. Payne, Central Maine Power Co.

58-7. Working Group Report On Mobile Substations—Their Use, and the Design of Distribution Substations to Facilitate Their Use. AIEE Committee on Substations Working Group—Project 53.2, Chairman, H. H. Marsh, Jr.

CP58-99. Design and Utilization of Mobile Substations. M. R. Wallin, Union Electric Co.

9:00 a.m.—Applied Mathematics

Basic Sciences Committee
Rm. 502, Engrg. Soes. Bldg.
H. SOHON, Presiding

CP.* Generalized Recurrence Relations in the Analysis of Physical Nonlinear Systems. A. A. Wolf, University of Pennsylvania.

CP.* Transient Response of a Saturating Control System. J. H. Dietz and A. A. Wolf, University of Pennsylvania.

58-66. Matrix Programming of Electronic Analogue Computers. I R. E. Horn, Westinghouse Electric Corp., and P. M. Honnell, Washington University.

CP58-67. Solutions of the Stout Nonlinear Equations and the Lewis Nonlinear Equation by Number Series. J. R. Eckel, Jr., University of Wisconsin and C. H. Weaver, University of Tennessee.

9:00 a.m.—High-Temperature Insulation

Dielectrics Committee
Sheraton-McAlpin Crystal Room
J. F. DEXTER, Presiding

58-115. Properties of Electrical Insulation at Ultra High Temperatures. G. I. Duncan and M. M. Felger, General Electric Co.

TUESDAY (continued)

58-116. Dielectric Sample Holder For Thin Sheet Insulation To I 600°C. M. C. Halleck, General Electric Co.

CP58-117. Magnet Wire For Ultra High Temperature Transformers. W. W. Wareham, General Electric Co.

CP58-118. Terminal Spacings For High Altitude And Ultra High Temperature Electronic Transformer Applications. G. I. Duncan and W. A. Rectanus, General Electric Co.

CP.* Ceramic Material Developments For High Temperature Transformers, J. H. Terry and E. A. Weaver, General Electric Co.

9:00 a.m.—Electron Tube Developments

Electronics Committee
Hotel Statler East Room
H. H. WITTENBERG, Presiding

CP58-187. Low-Mu Triodes With Improved Electrode Geometry. C. V. Weden, Machlett Labs., Inc.

CP.* Voltage Regulator and Reference Tubes for Critical Environments. J. M. Lafferty, General Electric Research Lab.

CP58-188. Ceramic Hydrogen Thyratons. H. N. Price and A. W. Coolidge, General Electric Co.

CP.* A Rugged, Tunable, Thermally Stable X-Band Beacon Magnetron. C. J. Orlebeke, Raytheon Mfg. Co. Presented by A. J. Ferri, Raytheon Mfg. Co.

9:00 a.m.—Magnetic Amplifiers

Magnetic Amplifiers Committee
Sheraton-McAlpin Colonial Room
P. L. SCHMIDT, Presiding

58-39. Magnetic Amplifier Design (Part II—The Windings). R. E. I Anderson, General Electric Co.

58-77. High Efficiency Push-Pull Magnetic Amplifiers With Transistors As Switched Rectifiers. A. G. Milnes, Carnegie Institute of Technology.

58-175. Proposed Standard Terms and Definitions For Magnetic I Amplifiers. AIEE M. A. Definitions Subcommittee, D. Feldman, Chairman.

58-71. Proposed Standards For Core Test Methods For Toroidal I Magnetic Amplifier Cores. AIEE Committee Report by Core Matching and Grading Working Group. V. J. Louden, Chairman.

9:00 a.m.—Computing Devices and System Engineering

Computing Devices and System Engineering Committees
Hotel Statler Ballroom
F. J. MAGINNISS, Presiding

58-133. Computer Analysis of Transmission System Capability During III Generator Outages. H. B. Seeley, R. E. Briesemeister and J. T. Garbarini, Consolidated Edison Co. of New York, Inc.

58-134. The Use of A Digital Computer in A Generator Reserve Requirement Study. H. E. Brown, Commonwealth Edison Co.

CP58-136. Digital Fault Calculations. C. F. Evert, University of Cincinnati, and W. M. Lampe, Allis-Chalmers Mfg. Co.

CP.* Experience In Computation of Load Flow Studies Using High Speed Computer. H. P. St. Clair and G. W. Stagg.

CP58-243. Preliminary Report On Survey of Electric Utility Applications of Digital Computers. S. E. Computer Application and C. D. Applications Subcommittees. L. B. LeVesconte and F. J. Maginniss, Chairmen.

9:00 a.m.—Recording and Controlling Instrumentation

Recording and Controlling Instruments Committee
Sheraton-McAlpin Red Room

TOPIC: ASA Specifications (C39.4-1956) for Automatic Null-Balancing Electrical Measuring Instruments.

PRESENTATION: Members of the ASA Subcommittee C39.4 responsible for this new standard will review the reasoning on which it was based and will respond to questions concerning it.

TUESDAY (continued)

PARTICIPANTS:

- Chairman: E. A. Weiss, Sun Oil Co.
 Panel Members: H. C. Koenig, Electrical Testing Labs.
 G. L. Broomell, Jr., Leeds and Northrup Co.
 R. C. Langford, Weston Electrical Instrument Corp.
 J. W. Percy, U. S. Steel Corp.
 W. H. Brand, Conoflow Corp.

2:00 p.m.—Section Representatives
 Hotel Statler Penn Top North

2:00 p.m.—Television Broadcasting
 Television and Aural Broadcasting Systems Committee
 Hotel Statler Skytop
 G. H. BROWN, Presiding

- CP.* A New Vidicon Camera for Live Pickup. F. W. Millsbaugh and J. H. Roe, RCA.
 CP.* The Effect of Local Field Conditions on Television Receiver Design. Ernest Freeland, Philco Corp.
 CP.* Engineering for Off-the-Air Television Service in Southern California. E. Dale Barcus, Pacific Telephone and Telegraph Company.

2:00 p.m.—Marine Transportation
 Marine Transportation Committee
 Hotel Statler Georgian Room
 J. D. SHUSTER, Presiding

- 58-135. Metallic Rectifiers for Shipboard Electrical Systems. C. L. II Straub, Dept. of the Navy and H. G. Wiest, General Electric Company.
 58-132. Overcurrent Protection In Large Capacity Shipboard Electrical Systems. J. R. Cole, Dept of the Navy.
 CP58-161. Recommendations For Electrical Installations In Ships. (I.E.C. Publication 92.) A. R. Gatewood, American Bureau of Shipping.

2:00 p.m.—Industrial Power Systems and Transmission and Distribution
 Industrial Power Systems and Transmission and Distribution Committees
 Hotel Statler West Room
 T. O. SWEATT, Presiding

- CP.* Alternate Methods of Tying With Utilities. Terrell W. Haymes and Robert B. Thompson.
 CP58-63. Electrical Problems Resulting From the Interconnection of a Steel Plant Power System and a Utility. Edmond J. McClure, Bethlehem Steel Co.
 CP.* AC Network Analyzer Studies of Interconnected Utility and Industrial Power Systems. Clifford C. Young and J. Dunki-Jacobs.
 57-642. The Tie Between a Utility and an Industrial When the Industrial Has Generation. D. V. Fawcett, Canadian Westinghouse Co., Ltd. (Re-presented for discussion).

2:00 p.m.—Insulated Conductors
 Insulated Conductors Committee
 Sheraton-McAlpin Ballroom
 F. M. HULL, Presiding

- 58-75. Corrugated Metal Cable Sheath. K. Andresen, Hackethal III Draht-und Kabel-Werke AG and F. Dias and N. D. Kenney, Simplex Wire and Cable Co.
 58-76. Electromagnetic Field Phenomena in Shielded Aerial Cables III Under Surge Conditions. J. K. Delson, General Electric Co.
 58-51. Dielectric Strength and Voltage Life of Polyethylene. G. H. III Hunt, M. J. Kouloupoulos and P. H. Ware, Simplex Wire and Cable Co.
 CP.* Operating Experience With Thermoplastic Insulated Wire and Cable in Chemical Plants. M. M. Gilbert and J. R. Perkins, E. I. duPont deNemours & Co.

TUESDAY (continued)

2:00 p.m.—Power Generation
 Power Generation Committee
 Hotel Statler Penn Top South
 P. L. DANDENO, Presiding

- CP.* Recommended AIEE Excitation Systems Definitions for Synchronous Systems. Excitation Systems Subcommittee. P. L. Dandeno, Chairman.
 57-904. Transient Performance of Excitation Systems. R. L. Krahn, III U. S. Army Corps of Engineers.
 CP.* A Static Annunciator System. W. H. Baker, Public Service Electric and Gas Co. and E. A. Sagan, Westinghouse Electric Corp.

2:00 p.m.—Substations
 Substations Committee
 Hotel Statler Gold Ballroom
 J. A. SMITH, Presiding

- CP58-100. Advantages of Conventional Substation Construction. P. R. Harris, Southwestern Gas & Electric Co.
 CP58-244. Virginia Electric & Power Company Prefers Conventional Substations. A. H. Thiermann, Jr., Virginia Electric & Power Co.
 CP.* Single Circuit Unit Substations. J. F. Jones, Baltimore Gas & Electric Co.
 CP58-101. The Hartford Electric Light Company Prefers Unit Substations. D. C. Switzer, Hartford Electric Light Co. and H. B. Wortman, Westinghouse Electric Corp.

2:00 p.m.—Electric Circuit Theory
 Basic Sciences Committee
 Rm. 502 Engrg. Soes. Bldg.
 W. C. DUNLAP, JR., Presiding

- 58-52. Certain Applications of Matrices to Circuit Theory. L. A. I Pipes, University of California.
 58-60. An Electric Circuit Theory Approach to Finite Difference I Stability. W. J. Karplus, University of California.
 58-65. Accurate Determination of Capacitance By Conjoining Analytical and Analog Techniques. J. D. Horgan and J. A. Pesavento, Marquette University.

2:00 p.m.—Thermal Stability of Insulation
 Dielectrics Committee
 Sheraton-McAlpin Crystal Room
 L. J. BERBERICH, Presiding

- 58-119. Insulation Aging In Pure Oxygen And In A Vacuum. L. C. I Whitman, General Electric Co.
 CP.* Thermal Life of Enameled Magnet Wire, Report by Working Group on Enamel Magnet Wire, Committee on Dielectrics. J. F. Dexter, Chairman.
 CP.* The Evaluation of Enameled Magnet Wire. H. L. Saums and W. W. Pendelton, Anaconda Wire and Cable Co.
 CP.* The Effect of Varying the Electrode Curvature in Testing the Thermal Flex Life of Insulating Varnishes. R. L. Bowman, Minnesota Mining and Mfg. Co.
 CP.* The Statistical Evaluation of Life Test Data by a 650 Digital Computer. L. P. Mahon and D. T. Bean, Canadian General Electric Co.

2:00 p.m.—Electron Tube Evaluation Program
 Electronics Committee
 Hotel Statler East Room
 S. BADGER, JR., Presiding

- CP.* Evaluation of Control Grid Current in Radio Tubes. Lawrence T. May, Tung-Sol Electric, Inc.
 CP.* Electron Tube Evaluation for Guided Missile Applications. Herbert G. Chandler, Diamond Ordnance Fuze Labs.
 CP.* The Role of Customer-Vender Agreements in the Maintenance of Electron Tube Quality Levels. A. Warsher, Bendix Aviation Corp; A. J. Heitmer, Sylvania Electric Products, Inc.

- CP.* Field Failure Analysis and Its Effect on Electron Tube Reliability. Norman E. Nitschke, IBM Corp.
- CP.* Improvement of Electron Tube Quality Through Receiving Inspection and Failure Analysis. M. Swadow, Westinghouse Electric Corp.

2:00 p.m.—Magnetic Amplifiers

Magnetic Amplifiers Committee
 Sheraton-McAlpin Colonial Room
 G. F. PITTMAN, Presiding

- 58-177. Introducing Young Engineers To The Appreciation of Magnetic Amplifier Problems. L. A. Finzi, Carnegie Institute of Technology.
- 58-178. The Transactor, A Self Saturating Transformer, Part I. A. B. I. Rosenstein, Los Angeles, Calif.
- 58-180. Applications of Non-Linear Magnetics. H. F. Storm, General Electric Co.

2:00 p.m.—The Engineering Foundation and University Research

Research, Education and Insulated Conductor Committees
 Hotel Statler Ballroom
 C. M. WALLIS, Presiding

- CP.* The Aims and Activities of the Engineering Foundation. E. I. Green, Bell Telephone Labs.
- CP.* The Role of the Universities in Engineering Research. W. L. Everitt, University of Illinois.
- CP.* 345 Kv Power Cable Research; An Example of University and Industry Cooperative Research. Report of AEIC-EEI Steering Committee for the Project. Presented by L. I. Komives.

2:00 p.m.—Techniques for Dielectric Tests

Special Instruments and Auxiliary Apparatus Committee
 Sheraton-McAlpin Red Room
 W. C. SEALEY, Presiding

- 58-110. Surge Measurement Errors Introduced By Coaxial Cables. I J. H. Park, National Bureau of Standards.
- 58-18. Measurements of Steep-Front Impulse Waves With an Isolated Screen Room Installation. C. J. Miller, Jr. and J. F. Wittibschlager, The Ohio Brass Co.
- 58-37. Transient Response of Impulse Voltage Dividers. F. A. Fisher, I General Electric Co.
- 58-27. The Influence of Water Resistivity and Precipitation Rate Upon Sixty-Cycle Wet Flashover Voltage. AIEE Working Group on Rain Tests, Chairman, C. J. Miller, Jr.

Wednesday, February 5

9:00 a.m.—Radio Communications and Television and Aural Broadcasting

Radio Communication Systems and Television and Aural Broadcasting Systems Committees
 Hotel Statler East Room
 R. D. CAMPBELL, Presiding

- 58-179. Wideband UHF Over-The-Horizon Equipment. R. A. Felsenheld, H. Havstad, J. L. Jatlow, D. J. LeVine and L. Pollack, Federal Telecommunication Labs.
- 58-154. The Miami-Havana Radio System and Its Integration into the Telephone Networks. K. P. Stiles, F. G. Hollins and E. T. Fruhner, American Telephone and Telegraph Co. and W. D. Siddall, Radio Corp. of Cuba.

WEDNESDAY (continued)

- CP.* Factors Affecting the Use of Over-The-Horizon Links in Telecommunication Networks. Charles A. Parry, Page Communications Engineers.
- CP.* Beyond Horizon Radio—Tailored For Alaska. R. B. Stecker, Western Electric Co.

9:00 a.m.—Industrial Control

Industrial Control Committee
 Sheraton-McAlpin Red Room
 A. H. MYLES, Presiding

- CP58-62. The Bode Diagram—An Approach to Regulating System Stability Fundamentals. L. A. Koenig, Clark Controller Co.
- 58-42. A Method of Scaling and Checking Computer Circuits. L. J. II Lane, General Electric Co.
- 58-40. Characteristics of Phase-Controlled Bridge Rectifiers with DC Shunt Motor Load. R. W. Pfaff, Reliance Electric and Engineering Co.
- CP58-79. A Computer Study of a High Speed Repetitive Positioning Drive. E. G. Anger, Square D Co.

9:00 a.m.—Insulated Conductors

Insulated Conductors Committee
 Hotel Statler Ballroom
 E. J. MERRELL, Presiding

- 58-17. Cable Installations on Bridges. E. W. Scheirer and L. Winitzky, Philadelphia Electric Co.
- 58-78. The St. Lawrence River High Voltage Submarine Cable Crossing—Part I, Basic Data and Design. D. M. Farnham, Quebec Hydro Electric Commission; G. B. Shanklin, Schenectady, N. Y.; S. H. Cunha, Quebec Hydro Electric Commission and H. D. Short, Canada Wire and Cable Co. Ltd. (Represented for discussion.)
- CP.* The St. Lawrence River High Voltage Submarine Cable Crossing—Part II, Experimental Program and Cable Manufacture. D. M. Farnham, Quebec Hydro Electric Commission; G. B. Shanklin, Schenectady, N. Y.; S. H. Cunha, Quebec Hydro Electric Commission and H. D. Short, Canada Wire and Cable Co. Ltd.

9:00 a.m.—Power Generation and System Engineering

Power Generation and System Engineering Committees
 Hotel Statler Georgian Room
 C. O. CALABRESE, Presiding

- 58-126. Determination of Reserve Generating Capability. H. Halperin and H. A. Adler, Commonwealth Edison Co.
- 58-139. Determination of Reserve and Interconnection Requirements. III H. D. Limmer, Public Service Electric and Gas Co.
- 58-140. Details of Outage Probability Calculations. A. L. Miller, The II Cleveland Electric Illuminating Co.
- 56-635. Probability Calculations for System Generation Reserves. III Carl Kist and G. J. Thomas, Los Angeles Dept. of Water and Power.

9:00 a.m.—Substations and Switchgear

Substations and Switchgear Committees
 Sheraton-McAlpin Crystal Room
 C. A. WOODROW, Presiding

- CP58-125. Training and Qualification of Welders for Aluminum Bus Welding. G. Allen, Kaiser Aluminum Chemical Co.
- 58-28. Welded Aluminum Conductors in Isolated Phase Bus. N. III Swerdlow and K. N. Smith, General Electric Co.
- CP58-245. Power Tests Prove Single Insulator Isolated Phase Aluminum Bus. A. H. Powell and N. Swerdlow, General Electric Co.

WEDNESDAY (continued)

CP58-124. Application of Aluminum in Switchgear Apparatus. R. H. Rutter and L. E. Keck, Westinghouse Electric Corp.

CP.* Design Concepts in the Development of Bolted Aluminum Power Connectors. J. R. Warren, Royal Electric Mfg. Co., Inc.

9:00 a.m.—Relays

Relays Committee
Sheraton-McAlpin Ballroom
R. A. LARNER, Presiding

58-25. Relaying Tapped Substations for Faults on High Voltage III Transmission Lines. R. W. World, C. L. Rose and J. E. Skuderna, Bureau of Reclamation.

58-26. Compensator Distance Relaying I—General Principles of Operation. W. K. Sonnemann and H. W. Lensner, Westinghouse Electric Corp.

58-20. Compensator Distance Relaying II—Design and Performance. III W. E. Rich and H. J. Calhoun, Westinghouse Electric Corp.

58-19. Compensator Distance Relaying III—Carrier Control System. III H. W. Lensner, P. J. Schwanenflugel and W. L. Hinman, Westinghouse Electric Corp.

9:00 a.m.—New Synthetic Insulating Materials

Dielectrics Committee
Hotel Statler Penn Top North
K. N. MATHES, Presiding

CP.* Properties of Octofluorocyclobutane—A Dielectric Gas. Frederick B. Hill, E. I. duPont deNemours & Co., Inc.

CP.* A New High Temperature Perfluorocarbon Resin for Conventional Thermoplastic Processing. R. S. Lovett and Miles Powell, Jr., E. I. duPont deNemours & Co., Inc.

CP.* A Versatile New Acetal Resin for Engineering Use. E. F. Hamilton, Jr., E. I. duPont deNemours & Co., Inc.

CP.* Acrylic Resin Insulation. P. F. Sanders, V. R. Huntsberger and R. R. Storrow, E. I. duPont deNemours & Co., Inc.

9:00 a.m.—Linear Transistor Applications

Electronics Committee
Hotel Statler Gold Ballroom
H. HELLERMAN, Presiding

58-192. A Stabilized D.C. Difference Transistor Amplifier. Louis I Depian, George Washington University and Richard E. Smith, Carnegie Institute of Technology.

CP.* An Analog Frequency Measuring Circuit Accurate to 0.1%. Jonathan Mitchell, Link Aviation, Inc.

CP.* Transistor Phase Locked Oscillator. D. J. Brady, K. A. Edwards and O. Golubjatnikov, General Electric Co.

CP.* Active Filters and Their Use in Radar Range Gate Systems. Harold Gruen, Philco Corp.

CP.* Transistor Bias Design and r/b 1 Measurement From Thermal Incremental Properties. L. M. Vallese, Polytechnic Institute of Brooklyn.

CP.* D-C Kilo-Ammeter Using Hall Generator. B. Christensen and T. J. Marcus, Westinghouse Electric Corp.

9:00 a.m.—Auxiliary Devices for Computers

Computing Devices Committee
Sheraton-McAlpin Colonial Room
J. C. McPHERSON, Presiding

CP.* A New Output Printer-Whippet. G. Harris and H. Epstein, Burroughs Corp.

CP.* A Photo-Electric Analogue-to-Digital Converter Using a Complementary Code Pattern. B. Darby Merrill and R. Mugni, Electronic Corp. of America.

CP58-230. A Simulation of the Card Programmed Calculator on the IBM 705. S. G. Fleming, General Electric Co.

WEDNESDAY (continued)

9:00 a.m.—Management

Management Committee
Hotel Statler Penn Top South
H. B. KIPHUTH, Presiding

CP.* Human Relations Training for Engineers. L. A. Kilgore, Westinghouse Electric Corp.

CP.* Electric Corporation Methods Training for a Utility Company. S. A. Langell, American Gas and Electric Co.

9:00 a.m.—Special Instruments and Auxiliary Apparatus and Indicating and Integrating Instruments

Special Instruments and Auxiliary Apparatus and Indicating and Integrating Instruments Committees
Hotel Statler West Room
F. K. HARRIS, Presiding

58-8. Electric Hygrometer. W. H. Meiklejohn, General Electric I Research Lab.

CP58-103. Resistance Determination of Resistance Thermometers at Integral Temperatures. J. Knudsen, Lewis Engineering Co.

CP.* Techniques for Measuring Small Three-Terminal Capacitors. M. C. McGregor.

58-11. The Definition and Measurement of the Time Constant and I Response Time of Thermal Converters. Francis L. Hermach, National Bureau of Standards. (Re-presented for discussion.)

CP.* A Unit for Checking A-C Indicating Instruments. H. N. Haywood,

9:00 a.m.—Industrial Power Rectifiers

Industrial Power Rectifiers Committee
Hotel Statler Skytop
C. A. LANGLOIS, Presiding

CP58-223. Comparison of Calculated and Measured Arc Back Current in Large Power Rectifier Systems. J. Teno, Lehigh University; C. H. Titus, General Electric Co. and R. N. Wagner, Aluminum Co. of America.

CP58-224. Anode Breaker Field Testing with a High Capacity Rectifier System. L. J. Harris, Aluminum Co. of America; T. J. Scully and V. N. Stewart, General Electric Co.

CP58-225. Field Testing D-C Air Circuit Breakers on a High Capacity System. P. L. Hartsock, Aluminum Co. of America; and T. J. Scully and V. N. Stewart, General Electric Co.

CP58-226. A Mathematical Model and Procedure for Arc-Back Current Calculations for Power Rectifiers. H. P. Fullerton, General Electric Co. and J. Teno, Lehigh University.

9:00 a.m.—Ground Resistance and Potential Gradient Measurements

Special Instruments and Auxiliary Apparatus Committee
Rm. 502, Engrg. Soc. Bldg.
J. C. PARKER, Presiding

CP58-105. The Technique and Instrumentation of Low-Impedance Ground Measurement. C. A. Duke and L. E. Smith, Tennessee Valley Authority.

CP58-106. Some of the Fundamental Aspects of Ground Resistance Measurements. E. B. Curdts, James G. Biddle Co.

CP.* Resistance Measurements of Deep Driven Grounds. C. H. Jensen.

CP.* Ground Measurements for Communication Circuit Protection Planning. W. C. Ball.

2:00 p.m.—Radio Communications Systems

Radio Communication Systems Committee
Hotel Statler East Room
D. TALLEY, Presiding

CP.* Mobile Dialing. Charles H. Willyard, Motorola, Inc.

CP.* Dial-Direct Automatic Termination Equipment for Mobile Radiotelephone Service. J. A. Craig, Dumont Mfg. Co.

CP58-181. A 6,000-MC Radio System for Toll Telephone Service. M. H. Kebby and A. F. Culbertson, Lenkurt Electric Co.

WEDNESDAY (continued)

- CP58-182. A 240-Channel Microwave Radio Multiplex System. A. Hemmila and R. L. Edens, Lenkurt Electric Co.
- CP.* Signaling Systems for Dialing and Supervision on Overseas Radiotelephone Systems. C. W. Lucek, Bell Telephone Labs., J. P. Thornton, Hawaiian Telephone Co. and Elmer W. Reeve, A. T. & T. Co.
- 58-183. The Simultaneous Transmission of Television and Telephone I Multiplex Over a Single Microwave Channel on the Trans-Canada TD-2 System. H. E. Curtis, Bell Telephone Labs.; U. C. P. Strahlendorf and A. J. Wade, Bell Telephone Co. of Canada (Re-presented for discussion.)
- 58-185. A New Broadband Microwave Antenna System. R. W. Friis I and A. S. May, Bell Telephone Labs. (Re-presented for discussion.)

2:00 p.m.—Communication Theory

Communication Theory Committee
Hotel Statler Skytop
C. H. BROWN, Presiding

- 58-34. Bits of Information. Arthur S. Zamanakos, U. S. Naval Research Laboratory. I
- CP58-36. Entering the Machine Domain. S. L. Seaton, Hampton, Va.
- CP.* Recent Progress in Applying Information Theory to Digital Transmission Systems. R. F. J. Filipowsky, Westinghouse Electric Corp.
- CP58-246. Binary Communication Feedback Systems. B. Harris, A. Hauptschein, K. C. Morgan and L. S. Schwartz, N. Y. U.
- 57-104I. Binary Symmetric Decision Feedback Systems. B. Harris I K. C. Morgan, N. Y. U. (Re-presented for discussion.)
- 58-38. An Experimental Study of a Binary Code. W. W. Peterson, I University of Florida. (Re-presented for discussion.)

2:00 p.m.—Telegraph Systems

Telegraph Systems Committee
Hotel Statler West Room
V. N. VAUGHN, JR., Presiding

- 58-47. Airborne Teletypewriter, AN/AGC-1. R. A. Michals, Kleinschmidt Labs., Inc. I
- 58-48. The "Mite" Teleprinter. Bernard Howard, Teleprinter Corp. I
- CP.* Advancements in the Facsimile Art During 1957. Warren H. Bliss, RCA Labs.
- CP.* Present Status of Facsimile in Japan. Yasujiro Niwa, Tokyo Electrical Engineering College.

2:00 p.m.—Industrial Control

Industrial Control Committee
Sheraton-McAlpin Red Room
E. E. MOYER, Presiding

- 58-68. Three-Phase Induction Motor Control Using Static Frequency II Doublers. A. Straughen, Canadian Controllers Ltd., P. P. Biringer and G. R. Slemmon, University of Toronto.
- CP58-70. An Improved Static Digital Control System. J. J. McNeill and H. A. Perkins, Jr., Westinghouse Electric Corp.
- CP58-184. Proximity Switches—Characteristics, Design and Application. F. A. Manners and R. C. Mierendorf, Square D Company.

2:00 p.m.—Power Generation and System Engineering

Power Generation and System Engineering Committee
Hotel Statler Georgian Room
C. W. WATCHORN, Presiding

- 58-141. Generator Unit Size Study for the Dayton Power and Light III Company. W. J. Pitcher, The Dayton Power and Light Co.; L. K. Kirchmayer, A. G. Mellor, and H. O. Simmons, Jr., General Electric Co.
- 58-142. Digital Computer Aids Economic-Probabilistic Study of Generation Systems—Part I. M. K. Brennan, C. D. Galloway and L. K. Kirchmayer, General Electric Co.

WEDNESDAY (continued)

- 58-143. Digital Computer Aids Economic-Probabilistic Study of Generation Systems—Part II. C. D. Galloway and L. K. Kirchmayer, General Electric Co.
- CP58-144. Treatment of Hydro Capability Duration Curves in Probability Calculations. K. L. Hicks, Sargent and Lundy.

2:00 p.m.—Rotating Machinery

Rotating Machinery Committee
Hotel Statler Penn Top South
R. C. MOORE, Presiding

- 58-195. A Theory For Shaded Pole Motors. F. W. Suhr, General III Electric Co. (Re-presented for discussion.)
- CP58-196. Temperature Tests on Totally Enclosed Non-Ventilated Motors. R. F. Woll, Westinghouse Electric Corp.
- CP.* New Class F Wire Enamel-Varnish Systems. J. R. Learn and R. B. Young, General Electric Co.
- 58-171. Evolution of the Design and Operation of Large Thrust Bearings. R. A. Baudry, Westinghouse Electric Corp.

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

Transmission and Distribution and Relays Committee
Sheraton-McAlpin Ballroom
H. L. DAVIS, JR., Presiding

- 58-50. Ultra High-Speed Reclosing Experience at 345 KV. H. C. III Barnes, A. Hauspurg and J. H. Kinghorn, American Gas and Electric Service Corp.
- 58-111. Effect of Current Cut-Off and Arc Voltage on Recovery Voltage. C. Concordia, General Electric Co. III
- 58-9. Bibliography on Power Capacitors 1954-1956. AIEE Working III Group of the Capacitor Subcommittee, Chairman M. E. Scoville.

2:00 p.m.—Solid Dielectrics

Dielectrics Committee
Hotel Statler Ballroom
J. R. PERKINS, Presiding

- CP.* Glass Flake in Electrical Insulation. L. M. Coaklin and Mark P. Koerner, Jr., Owens Corning Fiberglas Corp.
- 58-121. Treeing in Polyethylene as a Prelude to Breakdown. D. W. I Kitchin and O. S. Pratt, Simplex Wire and Cable Co.
- CP58-211. Internal Oxidation Mechanism for Non-Tracking Organic Insulations. R. S. Norman and A. A. Kessel, General Electric Company.
- 58-122. Effect of Hydrostatic Pressure on the Permittivity of Barium I Titanate Ceramics. Graham W. Marks and Lester A. Monson, U. S. Navy Electronics Lab.
- CP.* Electrical Characteristics of High Density, High Purity, Titanate Ceramics. D. A. Lupfer, General Electric Co.

2:00 p.m.—Theory and Design of Switching Circuits

Electronics Committee
Hotel Statler Gold Ballroom
A. P. STERN, Presiding

- 58-3. Minimization of Components in Electronic Switching Circuits. T. J. Beatson, General Electric Co. I
- CP58-193. The Effects of Semiconductor Diode Transients on Computer Gates. H. Austin Spang III, Yale University School of Engineering.
- CP.* Collector Response Time From Characteristic Curves. J. E. Palmer and J. E. Lindsay, Radio Corp. of America.
- CP.* Monostable Multivibrator Pulse Generators. J. J. Suran, General Electric Co.
- CP58-194. Circuit Properties of Hook Transistor Configurations. L. M. Vallese, Polytechnic Institute of Brooklyn.
- CP.* Analysis and Design of a Transistor Linear Delay Circuit. R. P. Nanavati, Syracuse University.

2:00 p.m.—Symposium on Effects of Radiation on Materials

Nucleonics Committee
Hotel Statler Penn Top North
M. C. HALLECK, Presiding

- CP.* Radiation Damage to Insulators. John F. Kircher, Battelle Memorial Institute.
- CP.* Effects of Radiation on Electronic Components. J. C. Pigg, Oak Ridge National Laboratory.
- CP.* The Argonne High Level Gamma Irradiation Facility. H. Gladys Swope, Argonne National Laboratory.
- CP.* Effect of In-pile Radiation on Ceramic Triod. John R. Crittenden, General Electric Co.

2:00 p.m.—Computers in Control Systems

Computing Devices Committee
Sheraton-McAlpin Colonial Room
H. HAMER, Presiding

- 58-31. An Analog Computer Study of the Transient Behavior and I Stability Characteristics of Serial Type Digital Data Systems. Olle I. Elgard, University of Florida.
- CP58-231. Function Tables in Digital Control Computers. E. J. Schubert, Burroughs Research Center.
- CP58-232. A Transistorized Digital Control System with Precision Indication of the Controlled Variable. W. M. Kaufman and T. A. Jeeves, Westinghouse Research Labs.
- 58-247. The Design of Function Generators Using Short-Time Memory Devices and Non-Linear Elements. A. W. Revay, U. S. Air Force and D. J. Ford, University of Pittsburgh.

2:00 p.m.—Industrial Power Systems

Industrial Power Systems Committee
Sheraton-McAlpin Crystal Room
A. J. BISSON, Presiding

- CP.* Recent Advances in Busway Concepts. C. J. Falk and C. A. Brown.
- CP58-102. Voltage Drop Determinations Examined. R. A. Erwin, Los Angeles Dept. of Water and Power.
- CP.* Power Distribution at Vancoram Plant, Vanadium Corp. of America. Floyd G. Fellows and Harris F. White.
- CP.* Power Systems for Small Plants Served at Above 15 KV. D. B. Armstrong and L. H. Greutzmacher.
- CP58-16. High Voltage Power Distribution Systems for Schools. T. Michael, Cincinnati Gas and Electric Co.

2:00 p.m.—Measurements on Dielectrics

Special Instruments and Auxiliary Apparatus Committee
Rm. 502, Engrg. Soes. Bldg.
E. B. CURDTS, Presiding

- CP58-107. Ionization Pulse Detection with a Slow-Sweep-Speed Oscilloscope. C. A. Duke and L. E. Smith, Tennessee Valley Authority.
- 58-35. Measurement of Voltage Resulting from Single Phase Switching of a High Voltage 3-Phase Transformer. W. F. Dunkle and W. F. Mackenzie, Pennsylvania Power and Light Co.
- CP58-49. The Development of Power Factor Measurement of Insulation in the Field. E. H. Povey, Doble Engineering Co.
- CP58-108. Turbo-Alternator Cylindrical Rotor Winding Tester. O. E. Stamm, Consolidated Edison Co.

Thursday, February 6

9:00 a.m.—Symposium on Safety Considerations in the Proposed Use of Higher Secondary and Utilization Voltages

Safety Committee
Hotel Statler Penn Top South

Arthur E. Pringle, II, Symposium Moderator.
National Electrical Code. H. B. Whitaker.

THURSDAY (continued)

Industrial and Commercial Buildings. R. H. Kaufmann.
Relative Shock Hazard. W. B. Kouwenhoven.
European Practices. L. D. Price.
Air Conditioning. George S. Jones, Jr.
Canadian Systems and Appliances. F. R. Whatmough.
Motors. C. G. Veinott|
Maintenance Problems. J. W. St. Andre.

9:00 a.m.—Wire Communications

Wire Communication Systems Committee
Sheraton-McAlpin Red Room
W. C. BURNETT, Presiding

- 58-59. A Basis for Transmission Performance Objectives in a Telephone Communication System. W. K. MacAdam, American Telephone and Telegraph Co.
- CP58-236. The Planning of National Telecommunication Networks. Charles A. Parry, Page Communications Engineers.
- CP.* Pretied Tie for Communication Line Wires. C. R. Ballard, Rural Electrification Administration; R. R. Bouche, National Bureau of Standards.
- 58-239. A New Method of Frequency Error Correction in Carrier I Systems. B. R. Stachiewicz, Federal Telecommunication Labs. (Re-presented for discussion.)
- 57-907. A Transistorized Repeater for Use with the 45 BN Cable I System. V. Babin and R. Fish, Lenkurt Electric Co. (Re-presented for discussion.)
- 58-215. A Frequency-Converting Telephone Carrier Repeater for Military Use. G. Goltsos and J. H. Johnston, Signal Corps Engineering Lab. and R. B. Anderson, Lenkurt Electric Co. (Re-presented for discussion.)

9:00 a.m.—Production and Application of Light

Production and Application of Light Committee
Rm. 502, Engrg. Soes. Bldg.
D. W. ROWTEN & R. D. CHURCHILL, Presiding

- CP.* Progress Report of Light Sources and Equipment.
- A. A demonstration of the new high-output fluorescent lamps by a representative from the General Electric Company.
- B. A demonstration of new mercury light sources by a representative of the Westinghouse Electric Corp.
- C. Demonstration and explanation of Rayescent Lighting, the cold light of the future.
- D. Demonstration of equipment using these new light sources and new application techniques presented by Mr. W. S. Kolb, representing the Illuminating Engineering Society.

9:00 a.m.—Electrochemical Processes

Chemical Industry Committee
Hotel Statler Penn Top North
C. S. HAGUE, Presiding

- CP58-169. An Evaluation of a High Current Mechanical Rectifier. J. C. Trackman and H. Buetikofer, Brown Boveri Corp. and T. F. Ingate, General Aniline and Film Corp.
- CP.* A User's Experience with Rectifier Transformer Failures. Edward H. Coxe and Hugh O. Bourque, Ethyl Corp.
- CP.* A Planned Large Hi-Voltage Germanium Rectifier Installation. Ray P. Stratford and Herbert N. Hickok, General Electric Co.; George Choma, Diamond Alkali Co.
- CP.* 3000 KW 300-Volt D-C Semiconductor Rectifier. Otto Jenson, I-T-E Circuit Breaker Co.
- CP58-170. Application of Semiconductor Power Rectifiers in Electrochemical Industry. R. P. Stratford, General Electric Co.

THURSDAY (continued)

9:00 a.m.—Feedback Control Systems and Computing Devices

Feedback Control Systems and Computing Devices Committees
Sheraton-McAlpin Colonial Room
J. G. RAGAZZINI, Presiding

- 58-90. Statistical Design Theory for Digital Controlled Continuous II Systems. S. S. L. Chang, New York University.
58-91. The Effect of Quantization in Sampled-Feedback Systems. II J. E. Bertram, Columbia University.
CP.* Why Not Use Sine-Cosine Encoder. W. I. Frank.
CP.* Accuracy Limitations of Geared Up Encoder. W. Barr and W. I. Frank.
CP58-240. General Analysis and Stability Study of Finite Pulsed Feedback Systems. G. Farmanfarma, University of California.

9:00 a.m.—System Engineering

System Engineering Committee
Hotel Statler Georgian Room
R. T. PURDY, Presiding

- 58-165. Penalty Factors from Power System Equations. P. G. Lubisch, Los Angeles Dept. of Water and Power.
CP.* Some Applications of a New Approach to Loss Minimization in Electrical Utility Systems. T. W. Sze, Jr., J. R. Garnett and J. F. Calvert.
58-104. Operating Experience with GEDA Automatic Economic Dispatching—Ohio Edison System. R. H. Travers, Ohio Edison Co.
CP58-207. Operating Experience with West Penn Power's Economic Dispatch Computer. W. R. Hamilton and W. H. Osterle, West Penn Power Co.

9:00 a.m.—Rotating Machinery

Rotating Machinery Committee
Sheraton-McAlpin Crystal Room
L. O. DORFMAN, Presiding

- 58-157. A Basic Analysis of Synchronous Machines—I. W. A. Lewis, III Illinois Inst. of Technology.
58-197. A Complete Equivalent Circuit of a Synchronous Machine. III I. Gaever, General Electric Co.
58-198. Measurement of Rotor Displacement Angle on Synchronous III Machines. V. A. Kinitzky, New York, N. Y.
58-1 End Component of Armature Leakage Reactance of Round III Rotor Generators. R. T. Smith, General Electric Co.

9:00 a.m.—Switchgear

Switchgear Committee
Sheraton-McAlpin Ballroom
E. J. HARRINGTON, Presiding

- 58-127. 138 KV Metal Enclosed Isolated Phase Bus and Switching III Structure. R. H. Albright, I-T-E Circuit Breaker Co.
58-128. Service Experience and Staged Field Tests on the 115KV III 1,000,000 KVA Gas-Filled Power Circuit Breaker. E. B. Henry, Gulf Power Co.; R. E. Friedrich and F. L. Reese, Westinghouse Electric Corp.
58-129. A New 46 KV Low Capacity Circuit Breaker for Multiple III Reclosing Duty. R. N. Yeckley and R. H. Cunningham, Westinghouse Electric Corp.
58-114. A 46 KV Automatic Circuit Recloser. E. J. Field, I-T-E Circuit Breaker Co.

9:00 a.m.—Transmission and Distribution

Transmission and Distribution Committee
Hotel Statler Gold Ballroom
E. R. COOP, Presiding

- 58-14. Analytical Studies of Lightning Performance of One and Two III Ground Wire 138 KV Double Circuit Lines of the Commonwealth Edison Co. R. W. Caswell and E. F. Koncel, Jr., Commonwealth Edison Co. and E. T. B. Gross, Illinois Institute of Technology.

THURSDAY (continued)

- 58-24. The Lightning Stroke. C. F. Wagner and A. R. Hileman, III Westinghouse Electric Corp.
CP58-189. Anomalous Flashovers on Transmission Lines—II. C. J. Miller, Jr., Ohio Brass Co.
CP.* Magnetic Fields Around a Transmission Line Tower. J. G. Anderson and J. H. Hagenguth, General Electric Co.
CP.* Lightning Current Distribution in Towers and Ground Wires. A. J. Schultz and I. B. Johnson, General Electric Co.; W. S. Price, American Gas and Electric Service Corp.

9:00 a.m.—Transformers

Transformers Committee
Hotel Statler Ballroom
C. W. MILLER, Presiding

- 58-112. Insulation Coordination of Gas Insulated Transformers. G. III Camilli and R. E. Coates, General Electric Co.
CP.* Insuldur—Another Milestone in Transformer Insulation Development. J. G. Ford, J. Swiss, G. C. Gainor and M. G. Leonard.
58-155. Temperature Rise of Dry-Type Transformers. A. A. Halacsy, III Delta-Star Electric Co.
CP.* Further Considerations on Reduced Transformer Insulation Levels. J. R. Meador, General Electric Co.

9:00 a.m.—Radiation Effects on Dielectrics

Dielectrics Committee
Hotel Statler Skytop
P. H. KLEIN, Presiding

- CP.* Effects of Gamma Radiation on Silicone Dielectrics. Cedric E. Currin, Dow Corning Corp.
CP.* The Radiation Effects Information Center. Howard R. Batchelder and Carl J. Lyons, Battelle Memorial Institute.
CP58-123. A Method for the Evaluation of Radiation Damage to the Mechanical Properties of Plastics. J. H. Kleinpeter, General Electric Co.
CP.* The Effects of Gamma Radiation at High Temperatures on the Engineering Properties of Elastomer Materials. Paul W. Davis, General Electric Co.
CP.* Conductivity Induced in Insulating Materials During Gamma Irradiation. Gerald C. Huth, General Electric Co.

9:00 a.m.—Electrostatic Processes

Electronics Committee
Hotel Statler East Room
H. J. WHITE, Presiding

- CP.* A Probe Method for Measuring Potentials in Corona. Gaylord W. Penney and R. E. Matick, Carnegie Inst. of Technology.
CP.* Field Strength Measurements in Parallel Plate Precipitators. J. S. Lagarias, Koppers Co.
CP.* Automatic Precipitator Control. L. L. Little, Western Precipitation Corp.
CP.* Properties and Applications of High Energy Electrons. John G. Trump, MIT.
CP.* Laboratory and Field Testing on Silicon Diode Rectifiers for Electrical Precipitation Service. Homer D. Laube and Lucien J. Theriault, General Electric Co.
58-229. Automatic Control of Electrical Precipitation Rectifiers. H. E. I Van Hoesen, H. J. White and H. J. Hall, Research-Cottrell, Inc.
57-87. Some Measurements of Abnormal Corona. Gaylord W. Penney, Carnegie Inst. of Technology and Jack G. Hewitt, IBM Corp. (Re-presented for discussion.)

THURSDAY (continued)

9:00 a.m.—Computing Devices and Data Communications

Computing Devices and Data Communication Committees
Hotel Statler West Room
A. E. FROST, Presiding

- CP.* FM Digital Subnet. L. A. Weber, Bell Telephone Labs.
CP.* Synchronizing Clock for Data Transmission. J. O. Edson, M. A. Flavin and A. D. Perry, Bell Telephone Labs.
CP.* Digital Data Transmission Between Dissimilar Processing Centers. J. A. Brustman, I. Cohen and H. P. Guerber, Radio Corp. of America.

2:00 p.m.—Safety Symposium (continued)

Safety Committee
Hotel Statler Penn Top South

- Canadian Utilities. H. Hyde.
Army Installations. S. E. Martin.
Underwriters' Labs., Inc., Requirements. D. B. Anderson.
Navy Installations. C. D. Friday.
Utility Distribution. T. C. Duncan.
Space Heating. J. E. Goff.
Panel Boards.
Electrical Inspection.
Heat Pump.

2:00 p.m.—Wire Communications

Wire Communication Systems Committee
Sheraton-McAlpin Red Room
S. B. WEINER, Presiding

- CP.* Dial Switching of Toll Circuits in Independent Telephone Co. Areas—Transmission Considerations from the DDD Standpoint. J. N. Petrie, Automatic Electric Co.
58-5. Nationwide Switching of Intertoll Trunks—Transmission Considerations. O. F. Wallman, American Telephone and Telegraph Co.
58-4. Impedance and Return Loss Performance of Telephone Plant in Metropolitan Areas. L. B. Bogan, American Telephone and Telegraph Co.
58-214. Study of Return Losses on Loaded Trunk Cables and Methods Taken to Improve Them. G. H. Speake, Southern Bell Tel. & Tel. Co.

2:00 p.m.—Symposium: Metering of High Current

Low Voltage D-C Power Systems

Chemical Industry Committee
Rm. 502, Engrg. Soes. Bldg.
H. ZIELINSKI, Presiding

- CP.* John H. Miller, Weston Electrical Instrument Corp.
CP.* George B. Scheer, Kaiser Engineers.
CP.* Lester H. Wolgast, Reynolds Metals Co.
CP.* A. F. Touchette, General Electric Co.
CP.* M. E. Reagan, Westinghouse Electric Corp.
CP.* Max Kramer, Aluminum Company of America.
CP.* F. Langvee, Aluminum Company of Canada, Ltd.

2:00 p.m.—Transistors in Feedback Control Systems

Feedback Control Systems Committee
Sheraton-McAlpin Colonial Room
A. M. FUCHS, Presiding

- CP58-87. Some Stability Considerations in the Design of Large Feedback Junction Transistor Amplifiers. Herbert Hellerman, University of Delaware.
58-88. Silicon Transistor Performance in a Chopper Application. II J. Giorgis and C. C. Thompson, General Electric Co.

THURSDAY (continued)

- CP58-89. Application of Switching Transistors and Saturable Reactors in a High-Performance Servo. F. B. Cox and P. R. Johannessen, Massachusetts Inst. of Technology.

- 58-92. Compensating Saturation in Feedback Control Systems by II Excess Error Storage. S. S. L. Chang and R. W. Archbald, New York University.

- CP.* Preliminary Report of Feed Back Control Systems Subcommittee on Component Specifications. Chairman, D. D. Pidhayny.

2:00 p.m.—System Engineering and Power Generation

System Engineering and Power Generation Committees
Hotel Statler Georgian Room
A. C. HARTRANFT, Presiding

- 58-113. The Criterion of Economic Choice. P. H. Jeynes and L. Van III Nimwegen, Public Service Electric and Gas Co.

- 58-166. Valve Point Loading of Turbines. G. L. Decker and A. D. III Brooks, Dow Chemical Co.

- CP58-167. Performance Computer for Steam-Electric Generating Units—Part I. A. J. Hornfeck and T. S. Imsland, Bailey Meter Co.

- CP58-168. Evaluation of Combustion Control-Load Control Tie-in Equipment at Niles Station of Ohio Edison Co. R. H. Travers, D. B. Zelenka, Leeds and Northrup, H. A. List and C. Nichols, Ohio Edison Co.

2:00 p.m.—Rotating Machinery

Rotating Machinery Committee
Sheraton-McAlpin Crystal Room
J. S. ASKEY, Presiding

- 58-199. An Advanced Concept for Turbine-Generator Stator Winding III Insulation. E. J. Flynn, C. E. Kilbourne and C. D. Richardson, General Electric Co.

- CP58-203. Medium Voltage A-C Testing of Rotating Machinery Insulation. F. S. Oliver, Doble Engineering Co.

- CP58-204. Separation of Absorption and Leakage Components in High Voltage D-C Insulation Testing. F. R. Schlieff and L. R. Engvall, Bureau of Reclamation.

- CP.* A New Method of Corona Suppression for High Voltage Rotating Machines. Vincent E. Manni and William Schneider, Westinghouse Electric Corp.

2:00 p.m.—Switchgear

Switchgear Committee
Sheraton-McAlpin Ballroom
H. G. FRUS, Presiding

- CP.* A 1,000 MVA, 13.8-kv Magnetic De-ion Air Circuit Breaker. R. C. Dickinson and Russell Frink, Westinghouse Electric Corp.

- CP58-130. A Magnetic Air Circuit Breaker for 350 MVA, 3,000 Amperes and 4.16 KV. Russell Frink and J. M. Kozlovic, Westinghouse Electric Corp.

- CP58-249. 13.8 kv Metal Clad Switchgear with 5 cycle Magnetic Air Circuit Breakers Having Symmetrical Interrupting Ratings. W. A. Carter, P. G. Smith and E. B. Rietz, I-T-E Circuit Breaker Co.

- 58-43. A New Design Metal-Clad Switchgear for 4.16 KV Service. III N. Kreekon and W. H. Lane, Allis-Chalmers Mfg. Co.

- CP58-248. A New Magnetic Air Circuit Breaker for 2.3/4.16 KV Service. M. J. Reilly and V. A. Mortenson, Allis-Chalmers Mfg. Co.

2:00 p.m.—Transmission and Distribution

Transmission and Distribution Committee
Hotel Statler Gold Ballroom
J. K. DILLARD, Presiding

- 58-176. Arc Drop During Transition From Spark Discharge to Arc. III C. F. Wagner, C. M. Lane and C. M. Lear, Westinghouse Electric Corp.

THURSDAY (continued)

- 58-22. The Insulator Contamination Problem as Influenced by Silicone Surface Coatings. J. E. Conner, Southern California Edison Co. and A. D. Lantz, Jr., Ohio Brass Co.
- 58-57. Development of Corona Shields for Suspension Assemblies of Bundled Conductor Transmission Lines. J. Kaminski, Jr., General Electric Co.
- CP.* Radio Influence Voltages Caused by Point Protrusions on Bundle Conductors. T. W. Liao and P. A. Doyle, General Electric Co.
- CP.* A Comparative Study of the Radio Influence Characteristics of Several High Voltage Transmission Lines. W. S. Price, American Gas and Electric Service Corp.; C. Concordia and G. E. Adams, General Electric Co.

2:00 p.m.—Transformers

Transformers Committee
Hotel Statler Ballroom
D. L. LEVINE, Presiding

- 58-153. Effect of Coil Winding and Processing on the Electric Strength of Class OA Insulating Materials. W. T. Sackett, Jr., Kuhlman Electric Co.
- CP.* A Medium Size Anechoic Chamber. T. J. Twomey.
- CP58-156. The Technical Assistant Can Be an Aid to the Engineer. G. R. Monroe, Westinghouse Electric Corp.
- 58-109. Economics of Design and Application of Transformers. E. C. Wentz and N. Chackan, Westinghouse Electric Corp.
- 58-46. Cell Construction for Current Limiting Reactors. L. E. Sauer, Westinghouse Electric Corp.

2:00 p.m.—Solid-State Dielectric Devices—Electroluminor and Photoconductor Devices

AIEE-IRE Dielectrics Subcommittee
Hotel Statler Skytop
H. EPSTEIN, Presiding

- 58-150. An Electroluminescent Digital Indicator with ELPK Translation Logic. E. A. Sack, Westinghouse Electric Corp.
- CP.* Gain-Bandwidth Limitations of Photoconductors. A. Rose, RCA Labs.
- CP.* Gains, Response Times and Traps in Powder Photoconductors. H. B. DeVore, RCA Labs.
- CP.* Information Display Panels Utilizing Electroluminescent and Photoconductive Materials. D. B. Parker and W. L. Gardner, MIT Lincoln Labs.
- CP58-151. New Electroluminescent Devices for Forming and Holding Images. K. Butler and F. Koury, Sylvania Electric Products, Inc.

2:00 p.m.—Thinking Machines of the Future

Computing Devices, Research, Communication Theory and Data Communication Committees
Hotel Statler West Room
E. L. HARDER, Presiding

- CP.* Thinking Machines and the Communication Sciences. J. B. Wiesner, Massachusetts Inst. of Technology.
- CP.* The Future Matching of Man and Machine. Simon Ramo, Ramo-Wooldridge Corp.
- CP.* The Manufacturer's Viewpoint. C. R. De Carlo, International Business Machines Corp.

2:00 p.m.—Heavy Traction

Land Transportation Committee
Hotel Statler Penn Top North
J. L. SWARNER, Presiding

- CP58-237. Some Aspects of the Application of Diesel-Electric Locomotives in North and South America. G. T. Bevan, General Electric Co.
- CP.* Improved D-C High-Potential Testing of Insulation Systems in Low- and Medium-Voltage D-C Equipment. A. M. Odok and T. M. Soelaiman, General Electric Co.

- 58-250. First Year's Operating Experience with New Control Equipment on One Hundred New York City Subway Cars. G. W. Weber, General Electric Co. (Re-presented for discussion.)
- 58-238. Mobile Reflectoscopic Inspection of Railroad Car Axles on the Chesapeake and Ohio Railway. E. R. Hauer and C. M. Angel, Chesapeake and Ohio Railway Co.

2:00 p.m.—Symposium on International Developments in Telegraph Switching Systems

Communication Switching Systems Committee
Hotel Statler East Room
D. L. SOLOMON, Presiding

- CP.* A New Teleprinter Switching System With Motor-Driven Selectors (TWN). E. Rossberg, Siemens & Halske A.G.
- CP.* An Automatic Communications Switching System. J. A. Brustman, I. Cohen and L. S. Levy, Radio Corp. of America.
- CP.* STRAD—A New Concept for a Fully Electronic Automatic Signal Sorting and Distribution System. E. P. G. Wright, Standard Telecommunication Labs., Ltd.
- CP.* Communication Networks for Coded Information. J. M. Unk, N. V. Philips' Telecommunicatie Industrie.

Friday, February 7

9:00 a.m.—Telegraph and Data Communications Systems

Telegraph Systems and Data Communication Committees
Sheraton-McAlpin Red Room
H. F. CALEY, Presiding

- 58-2. Error Checking for Five-Channel Telegraphic Tape. R. A. I Barbeau, IBM Corp.
- CP.* Teledata System. E. O. Blodgett, Friden Calculating Machine Co.
- 58-172. Data Transmission Testing Set. J. E. Boughtwood and T. A. I Christie, Western Union Telegraph Co.
- CP.* Recorded Carrier System. R. M. Gryb, Bell Telephone Labs.

9:00 a.m.—Cathodic Protection

Chemical Industry Committee
Hotel Statler East Room
J. P. OLIVER, Presiding

- CP58-58. The Canso Causeway. T. R. B. Watson, Corrosion Service Ltd.
- CP58-95. Cathodic Protection of Underground Plant Facilities. H. W. Hosford, Harco Corp.
- CP.* Effective Voltage on Cable Jackets and Analysis. G. H. Hunt, Simplex Wire and Cable Co.

9:00 a.m.—Feedback Control Systems

Feedback Control Systems Committee
Hotel Statler Penn Top South
H. CHESTNUT, Presiding

- 58-10. A Nonlinear Integrator for Servomechanisms. John C. Clegg, II Ramo-Wooldridge Corp.
- 58-12. Transfer Function of Two-Phase Servomotors. S. L. Mikhail, II University of California and G. H. Fett, University of Illinois.
- 58-84. Obtaining the Frequency Response Characteristics of a Nonlinear Servomechanism from an Amplitude—and Frequency—Sensitive Describing Function. W. A. Stein and G. J. Thaler, U. S. Naval Postgraduate School.
- 58-85. Approximate Analysis of the Drag Cup A-C Tachometer. II L. A. Knox, IBM Corp.
- 58-86. An Analysis of a Servomechanism with Backlash by the Ritz-Galerkin Method. Katsuhiko Ogata, University of Minnesota and Cyril P. Atkinson, University of California.

FRIDAY (continued)

9:00 a.m.—Rotating Machinery

Rotating Machinery Committee
Hotel Statler Georgian Room
J. W. JONES, Presiding

- CP.* Water Cooling of Generator Stator Windings. G. V. Brown-
ing, J. F. Quinlan and C. H. Holley, General Electric Co.
- 58-148. Harmonics of the Salient Pole Synchronous Machine and
III Their Effects—Part III, The Differential Leakage of the Damp-
er Winding with Respect to the Main Wave Current Distribu-
tion in the Damper Bars. M. M. Liwischitz-Garik, Poly-
technic Institute of Brooklyn.
- CP58-149. Functional Evaluation of Two D-C Form-Wound Rotor
Coil Insulation Systems Using A Test Formette. E. S. Yates,
General Electric Co.
- CP.* Progress Report on Thermal Endurance Studies of High
Voltage Insulation Systems for Large Generators. G. L.
Moses, J. C. Botts and R. D. Wolford, Westinghouse Elec-
tric Corp.
- CP.* Insulation Testing With Form Wound Motorettes. G. P.
Gibson and P. G. Lucey, Westinghouse Electric Corp.

9:00 a.m.—Transmission and Distribution

Transmission and Distribution Committee
Hotel Statler Ballroom
J. A. RAWLS, Presiding

- CP58-191. The Resistance and Reactance of Aluminum Conductors.
Steel Reinforced. W. A. Lewis, Illinois Institute of Tech-
nology and P. D. Tuttle, Alcoa Research Labs.
- CP.* Magnetic Properties of ACSR Core Wire. L. W. Matsch,
University of Arizona and W. A. Lewis, Illinois Institute of
Technology.
- 58-41. "Current-Carrying Capacity of ACSR", H. E. House and
III P. D. Tuttle, Alcoa Research Labs.
- CP.* Kemano-Kitimat 300 kv Cross Suspension System. H. B.
White, Aluminum Company of Canada, Ltd.

9:00 a.m.—Transformers

Transformers Committee
Sheraton-McAlpin Ballroom
D. L. LEVINE, Presiding

- 58-54. Line-Drop Compensator Settings For Automatic Parallel
III Operation of Load-Tap—Changing Transformers. S. Minne-
ci and H. E. Pinney, General Electric Co.
- 58-158. Measurement of Iron and Copper Losses In Transformers.
III T. R. Snecht, L. B. Rademacher and H. R. Moore, Westing-
house Electric Corp.
- 58-152. A Transistorized Bushing Potential Device. R. L. Stauffer,
III Canadian Westinghouse Co. Ltd., and E. O. Shepard, West-
inghouse Electric Corp.
- 58-159. An Improved Method of Oil Preservation and Its Effect on
III Gas Evolution. W. J. Degnan, G. G. Doucette, Jr. and R. J.
Ringlee, General Electric Co.
- 58-55. Thermal Analysis of Transformer Load Cycles. S. Bennon.
III Westinghouse Electric Corp.

9.00 a.m.—Semiconductors

Solid State Devices Committee
Hotel Statler Skytop
N. FUSCHILLO, Presiding

- CP.* Thermoelectric Heat Pumping—A Survey. Nils E. Linden-
blad, RCA Labs.
- CP.* A Survey of Thermoelectric Power Generation. Willem J. van
der Grinten and Phillip H. Klein, General Electric Co.
- CP.* Practical Thermoelectric Power Generation. Stephen J. An-
gello, Westinghouse Research Labs.
- CP58-186. A One-Watt Solar Power Plant. D. H. Smith, Bell Tele-
phone Labs.

FRIDAY (continued)

9:00 a.m.—Electrical Techniques in Medicine and Biology

Electrical Techniques in Medicine and Biology Committee
Sheraton-McAlpin Crystal Room
W. LUSBY, Presiding

- CP.* A Survey of Imaging Devices Suitable for Medical Purposes.
Joseph Lempart, Westinghouse Electric Corp.
- CP.* Density Stabilization System for X-Ray Cine-Fluoroscopy.
Phillip A. Duffy, Westinghouse Electric Corp.
- CP.* Electronic Capsule in Gastrointestinal Investigation. J. T.
Farrar, Veterans Administration Hospital; W. J. Bieganski,
Radio Corporation of America and C. Berkeley, Rockefeller
Institute.
- CP.* Square Wave Electromagnetic Flow Meter for the Measure-
ment of Mean and Phasic Flow in Unopened Blood Vessels.
M. D. Spencer, Bowman Gray School of Medicine and E. J.
Dennard, Western Electric Co.
- CP.* Rectilinear Coordinate Injection Control of Dual Reagents
for Chromatographic Columns. Grant C. Riggle, National
Institutes of Health.
- CP58-97. Some Applications of Air Ion Measurement. John C.
Beckett, Wesix Electric Heater Co.

9:00 a.m.—Computing in the IGY

Computing Devices Committee
Hotel Statler Gold Ballroom
J. C. WHITE, Presiding

- CP.* Vanguard Satellite Launching Vehicle. D. D. Pasik, E. E.
Loft and W. A. Elfers, Martin Co.
- CP.* Tracking of Earth Satellites at the Vanguard Computing
Center. A. R. Mowlem, IBM Corp.
- CP.* Role of the MIT Computing Center in Visual Tracking of
Earth Satellite. J. F. Blackburn, IBM Corp.
- CP.* Computational Problems Associated With the Vanguard IGY
Satellite Program, J. W. Siry, Naval Research Labs.

9:00 a.m.—Computers

Land Transportation Committee
Sheraton-McAlpin Colonial Room
S. R. NEGLEY, Presiding

- 58-190. Train Performance and Locomotive Tonnage Ratings Cal-
II culated by Digital Computer. J. E. Hogan, Pennsylvania
Railroad Co.
- CP.* A Digital Computer Program For Multiple Unit Train Per-
formance Calculations. R. E. Stillwagon and C. P. Saalback,
Westinghouse Electric Corp.
- CP.* The Application of Computers to Problems of Transportation
Equipment Design. D. R. MacLeod, General Electric Co.

9:00 a.m.—Engineering Education in Foreign Lands

Education Committee
Hotel Statler Penn Top North
J. H. MULLIGAN, JR., Presiding

- CP.* Technical Education in India. Michel G. Malti, Cornell
University.
- CP.* Engineering Education in Central Europe. William F.
Gauster, Oak Ridge National Laboratory.
- CP.* Technical Education in England. Denys Akhurst, Massachu-
setts Institute of Technology.
- CP58-147. Electrical Engineering Education and Research In The
USSR. P. A. Abetti and G. F. Lincks, General Electric Co.

2:00 p.m.—Telegraph Systems

Telegraph Systems Committee
Sheraton-McAlpin Red Room
F. W. SMITH, Presiding

- 58-44. An Improved Six-Channel Time Division Multiplex For Sub-
I marine Cable Telegraphy. H. F. Wilder, Western Union
Telegraph Co. Presented by Ralph Ascione, Western Union
Telegraph Co.
- 58-45. Automatic Telegraph Switching System Plan 55-A. G. S.
I Vernam, Western Union Telegraph Co.
- CP.* The 83B1 Teletypewriter Selective Calling System. C. W.
Smith, A. T. & T., Retired, C. J. Votaw and A. L. Whitman,
Bell Telephone Labs.

FRIDAY (continued)

CP.* Some Recent Western Union Developments in Printing Telegraph Apparatus. F. W. Smith, Western Union Telegraph Co.

2:00 p.m.—Storage Batteries

Chemical Industry Committee
Hotel Statler East Room
H. C. RIGGS, Presiding

CP.* Lead-Acid Storage Batteries in Telephone Service. R. C. Shair, Bell Telephone Labs. Inc.

CP.* Lead Calcium Batteries—8 Years of Field Experience. Eugene Willihnganz, C & D Batteries.

CP.* Batteries in Military Applications. C. G. Grimes, The Electric Storage Battery Co.

58-202. Classical Heat Flow Problems Applied to Induction Billet II Heating. R. M. Baker, Westinghouse Electric Corp.

2:00 p.m.—Feedback Control Systems

Feedback Control Systems Committee
Hotel Statler Penn Top South
J. G. TRUXAL, Presiding

58-80. The Sensitivity of the Poles of a Linear, Closed-Loop System. II R. Y. Huang, Curtiss-Wright Corp.

58-81. Limiting Values of Driving Point Impedances and Transfer II Functions Due to Component Variations. Sheldon Jones, Hughes Aircraft Co.

CP58-13. Gain Variations in an Output Rate Stabilized Servomechanism. Edmund G. Trunk, Servo Corp. of America.

58-82. Time-Varying Analysis of a Guidance System. B. Friedland, II Columbia University.

58-83. Use of Phase Space in Transient Stability Studies. S. T. Bow, III Chinese Academy of Science and J. E. Van Ness, Northwestern University.

2:00 p.m.—Rotating Machinery

Rotating Machinery Committee
Hotel Statler Georgian Room
M. R. LORY, Presiding

CP58-205. A Brush Manufacturer Looks at Silicone Insulation. H. E. Campbell, R. T. Lundy and J. D. Snyder, General Electric Co.

CP58-200. Axial Vibration and Noise in Ball Bearing Motors. E. G. Fischer, Westinghouse Electric Corp.

CP58-201. Applications of Electromagnetic Field Theory to Induction Machines. E. C. Guilford and R. M. Saunders, University of California.

CP58-206. Theory of Electromechanical Energy Conversion. E. C. Guilford and R. M. Saunders, University of California.

2:00 p.m.—Transmission and Distribution

Transmission and Distribution Committee
Hotel Statler Ballroom
A. B. WEAVER, Presiding

58-30. The Economics of Subtransmission Planning. David N. Reys, III Westinghouse Electric Corp.

58-23. Evaluation of Distribution Systems For Medium Load Density III Commercial Areas. G. L. Landgren, Commonwealth Edison Co.

58-174. A Protection Plan For Distribution Feeders. J. R. Hayden, III J. E. Martin and R. L. Tilson, Public Service Co. of Colorado.

CP.* Higher Secondary Voltage for Residential Service. A. S. Anderson, Chase Hutchinson and S. J. Pearson.

2:00 p.m.—Computers in Design

Computing Devices Committee
Hotel Statler Gold Ballroom
C. G. VEINOTT, Presiding

58-162. The Practice and the Economics of Applying Digital Computers to Engineering Problems. P. A. Abetti and S. B. Williams, General Electric Co.

58-233. Philosophy of Applying Digital Computers to the Design I of Electrical Apparatus. P. A. Abetti, W. J. Cuthbertson and S. B. Williams, General Electric Co.

CP58-234. A Generalized Computer Procedure for the Design of Optimum Systems—Part I. R. R. Brown, M.I.T.

CP58-235. A Generalized Computer Procedure for the Design of Optimum Systems—Part II. R. R. Brown, M.I.T.

FRIDAY (continued)

2:00 p.m.—Data Communications

Data Communication Committee
Hotel Statler Penn Top North
W. K. MACADAM, Presiding

CP.* SAGE Data System Considerations. R. G. Enticknap, Lincoln Labs. and E. F. Schuster, Western Electric Co.

CP.* SAGE Data Terminals. R. O. Soffel and E. G. Spack, Bell Telephone Labs.

CP.* Communication Channels for SAGE Data Systems. R. T. James, American Tel. and Tel. Co.

CP.* Methods of Evaluating the Performance of the AI Digital Data System. A. E. Ruppel, Bell Telephone Labs.

2:00 p.m.—Railroad Electrification

Railroad Electrification Committee
Hotel Statler West Room
D. F. HANEY, Presiding

58-32. The Financial Return on Railway Electrification, An Approximate Method For Its Determination. H. F. Brown and H. E. Marmaros, Gibbs and Hill Inc.

CP.* Virginian Railway Motor Generator Electric Locomotive Maintenance Costs. T. F. Perkinson, General Electric Co.

2:00 p.m.—Switchgear

Switchgear Committee
Sheraton-McAlpin Ballroom
C. E. ASBURY, Presiding

58-21. Suppression of Leakage Flux In Magnetic Air Breakers. A. P. III Strom, Westinghouse Electric Corp.

CP.* A New Design of Low Voltage Power Circuit Breaker with a Constant Energy Closing Mechanism. L. L. Baird and R. J. Baskerville, General Electric Co.

CP58-131. High Capacity Current Limiting Fuses Today. E. M. Fitzgerald and V. N. Stewart, General Electric Co.

CP58-6. A New 2½ Cycle Recloser—Its Application On Today's Electric Distribution System. Wayne C. Wiechmann, McGraw-Edison Co.

2:00 p.m.—Industrial Control

Industrial Control Committee
Hotel Statler Skytop
J. W. PICKING, Presiding

CP.* The Application Static Switching Techniques to Programming Control. Maurice W. Cannon and Kenneth R. Thompson, General Electric Co.

CP.* Inductrol DC Drives. Max Berman, General Electric Co.

CP58-212. A Seven Times Magnetic Frequency Multiplier. R. A. Stuart, Westinghouse Electric Corp.

58-213. A Static Exciter For Aircraft A-C Generators. H. H. Britten II and D. L. Plette, General Electric Co. (Re-presented for discussion.)

58-138. An Electro-Hydraulic Speed and Load Division Control for II Constant Speed Air Turbine Drives. P. Dantowitz and L. G. Norris, General Electric Co. (Re-presented for discussion.)

Special Notices to Presiding Officers:

If any changes are desired in the physical arrangements for the technical sessions, presiding officers are directed to telephone Mr. Fred McMillan at the Hotel Statler on Extension H.125.

Note: Unnumbered Conference Papers (CP.*) may be available 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.

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, February 2

10:00 a.m.—Special Task Force on AIEE Institute
 Activities and Organization.....Hudson Room
 1:00 p.m.—Mechanical Rectifier SubcommitteeEmpire Suite II

Monday, February 3

9:00 a.m.—System Stability W.G.....Parlor F*
 9:00 a.m.—Corona and Radio Influence W. G.Parlor C*
 9:00 a.m.—Application of Probability Methods
 Joint SubcommitteeSchuyler Room
 9:00 a.m.—Supervisory Control Section of Report
 Revision (VI-F.2)Parlor E*
 9:00 a.m.—High Voltage D.C. Insulation
 Testing W. G.Cornell Room
 9:00 a.m.—Public RelationsVillage Room
 9:00 a.m.—NominatingBoston Room
 9:00 a.m.—Industrial Power Systems ExecutiveEmpire Suite I
 9:00 a.m.—Periodicals and TransactionsEmpire Suite II
 9:00 a.m.—Excitation Systems SubcommitteeTown Room
 9:00 a.m.—Professional ConductHudson Room
 9:00 a.m.—L. T. Insulation SubcommitteeParlor D*
 10:00 a.m.—Induction and Dielectric Heating
 SubcommitteeBuffalo Room
 10:00 a.m.—SectionsDartmouth Room
 12:00 noon—Luncheon—Mining & Metal IndustryParlor F*
 12:00 noon—Luncheon—Indicating & Integrating
 InstrumentsTown Room
 12:00 noon—Luncheon—General SessionPennsylvania Room
 12:00 noon—Luncheon—SectionsDartmouth Room
 2:00 p.m.—General SessionBallroom
 4:00 p.m.—System Planning SubcommitteeParlor E*
 4:00 p.m.—Corona Effects Subcommittee (Dielectrics)....El Patio*
 4:00 p.m.—Electric WeldingBuffalo Room
 4:00 p.m.—Electronic TransformersTown Room
 4:00 p.m.—Special PublicationsEmpire Suite I
 4:00 p.m.—Electric HeatingBoston Room
 4:00 p.m.—Industrial Power Rectifiers
 AdministrativeVillage Room
 4:00 p.m.—ASA C50 SubcommitteeEmpire Suite II
 4:00 p.m.—TOD Manual SubcommitteeHudson Room
 4:00 p.m.—RedistrictingSchuyler Room
 4:00 p.m.—ASAC-37 Task Force on Coupling Capacitors ..Parlor C*
 4:00 p.m.—Dielectrics Administrative Subcommittee.....Parlor D*
 4:00 p.m.—Equipment Design Standards Subcommittee....Parlor F*
 4:00 p.m.—Special Applications Group of the Committee
 on Semiconductor Rectifiers.....Hartford Room
 5:00 p.m.—Sections Get-TogetherPennsylvania Room
 5:00 p.m.—Power Industry Computer Application
 Conference CommitteeDartmouth Room
 7:30 p.m.—Technical Committee Groupings
 SubcommitteeEmpire Suite II

Tuesday, February 4

7:30 a.m.—Canadian BreakfastPennsylvania & Cornell Rooms
 9:00 a.m.—Section RepresentativesPenn Top North
 9:00 a.m.—Industrial Power SystemsDartmouth Room
 9:00 a.m.—Lightning Protective DevicesBuffalo Room
 9:00 a.m.—Distribution SubcommitteeEmpire Suite I
 9:00 a.m.—Fault Limiting DevicesHudson Room
 9:00 a.m.—Frequency Range Transformers W. G.Parlor C*
 9:00 a.m.—General Systems SubcommitteeParlor D*
 9:00 a.m.—Publications DepartmentCornell Room
 9:00 a.m.—Revision of AIEE #43 W. G.Parlor E*
 9:00 a.m.—Effects of Radiation on DielectricsBoston Room

American Institute of Electrical Engineers

- 9:00 a.m.—Electrostatic Processes Subcommittee ... Schuyler Room
 9:00 a.m.—Mica Working Group Parlor F*
 9:00 a.m.—Towers, Poles & Conductors
 Subcommittee Pennsylvania Room
 9:00 a.m.—Dielectric Measurements Village Room
 9:00 a.m.—Chemical Processes Subcommittee El Patio Room*
 9:00 a.m.—Registration of Engineers Town Room
 9:00 a.m.—Power System Communications Dallas Room
 9:00 a.m.—Recognition Awards Hartford Room
 9:30 a.m.—Lamme Medal Empire Suite II
 12:00 noon—Luncheon—Power Industry Computer
 Conference Buffalo Room
 12:00 noon—Luncheon—Domestic and Commercial
 Applications Parlor E*
 12:00 noon—Luncheon—Communication Division Parlor C*
 12:00 noon—Luncheon—R.M. Guide for Reviewers of
 Papers W. G. Empire Suite II
 12:00 noon—Luncheon—Special Instruments &
 Auxiliary Apparatus Village Room
 12:00 Noon—Luncheon—Electrostatic Processes
 Subcommittee Schuyler Room
 1:15 p.m.—Gaseous Dielectrics Subcommittee Parlor E*
 1:15 p.m.—System Economics Subcommittee Empire Suite I
 1:15 p.m.—Membership Dallas Room
 1:15 p.m.—System Operations Subcommittee Hudson Room
 1:30 p.m.—C. D. Applications Subcommittee Dartmouth Room
 2:00 p.m.—Insulating Fluids Subcommittee ... AIEE Board Room**
 2:00 p.m.—Section Representatives Penn Top North
 2:00 p.m.—Communications Division Parlor C*
 2:00 p.m.—Protective Devices Boston Room
 2:00 p.m.—Transfers Village Room
 2:00 p.m.—System Engineering Pennsylvania Room
 2:00 p.m.—Relays Cornell Room
 2:00 p.m.—Semiconductor Metallic Rectifiers Town Room
 2:00 p.m.—General Industry Applications Parlor D*
 2:00 p.m.—Computing Devices Dartmouth Room
 2:00 p.m.—Methods of Measurements Subcommittee .. Hartford Room
 2:00 p.m.—Lightning and Insulator Subcommittee..... Parlor F*
 4:00 p.m.—Dielectrics Hudson Room
 4:00 p.m.—TV & Aural Broadcasting Systems Parlor C*
 4:00 p.m.—R.M. Induction Machinery
 Subcommittee Empire Suite II
 4:00 p.m.—Insulation W. G. Parlor E*
 4:00 p.m.—T&D Capacitor Subcommittee Parlor F*
 4:00 p.m.—Basic Sciences Dallas Room

Wednesday, February 5

- 9:00 a.m.—Characteristics of Loads
 Subcommittee Empire Suite I
 9:00 a.m.—Professional, Development & Recognition
 Department Boston Room
 9:00 a.m.—Communication Theory Parlor D*
 9:00 a.m.—Electric Power Distribution Systems
 Subcommittee Town Room
 9:00 a.m.—F.C.S. Component Specifications
 Subcommittee Parlor C*
 9:00 a.m.—R.M. Insulation Subcommittee Parlor E*
 9:00 a.m.—Transmission and Distribution Dartmouth Room

Winter General Meeting

- 9:00 a.m.—Electron Tubes Parlor F*
 9:00 a.m.—Admission and Advancement
 Department Schuyler Room
 9:00 a.m.—M.A. Standards Subcommittee Village Room
 9:00 a.m.—R.M. Synchronous Machinery
 Subcommittee Hudson Room
 9:00 a.m.—Research Buffalo Room
 9:00 a.m.—Student Branches Pennsylvania Room
 9:00 a.m.—Nucleonics Empire Suite II
 9:00 a.m.—TOD Representatives..... AIME Board Room**
 9:00 a.m.—Industry Division Dallas Room
 9:00 a.m.—Power Division Hartford Room
 9:00 a.m.—B.S. Magnetics Subcommittee El Patio*
 9:00 a.m.—System Engineering Computer
 Application AIEE Board Room**
 12:00 noon—Luncheon—Industrial Power Rectifiers El Patio*
 12:00 noon—Luncheon—ASA Sectional Committee
 C57 Dartmouth Room
 12:00 noon—Luncheon—General Applications
 Division Empire Suite I
 12:00 noon—Luncheon—Instrumentation Division Town Room
 12:30 p.m.—Hermetic Motor Insulation
 Subcommittee Engr's. Club, Room 2
 2:00 p.m.—Feedback Control Systems Hartford Room
 2:00 p.m.—Education Dallas Room
 2:00 p.m.—FCS Component Specifications
 Subcommittee Parlor C*
 2:00 p.m.—Industrial Power Rectifiers El Patio*
 2:00 p.m.—Administration Department Empire Suite II
 2:00 p.m.—ASA Sectional Committee C57 Dartmouth Room
 2:00 p.m.—Techniques for Dielectric Tests
 Subcommittee Town Room
 2:00 p.m.—Safety Boston Room
 2:00 p.m.—Cable Oils Buffalo Room
 2:00 p.m.—Basic Standards (SI&AA) Village Room
 2:00 p.m.—General Applications Division Empire Suite I
 2:00 p.m.—Automatic and Supervisory Subcommittee ... Parlor D*
 2:00 p.m.—Student Branches Pennsylvania Room
 2:00 p.m.—Conversion Substation Subcommittee ... Schuyler Room
 2:00 p.m.—Distribution Substation Subcommittee Parlor F*
 2:00 p.m.—Transmission Substation Subcommittee Parlor E*
 2:00 p.m.—Ad Hoc Com. on Classification of
 Electronic Test Equipment Room 1101**
 2:00 p.m.—M.A. Definitions Subcommittee ASME Alcove**
 2:00 p.m.—Science and Electronics Cornell Room
 2:00 p.m.—Educational Publications Hudson Room
 2:00 P.M.—Electronics Awards and Medalists .. AIME Board Room**
 4:00 p.m.—Electronics Planning Subcommittee Cornell Room
 4:00 p.m.—Basic Sciences Town Room
 4:00 p.m.—R.M. Administrative Empire Suite I
 5:30 p.m.—Johns Hopkins Alumni Social Hour .. Pennsylvania Room
 6:30 p.m.—Dinner—Electronics Cornell Room
 7:30 p.m.—Forum of Technical Committee
 Chairmen Georgian Room
 8:00 p.m.—Electronics Cornell Room
 8:00 p.m.—Unprofessional Conduct Village Room

Thursday, February 6

- 9:00 a.m.—Single Phase & Fractional
 Horsepower Subcommittee Parlor F*

9:00 a.m.—Electronic Circuits and Systems
 Subcommittee Buffalo Room

9:00 a.m.—Power Generation El Patio*

9:00 a.m.—Vice-President's Conference Town Room

9:00 a.m.—Printing Telegraph Subcommittee Parlor D*

9:00 a.m.—Ground Resistance Measurements Schuyler Room

9:00 a.m.—Commercial Buildings Subcommittee Boston Room

9:00 a.m.—Technical Operations Department ... Pennsylvania Room

9:00 a.m.—Magnetic Amplifiers Cornell Room

9:00 a.m.—Electronic and High Frequency
 Instruments Village Room

9:00 a.m.—Substation Executive Subcommittee Empire Suite I

9:00 a.m.—Land Transportation Empire Suite II

9:00 a.m.—Insulated Conductors Administration
 Subcommittee Parlor E*

10:00 a.m.—Dielectric Devices Subcommittee Parlor C*

12:00 noon—Luncheon—Dielectric Devices
 Subcommittee Parlor C*

12:00 noon—Luncheon—Feedback Control
 Systems Cafe Rouge Cocktail Lounge

12:00 noon—Luncheon—Technical Operations
 Department Cornell Room

12:00 noon—Luncheon—Thinking Machines Town Room

2:00 p.m.—Eastern Joint Computer
 Conference Committee Dallas Room

2:00 p.m.—Vice-Presidents' Conference Town Room

2:00 p.m.—Telegraph Systems Parlor D*

2:00 p.m.—Industrial Control Empire Suite II

2:00 p.m.—Members-For-Life Fund Village Room

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

2:00 p.m.—Automation and Data Processing
 Joint Division Schuyler Room

2:00 p.m.—Substations Dartmouth Room

2:00 p.m.—Data Communications Empire Suite I

2:00 p.m.—Production and Application of Light Cornell Room

2:00 p.m.—AIEE-ASME Speed Governing on
 Gas Turbines Parlor E*

2:00 p.m.—TOD Integration of Technical Groups Buffalo Room

4:00 p.m.—Rotating Machinery Hudson Room

4:00 p.m.—Wire Communications Parlor E*

4:00 p.m.—Radio Communications Systems Boston Room

4:00 p.m.—Electrochemical Processes Subcommittee... Room 502**

4:00 p.m.—Communication Switching Systems East Room

4:00 p.m.—Prime Mover Control Protection
 Subcommittee Parlor F*

Friday, February 7

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

9:00 a.m.—Stray Load Loss Working Group Boston Room

9:00 a.m.—Carbon Brush Subcommittee Town Room

12:00 noon—Luncheon—Board of Directors Cornell Room

12:00 noon—Luncheon—Chemical Industry Dartmouth Room

12:00 noon—Luncheon—Direct Current Machinery
 Subcommittee Empire Suite I

2:00 p.m.—Board of Directors Pennsylvania Room

2:00 p.m.—Cathodic Protection Boston Room

2:00 p.m.—Solid State Devices Buffalo Room

2:00 p.m.—Electrical Techniques in
 Medicine and Biology Schuyler Room

*Located at the Sheraton-McAlpin, 34th & Broadway.
 **Located at the Engineering Societies Building, 33 W. 39th Street.

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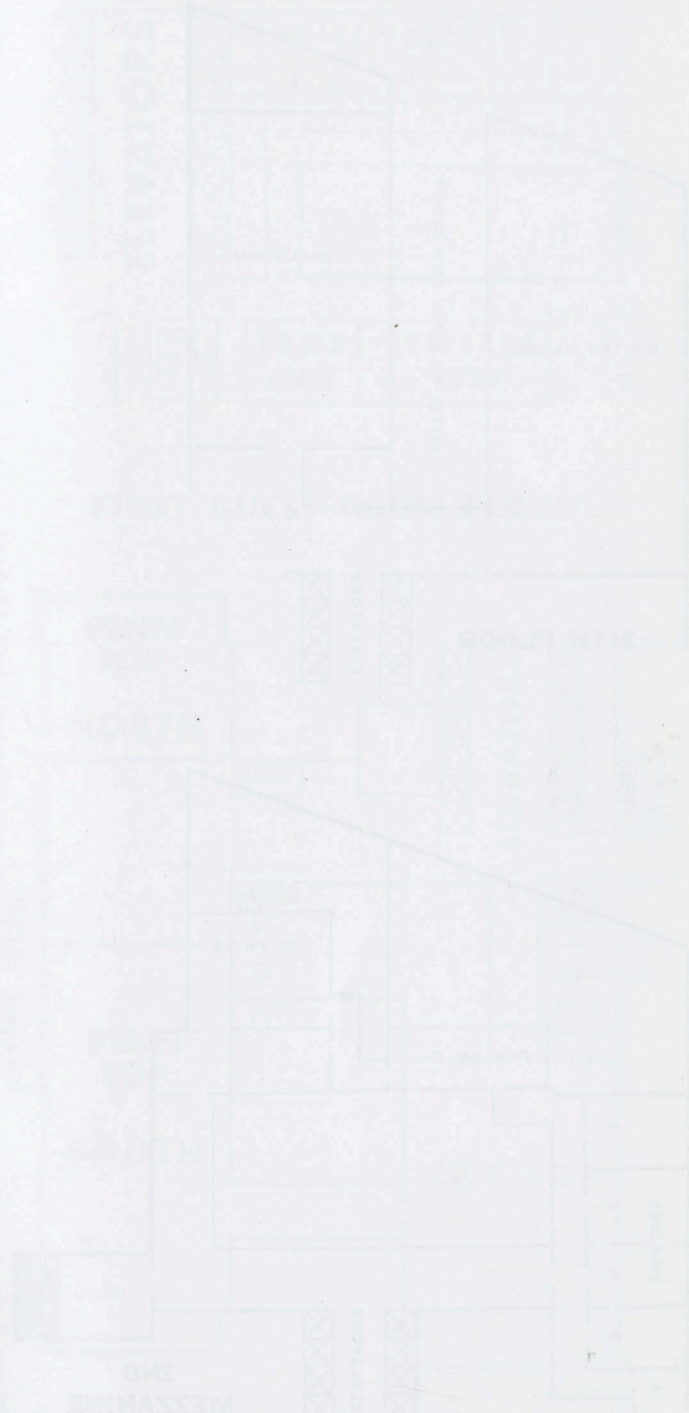
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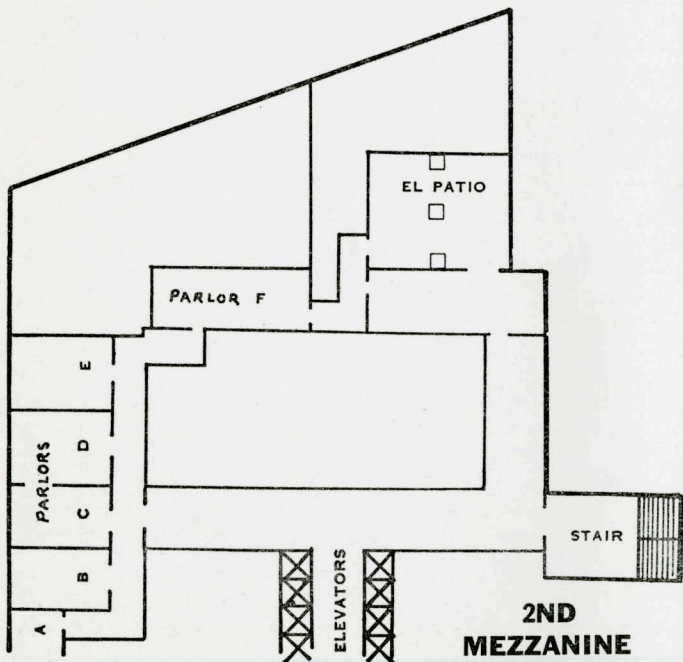
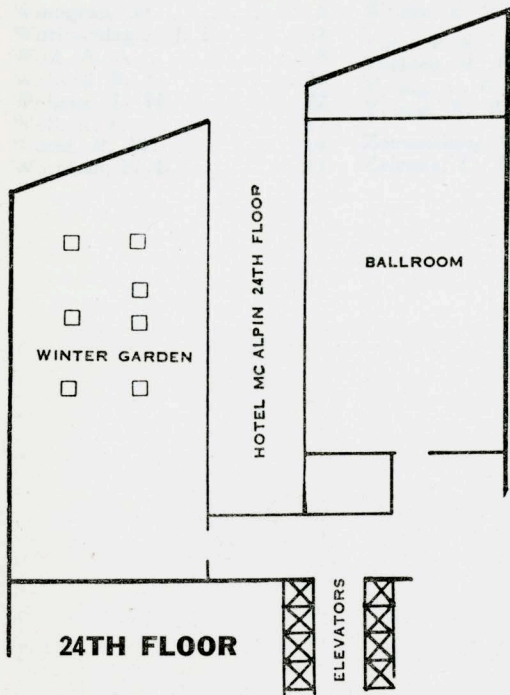
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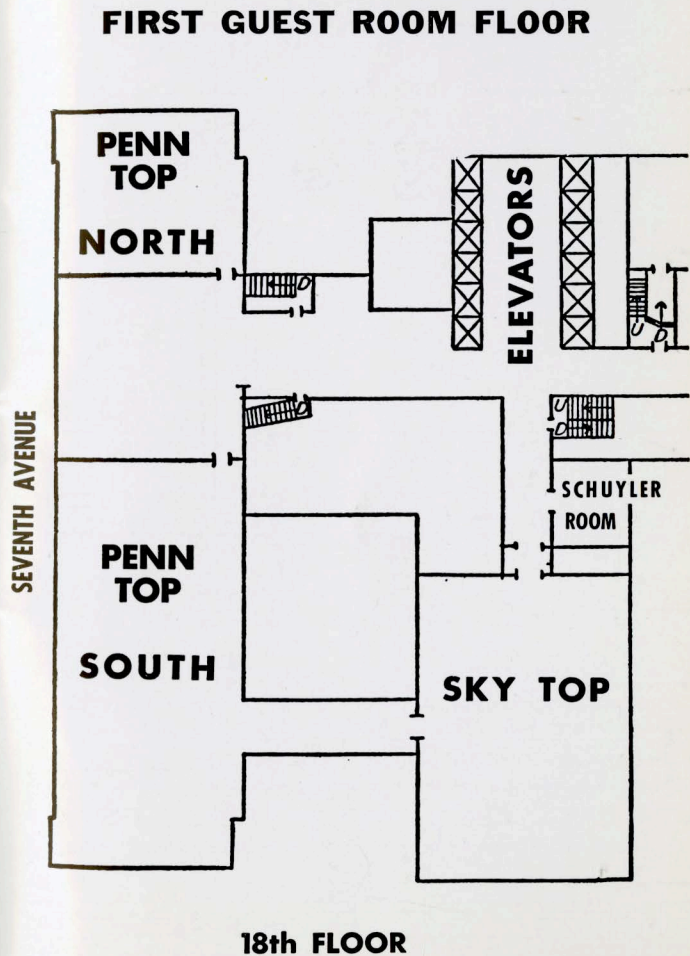
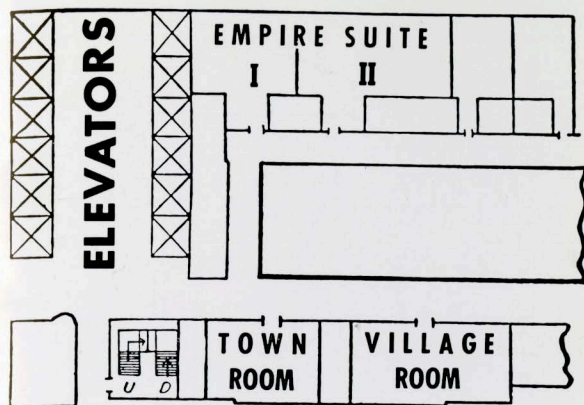
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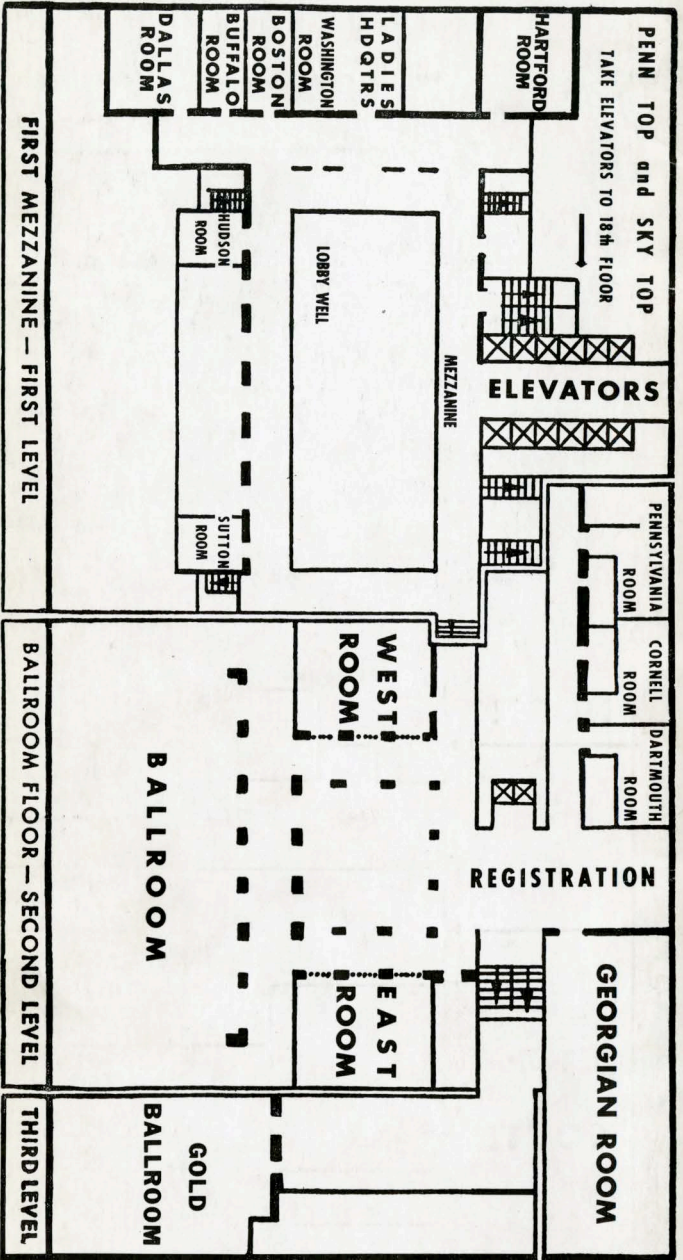
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