

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS



WINTER

GENERAL MEETING

JANUARY 31—FEBRUARY 5, 1960

STATLER-HILTON AND SHERATON-ATLANTIC HOTELS

NEW YORK CITY, N. Y.

Please retain this Program
for use during entire Meeting

GENERAL INFORMATION

Our Winter General Meeting this year features a wide variety of technical sessions which utilize all of the facilities of the Statler-Hilton and Sheraton-Atlantic Hotels. 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 smoker, a dinner-dance and special entertainment for the ladies.

Mr. Charles E. Eble, President of Consolidated Edison Company of New York, Inc. will be the featured speaker of the General Session on Monday afternoon, February 1st. At this session the Institute's Edison Medal will be presented to James F. Fairman and the John Scott Award will be presented to D. A. Lyon. The Institute Prize Paper Awards will also be awarded and President J. H. Foote 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-Atlantic Hotel, Broadway and 34th Street.

Note: In fairness to all concerned and due to 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. The Board of Directors has arranged for a ladies registration fee to help defray the cost of the ladies functions. The registration fees for members and nonmembers have been raised to \$6.00 and \$10.00 respectively. Student members and the immediate families of members are not 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.

Technical Sessions and Discussions are covered by the "Technical Sessions Guide" at the discretion of the presiding officers. Sufficient time 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 19, 1960. 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 \$.50 each (\$1.00 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.

Monitors and Projectors Contact T. W. Bartlett on any questions arising in connection with Monitors and projection equipment, at the Hartford Room of the Statler-Hilton Hotel.

SCHEDULE OF EVENTS

(See Separate Folder for Entertainment, Inspection Trips and Points of Interest)

SUNDAY—JAN. 31

2:00 P.M.

Registration Starts

4:00 P.M.

Informal Tea

MONDAY—FEB. 1

10:00 A.M.

Infrared Device
Sheraton-Atlantic Colonial Room

Electronics
Sheraton-Atlantic Red Room

Land Transportation
Statler-Hilton Gold Ballroom

Storage Batteries
Statler-Hilton East Room

Switching Surges and Transients
Statler-Hilton Georgian Room

Electrical Grounding as Related to Underground Corrosion and Cathodic Protection
Statler-Hilton West Room

Solid Dielectrics
Statler-Hilton Penn Top South

Control Computers—I
Statler-Hilton Skytop

Power System Engineering
Statler-Hilton Grand Ballroom

2:00 P.M.

General Session
Statler-Hilton Grand Ballroom

7:30 P.M.

Parallel Computation of the Nervous System
Statler-Hilton Gold Ballroom

TUESDAY—FEB. 2

9:00 A.M.

New Electron Tube Developments
Engineering Societies Building, Room 502

Planning-For-Growth
Statler-Hilton Penn Top South

Feedback Control Systems Theory
Statler-Hilton Gold Ballroom

Industrial Power Rectifiers
Statler-Hilton East Room

Land Transportation
Statler-Hilton West Room

Communication Switching Systems—I
Sheraton-Atlantic Parlor F

Extra High Voltages
Sheraton-Atlantic Ballroom

TUES. (Continued)

- Rotating Machinery and Relays
Sheraton-Atlantic Red Room
- Switchgear
Sheraton-Atlantic Colonial Room
- Magnetic Amplifiers and Solid State Devices
Statler-Hilton Grand Ballroom
- Liquid Dielectrics
Statler-Hilton Georgian Room
- Control Computers—II
Statler-Hilton Skytop
- Safety
Sheraton-Atlantic Crystal Room
- Electronics
Sheraton-Atlantic East Room
- Section Representatives
Statler-Hilton Penn Top North
- Ceramic Electron Tubes and Other Developments
Engineering Societies Building, Room 502
- Planning-For-Growth
Statler-Hilton Penn Top South
- Reliability and the Systems Concept
Statler-Hilton Gold Ballroom
- Industrial Power Rectifiers
Statler-Hilton East Room
- Land Transportation
Statler-Hilton West Room
- Communication Switching Systems—II
Sheraton-Atlantic Parlor F
- Distribution Systems
Sheraton-Atlantic Ballroom
- Rotating Machinery
Sheraton-Atlantic Red Room
- Switchgear
Sheraton-Atlantic Colonial Room
- Magnetic Amplifiers
Statler-Hilton Grand Ballroom
- Control Computers—III
Statler-Hilton Skytop
- Thermal Endurance
Statler-Hilton Georgian Room
- Electrostatic Processes
Sheraton-Atlantic East Room
- Nucleonics
Sheraton-Atlantic Crystal Room
- Section Representatives
Statler-Hilton Penn Top North

9:30 A.M.

2:00 P.M.

WEDNESDAY—FEB. 3

9:00 A.M.

- Microwave Tubes
Sheraton-Atlantic Red Room
- Ideas for Solving Control Systems
Statler-Hilton West Room
- Chemical and Petroleum Industries
Sheraton-Atlantic Ballroom
- Indicating and Integration Instruments
Sheraton-Atlantic Crystal Room
- Marine Transportation
Statler-Hilton Gold Ballroom
- Communication Theory
Sheraton-Atlantic East Room
- Industrial Telemetering Techniques
Sheraton-Atlantic Colonial Room
- Towers, Poles and Conductors
Statler-Hilton Penn Top South
- Rotating Machinery
Statler-Hilton Penn Top North
- Switchgear and Substations
Statler-Hilton Georgian Room
- Relays
Statler-Hilton Grand Ballroom
- Radiation Effects Symposium
Statler-Hilton Skytop
- Approaches to the Solution of Computer Problems
Statler-Hilton East Room
- Thermionic Energy Converters
Sheraton-Atlantic Red Room
- Chemical and Petroleum Industries
Sheraton-Atlantic Ballroom
- Special Instruments and Measurements
Sheraton-Atlantic East Room
- Electrical Space Heating and Heat Pumps
Sheraton-Atlantic Colonial Room
- Insulators and Radio Influence
Statler-Hilton Penn Top South
- Switchgear
Statler-Hilton Georgian Room
- Relays
Statler-Hilton Grand Ballroom
- Design Theory of Combustional Switching Circuits
Statler-Hilton East Room
- Radiation Effects Symposium
Statler-Hilton Skytop
- Rotating Machinery
Statler-Hilton Penn Top North

2:00 P.M.

WED. (Continued)

Symposium on Grounding for Safety
Sheraton-Atlantic Crystal Room

Man-Machine Integration and Complex Control Systems
Statler-Hilton Gold Ballroom

7:30 P.M.

International Telecommunication Union
Statler-Hilton Grand Ballroom

Forum of Technical Committee Chairmen
Statler-Hilton Georgian Room

THURSDAY—FEB. 4

9:00 A.M.

Modern Circuit Techniques—I
Statler-Hilton East Room

Control System Components
Statler-Hilton Grand Ballroom

Automation Systems in Metal Industry
Statler-Hilton West Room

Production and Application of Light
Statler-Hilton Skytop

Capabilities of the Telephone Network for Data Transmission
Statler-Hilton Penn Top South

Wire Communications
Statler-Hilton Penn Top North

Power System Communications
Sheraton-Atlantic Crystal Room

Protective Devices
Sheraton-Atlantic Red Room

Power Generation Planning
Sheraton-Atlantic Colonial Room

Substations and Transformers
Sheraton-Atlantic Ballroom

Basic Sciences
Sheraton-Atlantic Parlor F

Semiconductor Rectifying Devices and Applications—I
Statler-Hilton Gold Ballroom

Computers in Manufacturing
Statler-Hilton Georgian Room

Medical and Biological Problems
Sheraton-Atlantic East Room

2:00 P.M.

Modern Circuit Techniques—II
Statler-Hilton East Room

Mathematicians Look at Nonlinear Control Systems
Statler-Hilton Grand Ballroom

Electric Systems for Metal Industry
Statler-Hilton West Room

Analog and Digital Data Handling
Statler-Hilton Georgian Room

THURS. (Continued)

Telegraph Systems
Statler-Hilton Penn Top South

Wire Communications
Statler-Hilton Penn Top North

Transformers
Sheraton-Atlantic Crystal Room

Power System Economics Dispatch
Sheraton-Atlantic Red Room

Power Generation and New Energy Sources
Sheraton-Atlantic Colonial Room

Symposium on Extra High Voltage Substations
Sheraton-Atlantic Ballroom

Thermoelectricity
Sheraton-Atlantic Parlor F

Radiation Effects Roundtable Discussion
Statler-Hilton Skytop

Semiconductors Rectifying Devices and Applications—II
Statler-Hilton Terrace Ballroom

Electrical Techniques in Medicine and Biology
Sheraton-Atlantic East Room

FRIDAY—FEB. 5

9:00 A.M.

Non-Linear Control—II
Sheraton-Atlantic Ballroom

Industrial Control
Sheraton-Atlantic Crystal Room

Data Communications over Wire Systems
Sheraton-Atlantic Colonial Room

Radio Communication Systems
Sheraton-Atlantic Red Room

Transformers
Statler-Hilton Grand Ballroom

Power Generating Capacity Problems
Statler-Hilton Gold Ballroom

Insulated Conductors
Statler-Hilton Georgian Room

Corona Effects
Statler-Hilton Skytop

Rotating Machinery
Statler-Hilton Penn Top South

Education
Statler-Hilton Penn Top North

Basic Sciences
Statler-Hilton East Room

Molecular Electronics—I
Statler-Hilton West Room

- Radio Communication Systems
Sheraton-Atlantic Red Room
- Television—Color and Monochrome
Sheraton-Atlantic Colonial Room
- Transformers
Statler-Hilton Grand Ballroom
- Power System Short Circuit Current Calculations
Statler-Hilton Gold Ballroom
- Insulated Conductors
Statler-Hilton Georgian Room
- Basic Sciences
Statler-Hilton East Room
- Rotating Machinery
Statler-Hilton Penn Top South
- Education
Statler-Hilton Penn Top North
- Molecular Electronics—II
Statler-Hilton West Room

MONDAY—FEB. 1

10:00 A.M.

HOTEL SHERATON-ATLANTIC COLONIAL ROOM

Chairman:

C. P. Hadley, Radio Corp. of America

Sponsor:

Electronics Committee

10:00 A.M.

HOTEL SHERATON-ATLANTIC RED ROOM

Chairman:

A. D. Hasley, Bell Telephone Laboratories

Sponsor:

Electronics Committee

10:00 A.M.

HOTEL STATLER-HILTON GOLD BALLROOM

Chairman:

R. L. Kimball, Gibbs & Hill, Inc.

Sponsor:

Land Transportation Committee

TECHNICAL PROGRAM

INFRARED DEVICES

- CP.* Infrared Detection Systems. R. F. Maxwell, Jr.; Westinghouse Electric Corp.
- CP.* An Image Converter for Thermal Radiation. M. Garbuny, T. P. Vogl, J. R. Hansen; Westinghouse Research Labs.
- CP.* Copper-Doped Germanium as a Target Material for an Infrared Camera Tube. R. W. Redington, P. J. van Heerden; General Electric Co.
- CP.* The 7427—A New Photoconductive Cell. D. D. Mickey, T. A. Soileau; General Electric Co.

ELECTRONICS

- CP.* Analysis and Synthesis with the "Complete" Equivalent Circuit for the Wide-Band Transformer. T. R. O'Meara, Hughes Aircraft Co.
- 59-120 I Electronic Transformer Design by Digital Computers. L. F. Deise, W. Etchison & R. Lee, Westinghouse Electric Corp. (Re-presented for Discussion only)
- CP.* Tentative Proposed Standard for Low Power Wide-Band Transformer. P. R. Munk, Bell Telephone Labs.
- CP.* Tentative Proposed Standard for Electronic Power Transformers. S. T. Maunder, General Electric Co.

LAND TRANSPORTATION

- 60-25 II Train Performance Calculated by Digital Computer-Supplemental Programs. J. E. Hogan, The Pennsylvania Railroad Co.
- 60-47 II A Digital Computer Simulation of Single Track Railroad Operation. R. T. Coupal, L. L. Garver, W. R. Smith; General Railway Signal Co.
- CP.* Semi-Conductor Locomotive Excitation Control Developments. T. T. Means, W. B. Zelina General Electric Co.

MON. (Continued)

10:00 A.M.

HOTEL STATLER-
HILTON EAST ROOM*Chairman:*
H. E. Jensen, C & D
Batteries, Inc.*Sponsor:*
Chemical Industry
Committee**STORAGE BATTERIES**

- CP.* Characteristics of Nickel-Cadmium Sealed Cells. M. Golben, Gould National Batteries, Inc.
- CP.* Characteristics of Nickel-Cadmium Batteries. A. Fleischer, T. A. Edison Division McGraw-Edison Co.
- CP.* Aircraft Storage Batteries. W. J. Hamer, National Bureau of Standards.
- CP.* Storage Batteries for Military Vehicles. A. J. Legath, Power Sourced Division U. S. Army Signal R & D Laboratory.
- CP.* A Constant Voltage Battery Charger. C. Leet, Electric Storage Battery Co.; W. Zug, Electric Products Co.
- 60-51 II Lead-Acid Storage Batteries in Telephone Service. R. C. Shair, Gulton Industries, Inc. (formerly with Bell Telephone Labs., Inc.) (Re-presented for Discussion only)

10:00 A.M.

HOTEL STATLER-
HILTON
GEORGIAN ROOM*Chairman:*
J. T. Lusignan, Ohio
Brass Co.*Sponsor:*
Transmission and Dis-
tribution Committee**SWITCHING SURGES AND TRANSIENTS**

- 60-92 III Switching Surges on Energizing a Transformer Terminated Line. I. B. Johnson, A. J. Schultz; General Electric Co.
- CP.* Switching Surges—Part I—A Report by an AIEE Working Group, I. B. Johnson, General Electric Co.
- CP.* Selection of Switching-Surge Reference Values in Future Standardization. P. L. Bellaschi, Portland, Ore.
- 60-184 III Determination of Transient Recovery Voltages on the Detroit Edison System. A. K. Falk, Detroit Edison Co.; H. L. Smith, B. L. Lloyd, Westinghouse Electric Corp.

10:00 A.M.

HOTEL STATLER-
HILTON WEST ROOM*Chairman:*
O. W. Zastrow, R.E.A.,
U. S. Dept. of Agric.*Sponsor:*
Chemical Industry
Committee**ELECTRICAL GROUNDING AS RELATED TO UNDERGROUND CORROSION AND CATHODIC PROTECTOIN**

- 60-4 II The Effect of Electrical Grounding Systems on Underground Corrosion and Cathodic Protection. B. Husock, Harco Corp.
- CP.* Power System and Equipment Grounding in Conformance with Cathodic Protection Practices. R. G. Medley, K. R. Gosnell; Union Carbide Chemicals Co.
- CP60-210. Grounding, Bonding and Cathodic Protection of Pipe Line Pumping Stations. F. Armstrong, G. M. Jeffares, W. T. Robison, Jr., Plantation Pipe Line Co.
- CP.* Corrosion Considerations Connected with Grounding Metallic Sheath Communication Cables. A. F. Minor, American Tel. & Tel. Co and V. B. Pike, Bell Telephone Labs.

MON. (Continued)

10:00 A.M.

HOTEL STATLER-
HILTON
PENN TOP SOUTH*Chairman:*
D. W. Kitchin, Simplex
Wire and Cable Co.*Sponsor:*
Electrical Insulation
Committee

10:00 A.M.

HOTEL STATLER-
HILTON SKYTOP*Chairman:*
J. Mauchly, Mauchly
Associates*Sponsor:*
Computing Devices
Committee

10:00 A.M.

HOTEL STATLER-
HILTON
GRAND BALLROOM*Chairman:*
C. Nichols, Leeds &
Northrup Co.*Sponsor:*
System Engineering
Committee**SOLID DIELECTRICS**

- CP.* Irradiated "Teflon" FEP—Fluorocarbon Resin in a New High Temperature Insulation. J. C. Reed, E. I. duPont de Nemours & Co., Inc.
- CP.* Insulation System for Naval Shipboard Motors Intermittently Submersed. C. B. Hackney, Allis-Chalmers Mfg. Co.; H. P. Walker, U.S. Navy Bureau of Ships.
- CP.* A New Technique Improving Electrical and Physical Properties of Inorganic Insulation. C. H. Vondracek, E. J. Croop, J. D. Merry, Westinghouse Electric Corp.
- CP60-85 The Determination of the Toxicity of Gases. D. Lester, Yale University.

CONTROL COMPUTERS—I: APPLICATION ANALYSIS FOR CONTROL COMPUTER SELECTION

- CP60-214. Chemical Process Selection for Computer Control. C. R. Hall, E. I. duPont de Nemours & Co., Inc.
- 60-247. An Approach to Dynamic Optimizing Control of the Continuous Process. J. F. Sandelien, Case Institute of Technology.
- CP60-119. Generalized Chemical Processing Model for the Investigation of Computer Control. T. J. Williams, R. E. Otto; Monsanto Chemical Co.
- CP.* The Utilization of Digital Computers in Control Loops. L. F. Jones, Westinghouse Electric Corp.

POWER SYSTEM ENGINEERING

- CP.* Short Range Peak Load Prediction for System Planning. W. L. Carey, Portland General Electric Co.
- CP.* The Use of Labor Force Statistics in Estimating Electric Energy Loads. J. G. Gruetter, Bonneville Power Administration.
- CP.* Principles of Economic Dispatching for Electric Power System Operators. H. B. Smith, Niagara Mohawk Power Corp.
- CP.* A Digital Solution of Economic Dispatch and Interchange Billing. F. J. Sherman, W. B. Tegen; Boston Edison Co.

MON. (Continued)

2:00 P.M.

HOTEL STATLER-
HILTON GRAND
BALLROOM

Chairman:

R. T. Weil, Jr., Chair-
man Winter General
Meeting

GENERAL SESSION

ADDRESS: President J. H. Foote.

**REPORT OF THE NOMINATING COMMITTEE by the
Chairman.**

**PRESENTATION OF THE INSTITUTE PRIZE PAPER
AWARDS by the President and W. R. Harris, Chairman,
Prize Awards Committee.**

General Applications Division

1st Prize Paper by: N. F. Schuh and R. J. Tallent.

Power Division

1st Prize Paper by: G. E. Adams, T. W. Liao, M. G. Poland and
F. J. Trebly.

Science and Electronics Division

1st Prize Paper by: F. J. Mullin.

2nd Prize Paper by: R. M. Hubbard.

Instrumentation Division

1st Prize Paper by: V. S. Thomander and R. C. MacIndoe.

2nd Prize Paper by: R. F. Estoppey

Industry Division

1st Prize Paper by: L. F. Kazda.

Student Division

1st Prize Paper by: R. Allington.

2nd Prize Paper by: R. Sommer.

**PRESENTATION OF THE JOHN SCOTT AWARD TO DR.
DEAN A. LYON by Donald C. Rubel, Vice President of
the Board of Directors of the City Trusts of the City of
Philadelphia.**

**PRESENTATION OF THE EDISON MEDAL TO PAST
PRESIDENT JAMES F. FAIRMAN, SENIOR VICE PRES-
IDENT, CONSOLIDATED EDISON CO. OF N. Y., INC.**

History of the Edison Medal. H. C. Montieth, Chairman of
the Edison Medal Committee.

Career of the Medalist. H. C. Forbes, Chairman of the Board of
Directors of Consolidated Edison Co. of N. Y., Inc.

Presentation of the Medal and Certificate, President J. H. Foote.
Response of the Medalist. James F. Fairman.

**RUSSIAN POWER DEVELOPMENT AND SOME IMPLICA-
TIONS FOR THE UNITED STATES. C. E. Eble, Presi-
dent, Consolidated Edison Co. of N. Y., Inc.**

**PARALLEL COMPUTATION OF THE NERVOUS SYSTEM
—Reliability Through Redundancy.**

PANEL MEMBERS:

W. S. McCulloch, Research Laboratory of Electronics of the
Massachusetts Institute of Technology.

O. Selfridge, Lincoln Laboratory of Massachusetts Institute of
Technology.

H. von Furster, University of Illinois.

7:30 P.M.

HOTEL STATLER-
HILTON
GOLD BALLROOM

Chairman:

K. W. Jarvis,
Consultant

Sponsor:

Communication Theory
Committee

TUESDAY—FEB. 2

9:00 A.M.

ENG. SOC. BLDG.
ROOM 502

Chairman:

H. C. Steiner, General
Electric Co.

Sponsor:

Electronics Committee

9:00 A.M.

HOTEL STATLER-
HILTON
PENN TOP SOUTH

Chairman:

J. J. O'Connor, Power
Magazine

Sponsor:

Industrial and Commer-
cial Power Systems
Committee

9:00 A.M.

HOTEL STATLER-
HILTON
GOLD BALLROOM

Chairman:

H. T. Marcy, Inter-
national Business
Machines Corp.

Sponsor:

Feedback Control
Systems Committee

NEW ELECTRON TUBE DEVELOPMENTS

CP.* A New Look at Tube Design. E. R. Jervis, Arinc Research
Corp.

CP.* High Purity Nickel Cathode Alloys. R. E. Caffrey, Bell Tele-
phone Labs., Inc.

CP.* X-ray Image Intensification With a Large Diameter Image
Intensifier Tube. W. F. Niklas, The Rauland Corp.

CP.* Ionization Gauge for Measuring Pressures Up to the Milli-
meter Range. R. J. Melling, Westinghouse Electric Corp.

60-73 I Tubes or Transistors A Realistic Assessment. R. E. Moe,
General Electric Co. (Re-presented for Discussion only)

60-74 I Shall an Electron Tube or a Semiconductor Device Be Used?
E. E. Scheneman, S. K. Waldorf (deceased); Westinghouse
Electric Corp. (Re-presented for Discussion only)

PLANNING-FOR-GROWTH

CP60-137 How Economics Affects System Planning. C. M. Stairs,
Canadian General Electric Co., Ltd.

60-138 II Using the Digital Computer in Industrial Power System
Design. R. F. Cook, A. D. Patton; Westinghouse Electric
Corp.

CP.* How Planning for Growth Paid off. E. C. Siddons, American
Cyanamid Co.

FEEDBACK CONTROL SYSTEMS THEORY

60-61. II An Analytical Method of Developing Pole Locations of
Certain Types of Feedback Amplifiers. R. L. Gamblin, Inter-
national Business Machines Corp. (formerly with Princeton
University)

60-105. II Rapid Determination of Approximate Closed Loop Poles
of Feed-Back Control Systems. S. K. Basu, University College
of Technology.

60-29 II Design for Minimum Probabilistic Error of Continuous Linear
Control Systems Subject to Constraints. J. Zaborszky, Wash-
ington University and McDonnell Aircraft Corp.; J. W. Diesell,
McDonnell Aircraft Corp.

60-62 II Comparison of Vibratory and Rotating-Wheel Gyroscopic
Rate Indicators. G. C. Newton, Jr., Massachusetts Institute of
Technology.

60-63 II Analysis of Load Transfer Oscillations in Parallel Aircraft
AC Electric Power Systems. H. A. Kahle, Jack & Heintz, Inc.

CP60-258. Investigation of the Relative Merits of the Transient Speed
Performance of Tachometer—Regulated and of Voltage—
Regulated D.C. Drives for both Compensated and Uncom-
pensated Motors. H. L. Steinmetz, Allis-Chalmers Mfg. Co.
and T. J. Higgins, University of Wisconsin.

60-106 II The Selection of Electric Winder Drives for the Paper In-
dustry, M. H. Fisher, Westinghouse Electric Corp. (Re-pre-
sented for Discussion only).

59-837 II Modified Optimum Nonlinear Control. T. Mitsumaki, Hitachi
Ltd. (Re-presented for Discussion only)

59-1296 II Optimization of the Adaptive Function by Z—Transform
Method. S. S. L. Chang, New York University (Re-presented
for Discussion only)

TUES. (Continued)

9:00 A.M.

HOTEL STATLER-
HILTON EAST ROOM*Chairman:*L. W. Burton, General
Electric Co.*Sponsor:*Industrial Power
Rectifiers Committee

9:00 A.M.

HOTEL STATLER-
HILTON WEST ROOM*Chairman:*B. A. Ross, U. S.
Military Academy*Sponsor:*Land Transportation
Committee

9:00 A.M.

HOTEL SHERATON-
ATLANTIC PARLOR F*Chairman:*H. F. May, Bell
Telephone Labs.*Sponsor:*Communication
Switching Systems
Committee

9:00 A.M.

HOTEL SHERATON-
ATLANTIC BALLROOM*Chairman:*E. L. Kanouse,
Los Angeles Dept. of
Water & Power*Sponsor:*Transmission and Distri-
bution Committee**INDUSTRIAL POWER RECTIFIERS**

- CP.* Progress in High-Power Rectifier Technology. A. Hansen, Jr., P. J. Colleran, G. B. Farnsworth, C. E. Rettig; General Electric Co.
- CP.* Voltage Control of Silicon Rectifier Units. C. S. Hague, K. F. Friedrich, Westinghouse Electric Corp.
- 60-34. Forward Voltage Drop and Power Loss in Silicon Rectifiers. W. Luft, International Rectifier Corp.
- 60-35. Mechanical Rectifier Definitions. Mechanical Rectifier Subcommittee of the Industrial Power Rectifier Committee; I. K. Dortort, Chairman.
- CP.* Excitation Requirements for Controlled Semiconductor Rectifiers. A. Schmidt, Jr., E. E. Moyer; Acme Electric Co.

LAND TRANSPORTATION

- 60-48. The Pennsylvania Railroad Class GG-1 Electric Locomotives. II J. W. Horine, Pennsylvania Railroad Co.; H. S. Ogden, General Electric Co.
- CP60-49 Experiences of the Sorocabana Railway With Electrification 1943-1958. E. D. de Toledo, Sorocabana Railway.
- CP60-23 Economic Trends Make Railroad Electrification Inevitable. L. B. Curtis, The Pennsylvania Railroad Co.
- 60-50 Virginian Railway Motor-Generator Electric Locomotive Maintenance Costs. T. F. Perkinson, General Electric Co. Re-Represented for Discussion only.

COMMUNICATION SWITCHING SYSTEMS—I

- 59-1028. The Numerical-Graphical Method in the Design of Multi-terminal Switching Circuits. A. H. Scheinman, Bell Telephone Labs., Inc.
- CP60-232. Answering Signal Detector for Private Automatic Branch Exchanges. H. F. Herbig, R. W. Blanchard; ITT Labs.
- 60-233. A 240-Line Fully Electronic Telephone Switchboard. G. I. Goudet, Laboratoire Central de Telecommunications.

EXTRA HIGH VOLTAGES

- 60-185 A Proposal for International Standardization of EHV Transmission Voltages. P. Sporn, H. P. St. Clair; American Electric Power Service Corp.

Note: The following five papers are available in one pamphlet under the number 60-186 at \$2.00 per copy.

- Project EHV—Technical Plan. P. A. Abetti, D. D. Davis, J. H. Hagenguth. General Electric Co.
- Project EHV—Insulation Design. J. G. Anderson, J. H. Hagenguth, I. B. Johnson, A. J. Schultz; General Electric Co.
- Project EHV—North Station and Portal-Type Towers. S. Minneci, A. H. Powell; General Electric Co.; R. E. Larson, Aluminum Co. of America; G. E. Fortney, S. D. Alpert, Stone & Webster Engineering Corp.
- Project EHV—Conductors, Insulators and Conductor Accessories. J. J. LaForest, J. Kaminski, Jr., General Electric Co.; R. E. Larson, Aluminum Co. of America.
- 60-186 Project EHV—Preliminary Corona Investigations; The Effect of Harmonics on Corona Losses. A. H. Foley, F. Olsen; General Electric Co.

TUES. (Continued)

9:00 A.M.

HOTEL SHERATON-
ATLANTIC RED ROOM*Chairman:*R. F. Horrell, Electric
Machinery Mfg. Co.*Sponsor:*Rotating Machinery and
Relays Committees

9:00 A.M.

HOTEL SHERATON-
ATLANTIC COLONIAL
ROOM*Chairman:*J. H. Vivian, Southern
California Edison Co.*Sponsor:*

Switchgear Committee

9:00 A.M.

HOTEL STATLER-
HILTON
GRAND BALLROOM*Chairman:*G. F. Pittman, Jr.,
Westinghouse Electric
Corp.*Sponsor:*Magnetic Amplifiers
Committee**ROTATING MACHINERY & RELAYS**

- 60-32 Survey of Induction Motor Protection. AIEE Subcommittee III on Motor Protection of the Relays Committee, H. C. Barnes Chairman.
- CP60-225. Thermal Relationships in an Induction Motor Under Normal and Abnormal Operation. W. J. Martiny, R. M. McCoy, General Electric Co. and H. B. Margolis, American Electric Power Service Corp.
- CP.* Signal Flow Graphs and Equivalent Circuits of Asynchronous Motors. Yoa-Nan Yu, Villanova University.
- CP60-165 Equivalent Circuits and Performance Calculations of Canned Motors. P. D. Agarwal, University of Massachusetts.
- 60-166. The Pull-In Criterion for Reluctance Motors. J. F. H. Douglas, II Marquette University.

SWITCHGEAR

Note: The following two papers are \$1.00 each.

- 60-151 Proposed American Standard Definitions Pertaining to Alternating-Current Power Circuit Breakers—C37.3 and Proposed III Revision of American Standard C37.4—Rating Structure for Alternating-Current Power Circuit Breakers. AIEE New Working Group on Methods of Rating Power Circuit Breakers, J. H. Vivian, Chairman.
- 60-152 Proposed Revision of American Standard C37.5 American III Standard Methods for Determining the Values of a Sinusoidal Current Wave and a Normal Frequency Recovery Voltage and Proposed Revision of American Standard C37.9 Test Procedure for Alternating Current Power Circuit Breakers. AIEE New Working Group on Methods of Rating Power Circuit Breakers, J. H. Vivian, Chairman.

MAGNETIC AMPLIFIERS AND SOLID STATE DEVICES

- CP.* A New Power Amplifier Using a Single Controlled Rectifier and a Saturable Transformer. R. E. Morgan, General Electric Co.
- CP.* Solid State Firing Circuits for Trinistors. B. Mokrytzki, Westinghouse Electric Corp.
- CP.* Controlled Rectifier Frequency Multipliers Using Inverter Principles. C. W. Flairty, J. D. Harnden, Jr.; General Electric Co.
- 60-96 Recent Developments on Magnetic-Coupled Multivibrators. I W. A. Geyger, U.S. Naval Ordnance Lab.

TUES. (Continued)

9:00 A.M.

HOTEL STATLER-
HILTON
GEORGIAN ROOM

Chairman:
T. W. Dakin, Westing-
house Electric Corp.

Sponsor:
Electrical Insulation
Committee

LIQUID DIELECTRICS

- CP.* A Survey of the 1959 International Symposium on Conduction and Breakdown in Liquid Dielectrics. A. H. Sharbaugh, P. K. Watson, General Electric Co.
- CP* Parameters for Predicting Gassing of Oils Under Electric Stress. S. C. Bartlett, Sun Oil Co.; R. D. Blodgett, The Okonite Co.
- CP.* Electrical Stability of Insulating Oils. E. Eich, Anaconda Wire & Cable Co.; G. Feick, W. F. Olds, Arthur D. Little Co.
- CP60-84. The Bubble Theory for Electric Breakdown of Liquid Dielectrics. K. C. Kao, English Electric Co. Ltd.

9:00 A.M.

HOTEL STATLER-
HILTON SKYTOP

Chairman:
G. L. Hollander, Philco
Corp.

Sponsor:
Computing Devices
Committee

CONTROL COMPUTERS—II: COMPARISON OF INCREMENTAL (DDA) AND WHOLE-NUMBER (GPC) ARITHMETIC COMPUTERS

- CP.* Introduction to D. D. A. E. Braun, Genesys Corp.
- CP60-120 The Relative Merits of Incremental and Conventional Digital Computers in Real-Time Control. S. M. Shackell, Stevens Inst. of Technology (Deceased); J. G. Tryon, University of Alaska (formerly with Bell Telephone Labs., Inc.)
- CP60-121. A Comparison of Whole Value and Incremental Digital Techniques by the Use of Patch Panel Logic. R. W. Waller, F. E. Brinckerhoff; Computer Control Co., Inc.
- CP60-122 A Comparison of Digital Differential Analyzer and General Purpose Equipment in Guidance Systems. M. M. Dickinson, International Business Machines Corp.
- CP.* General Electric Variable Increment Computer. G. T. Sendzuk, General Electric Co.

9:00 A.M.

HOTEL SHERATON-
ATLANTIC CRYSTAL
ROOM

Chairman:
L. D. Price, National
Electrical Manufac-
turing Association

Sponsor:
Safety Committee

SAFETY

- 60-3 Temporary Paralysis following "Freezing" to a Wire. C. F. Dalziel, University of California.
- 60-171 Field Treatment in Electric Shock Cases—II. W. B. Kouwenhoven, G. G. Knickerbocker, W. R. Milnor, J. R. Jude; The Johns Hopkins University.
- CP60-40 Threshold 60-Cycle Fibrillating Currents. C. F. Dalziel, University of California.

TUES. (Continued)

9:00 A.M.

HOTEL SHERATON-
ATLANTIC EAST
ROOM

Chairman:
H. W. Lord, General
Electric Co.

Sponsor:
Electronics Committee

9:30 A.M.

HOTEL STATLER-
HILTON
PENN TOP NORTH

2:00 P.M.

ENG. SOC. BLDG.
ROOM 502

Chairman:
H. H. Wittenberg,
Radio Corp. of
America

Sponsor:
Electronics Committee

2:00 P.M.

HOTEL STATLER-
HILTON
PENN TOP SOUTH

Chairman:
H. A. Bergen, Burson-
Marsteller Assoc.

Sponsor:
Industrial and Commer-
cial Power Systems
Committee

ELECTRONICS

- CP.* The Effects of Transformer Parameters on Surge Voltage Transients in Rectifier Circuits. P. E. Kolk, RCA.
- CP60-231. Ultra High Temperature (500C) Electronic Transformers Part I—Design Considerations. J. F. Rippin, Jr., U. S. Air Force. H. B. Harms, G. Walters; General Electric Co.
- CP60-230. Ultra High Temperature (500C) Electronic Transformers Part II—Design Optimization. G. Walters, General Electric Co.
- CP.* Alumina Power as a Potting Material for Electronic Power Transformers. L. W. Kirkwood, R. S. Key; Bell Telephone Labs., Inc.

SECTION REPRESENTATIVES

CERAMIC ELECTRON TUBES AND OTHER DEVELOPMENTS

- CP.* A New, Rugged, Ceramic Pencil Tube for Class C. Service. C. Gurwacz, Radio Corp. of America.
- CP.* A Small, Rugged Ceramic Tube For Low-Level Amplifier Use. J. M. Connelly, General Electric Co.
- CP.* A Ceramic Hot Cathode Gas Rectifier For Use In High Temperature Applications. W. J. Kearns, General Electric Co.
- CP.* Rare Earth Hydride Reservoirs. N. L. Yeamans, J. E. Creedon, S. Schneider; U.S. Army Signal Research and Develop. Lab.
- CP.* Design Considerations for Modulators and Converters Using a New Miniature Beam-Deflection Tube. M. B. Knight, J. T. Maguire; Radio Corp. of America.
- CP60-75. A New Ceramic Triode for VHF Applications. J. D. Campbell, General Electric Co.

PLANNING-FOR-GROWTH

- 60-12 Determination of Ground Fault Current on Common Alternating Current Grounded Neutral Systems in Standard Steel or Aluminum Conduit. J. A. Gienger, O. C. Davidson, R. W. Brendel; Eastman Kodak Co.
- 60-83. Arcing Fault Protection for Low Voltage Power Distribution Systems. Nature of the Problem. R. H. Kaufman, J. C. Page; General Electric Co.
- CP60-139 Fused Interrupter Switchgear. A. W. Maas, I-T-E Circuit Breaker Co.
- 60-140 A New Welder Busway Distribution System. L. E. Fisher, General Electric Co.; R. W. Dailey, Chrysler Corp. (Represented for Discussion only)

TUES. (Continued)

2:00 P.M.

HOTEL STATLER-
HILTON
GOLD BALLROOM**Chairman:**J. Coutinho, Grumman
Aircraft Engineering
Corp.**Sponsor:**Feedback Control
Systems Committee

2:00 P.M.

HOTEL STATLER-
HILTON EAST ROOM**Chairman:**H. H. Zielinski, General
Electric Co.**Sponsor:**Industrial Power Recti-
fiers Committee

2:00 P.M.

HOTEL STATLER-
HILTON WEST ROOM**Chairman:**P. H. Hatch, Long
Island Railroad**Sponsor:**Land Transportation
Committee**RELIABILITY AND THE SYSTEMS CONCEPT: PANEL
DISCUSSION**

- CP.* E. J. Nucci—Dept. of Defense.
- CP.* F. Thompson—BuAer, Dept. of the Navy.
- CP.* A. J. Finocchi—I. T. and T. Labs.
- CP.* D. Graham—Princeton University and Systems Technology, Inc.

INDUSTRIAL POWER RECTIFIERS

- CP60-211. Effective Value of Direct Voltage Ripple. E. J. Diebold, Perkin Engineering Corp.
- 60-36. Transient Decay of Current Through Paralleled Mercury ARC and Silicon Rectifiers. W. R. Hodgson, Westinghouse Electric Corp.
- CP60-212. Start-up and Initial Operation of a Large High-Voltage Germanium Rectifier Equipment. T. C. Ward, G. Choma; Diamond Alkali Co.
- 60-39. Series Capacitors Applied to Power Rectifiers. L. J. Hibbard, T. J. Bliss; Westinghouse Electric Corp.
- 60-14. Report of Field Tests on Aluminum Pot Line Rectifier Systems. C. A. Langlois, Reynolds Metals Co.; V. N. Stewart, R. P. Stratford, General Electric Co. (Re-presented for Discussion only)

LAND TRANSPORTATION

- CP60-221. High-Performance Rapid-Transit Cars for the Hudson and Manhattan Railroad. S. V. Smith, Pennsylvania Railroad Co.; W. C. Wheeler, St. Louis Car Co.; W. H. Wood, General Electric Co.
- CP60-222. Bi-Level Central Powered Passenger Equipment, Chicago and North Western Railroad. J. L. Swarner, Pullman-Standard.
- CP60-223. Loading of Transportation Rectifier Substations. L. De Koranyi, General Electric Co.

TUES. (Continued)

2:00 P.M.

HOTEL SHERATON-
ATLANTIC PARLOR F**Chairman:**F. D. Reese, General
Telephone Corp.**Sponsor:**Communication
Switching Systems
Committee

2:00 P.M.

HOTEL SHERATON-
ATLANTIC BALLROOM**Chairman:**L. J. Weed, Boston
Edison Co.**Sponsor:**Transmission and Distri-
bution Committee

2:00 P.M.

HOTEL SHERATON-
ATLANTIC RED ROOM**Chairman:**H. D. Snively, General
Electric Co.**Sponsor:**Rotating Machinery
Committee**COMMUNICATION SWITCHING SYSTEMS—II**

- 60-126. A Wired-Memory Translator with Share Access. E. P. Pace, I Airborne Instruments Lab.; B. Ostendorf, Stamford, Conn. (Both authors formerly with Bell Telephone Labs., Inc.) Paper presented by W. M. Bacon, Bell Telephone Labs., Inc.
- CP60-234. Transmission Problems in Time Division Switching Networks for Automatic Telephony. G. Svala, North Electric Co. (formerly with Telefonaktiebolaget L. M. Ericsson).
- CP.* Communication Networks for Digital Information. J. Unk, Hilversum, Netherlands.

DISTRIBUTION SYSTEMS

- 60-248. Economic Analysis of Distribution Systems. H. E. Campbell, III R. C. Ender, M. W. Gangel, V. C. Talley, General Electric Co.
- 60-177. Distribution System Planning Through Optimized Design I.—III Distribution Transformers and Secondaries. R. F. Lawrence, D. N. Reys, A. D. Patton; Westinghouse Electric Corp.
- 60-178. Distribution System Planning Through Optimized Design II.—III Comparative Economics of System Voltages. R. F. Lawrence, D. N. Reys, A. D. Patton; Westinghouse Electric Corp.
- CP60-188. Comparative Studies on the Use of Sub-Transmission Versus Distribution Voltages to Serve Customers' Transformer Stations. D. T. Michael; The Cincinnati Gas & Electric Co.
- 60-187. The Economic Application of Capacitors to Distribution III Feeders. M. Maxwell, Westinghouse Electric Corp.

ROTATING MACHINERY

- 60-21. An Analysis of Solid Rotor Machines—III Finite Length III Effects. A. J. Wood, Hughes Aircraft Co. (formerly with General Electric Co.); C. Concordia, General Electric Co.
- 60-22. An Analysis of Solid Rotor Machines—IV An Approximate III Non-Linear Analysis. A. J. Wood, Hughes Aircraft Co. (formerly with General Electric Co.); C. Concordia, General Electric Co.
- 60-127. A New Brushless D-C Excited Rotating Field Synchronous II Motor. G. M. Rosenberry, Jr., General Electric Co.
- 60-257. Voltage Harmonics of Salient-Pole Generators Under Balanced Three-Phase Loads, Part II. D. Ginsberg, U.S. Army Engineering and Development Labs.; A. L. Jokl, Continental Motors Corp.
- CP60-167. Unbalanced Loading of Turbine Generators. R. L. Winchester, General Electric Co.
- CP60-226. Test Report on Harmonic Excitation of AC Generators. F. I. Biggs, P. I. Nippes, Elliott Co.

TUES. (Continued)

2:00 P.M.

HOTEL SHERATON-
ATLANTIC COLONIAL
ROOM**Chairman:**C. E. Asbury, Common-
wealth Associates Inc.**Sponsor:**

Switchgear Committee

SWITCHGEAR

Note: The following paper is \$1.00 per copy.

- 60-153. Proposed American Standard C37.10 Application Guide for III Alternating Current Power Breakers. AIEE Working Group on Methods of Rating Power Circuit Breaker, J. H. Vivian, Chairman.
- CP60-246. Field Tests on 115KV Vacuum Interrupter Switch. W. O. Rowan, W. Watson. The Hydro-Electric Power Commission of Ontario.
- CP.* Condensation Nuclei A New Technique for Studying Contact Erosion. F. W. Van Luik, Jr., General Electric Co.

2:00 P.M.

HOTEL STATLER-
HILTON
GRAND BALLROOM**Chairman:**E. J. Alexander, Bell
Telephone Labs.**Sponsor:**Magnetic Amplifiers
Committee**MAGNETIC AMPLIFIERS**

- 60-91. Rectifier Unblocking from a Generalized Analysis of Self-Saturating Magnetic Amplifiers. H. C. Bourne, University of California; D. Nitzan, Stanford Research Inst.
- 60-66. Symmetrical Frequency Multiplier Circuits. G. W. Dick, Bell Telephone Labs. (formerly with University of Toronto)
- 56-730. Instabilities of Push-Pull Magnetic Amplifiers Feeding the Field of an Electrical Machine. H. F. Storm, General Electric Co. (Re-presented for Discussion only)
- 60-143. An Analysis of the Operation of the Magnetic Second-Harmonic Modulator. B. W. Jalbert, General Electric Co. (Re-presented for Discussion only)
- CP60-144. 1958 Magnetic Amplifier Bibliography. AIEE Magnetic Amplifier Applications Subcommittee of the Magnetic Amplifiers Committee, D. Katz, Chairman.

2:00 P.M.

HOTEL STATLER-
HILTON SKYTOP**Chairman:**W. C. Carter,
International Business
Machines Corp.**Sponsor:**Computing Devices
Committee**CONTROL COMPUTERS—III**

- CP60-123. Machine Tool Director; A Special-Purpose Computer for Use in Numerical Control Systems. W. W. Knight, W. W. Straub; General Electric Co.
- CP.* Statistical Data Reduction and Control Systems. E. J. Schubert Monitor Systems, Inc.
- CP.* A Description of the UFOFT Computer. L. Perry, Sylvania Electronic Systems.
- CP60-215. The LN3000 Computer Control System. K. G. Harple and R. G. Lex, Leeds & Northrup Co.
- CP.* External Communication Consideration for an In-line Computer. G. Daniels, Panellit, Inc.
- 60-10. A Two-Channel Data Link for Combined Analog-Digital Simulation. J. L. Greenstein, Convair. (Re-presented for Discussion only).

TUES. (Continued)

2:00 P.M.

HOTEL STATLER-
HILTON
GEORGIAN ROOM**Chairman:**E. J. Croop, Westing-
house Electric Corp.**Sponsor:**Electrical Insulation
Committee

2:00 P.M.

HOTEL SHERATON-
ATLANTIC EAST
ROOM**Chairman:**S. R. Orem, Aerotec
Industries, Inc.**Sponsor:**

Electronics Committee

2:00 P.M.

HOTEL SHERATON-
ATLANTIC CRYSTAL
ROOM**Chairman:**A. Y. Taylor, Jackson
and Moreland, Inc.**Sponsor:**

Nucleonics Committee

2:00 P.M.

HOTEL STATLER-
HILTON
PENN TOP NORTH**THERMAL ENDURANCE**

- 60-86. Factors Affecting the Aging Characteristics of Various Wire III Coating Materials in Transformer Oil. G. F. Lipsey, P. W. Juneau, Jr.; General Electric Co.
- 60-87. Thermal Life of Varnished Glass Cloth. C. J. Straka, E. W. III Lindsay; Westinghouse Electric Corp.
- CP60-88. Study of Thermal Deterioration of Enamelled Wires by Mass-Spectrometer Method. Y. Saito, T. Hino; The Tokyo Institute of Technology.
- CP60-293. A Study of Normality of Distribution of Thermal Life Test Data. J. L. Cantwell, General Electric Co.

ELECTROSTATIC PROCESSES

- CP.* Charging of Non-Spherical Particles in a Corona Discharge. G. W. Penney, P. L. Smith, Carnegie Institute of Technology.
- CP60-218. Electrostatic Propulsion Concepts for Space Vehicles. A. J. Gale, High Voltage Engineering Corp.
- 60-102. Current-Voltage Relationships in Negative Pulsed Corona. I J. B. Thomas, T. R. Williams; Princeton University.
- CP.* Turbulent Gas Flow and Electrical Precipitation. P. Cooperman, University of Pittsburgh.
- 60-103. Sparkover as Influenced by Surface Conditions in DC Corona. I G. W. Penney, S. E. Craig; Carnegie Institute of Technology. (Re-presented for Discussion only.)
- 60-33. Potentials in DC Corona Fields. G. W. Penney, Carnegie Institute of Technology; R. E. Matick, International Business Machines Corp. (formerly with Carnegie Institute of Technology (Re-presented for Discussion only)
- 59-234. Power Relationships and Temperature Dependence in the I D-C Corona Field. J. B. Thomas, T. R. Williams, T. Suzuki; Princeton University (Re-presented for Discussion only)
- 60-2. A Theory for Space-Charge Limited Currents with Application I to Electrical Precipitation. P. Cooperman, University of Pittsburgh (Re-presented for Discussion only)
- 59-223. Saturable Reactor Control of Full-Wave and Bi-Phase Recti- I fiers. J. B. Thomas, Princeton University; J. W. Drenning, Koppers Co., Inc. (Re-presented for Discussion only)

NUCLEONICS

- CP60-148. Safety Aspects of a Pressurized Water Nuclear Reactor Power Plant and Associated Instrumentation and Control Requirements. C. F. Obermesser, Westinghouse Electric Corp.
- CP60-149. Preliminary Investigation of Constant Cold Leg Temperature Control. J. M. Gallagher, Jr., Westinghouse Electric Corp.
- CP.* Critical Assembly Work for Enrico Fermi Reactor. R. L. McVean, Detroit Edison Co.
- CP.* Principles of the Power Supply of 12.5 Bev. Proton Synchro- tron at the Argonne National Laboratory. G. O. Calabrese, Argonne National Laboratory.
- 60-150. Design of an Eddy-Current Brake for a Sodium-Cooled Nuc- I lear Power Reactor. R. S. Baker, Atomics International.

SECTION REPRESENTATIVES

WEDNESDAY—FEB. 3

9:00 A.M.

HOTEL SHERATON-
ATLANTIC RED ROOM

Chairman:

S. Perkowski, Western
Electric Co.

Sponsor:

Electronics Committee

MICROWAVE TUBES

- CP.* Suppression and Limiting of Undesired Signals in Traveling-Wave Tubes. H. J. Wolkstein, Radio Corp. of America.
- CP.* An X-Band Periodic-Focused Traveling-Wave Tube Limiter Chain. R. McMurrrough, G. Novak, W. Caton; Radio Corp. of America.
- CP.* Experiments on a Series of S-Band Crestatrons. J. E. Rowe, G. T. Konrad, H. W. Krage; University of Michigan.
- CP.* 1000 to 2000 Megacycles Voltage Tunable Magnatron. M. Weinstein, G. A. Krug, D. J. Hodges and C. R. Phiffer. General Electric Co.
- CP.* A Dual-Mode Pre-TR Tube. G. Klein, M. G. Bates; Westinghouse Electric Corp.
- 60-76. Voltage Transients Due to ARC Extinction. H. C. Steiner, R. W. Strecker; General Electric Co. (Re-presented for Discussion only)
- 60-77. The "Empretron," A Mercury Pool Arc Tube Allowing Operation at Repetition Rates in the Kilocycle Range. K. G. Hernqvist, F. H. Norman; RCA Labs. (Re-presented for Discussion only)

9:00 A.M.

HOTEL STATLER-
HILTON WEST ROOM

Chairman:

L. F. Kazda, University
of Michigan

Sponsor:

Feedback Control
Systems Committee

IDEAS FOR SOLVING CONTROL SYSTEMS: PANEL DISCUSSION

9:00 A.M.

HOTEL SHERATON-
ATLANTIC
BALLROOM

Co-Chairmen:

G. H. St. Onge, Esso
Research and
Engineering Co. and
A. J. Lehman,
Freeport Sulphur Co.

Sponsor:

Chemical and Petroleum
Industry Committees

CHEMICAL AND PETROLEUM INDUSTRIES

- 60-38. Application of Accepted Cable Heating Principles to Unequally Loaded Underground Duct. R. D. Chamlee, D. E. McCall; C. F. Braun and Co. (Re-presented for Discussion only)
- CP.* New Trends and Wiring Methods in the Chemical Industry. O. E. Lundelius, H. E. Wilson; Brown and Root, Inc.
- 60-52. The Application of Static Switching to the Control of Two 7500-HP Oil-Fired Combustion Turbines. P. T. Carmack Union Carbide International Co.; E. M. Smith, General Electric Co.
- CP.* New Developments for Hazardous Locations, Class I and Class II. R. W. Scott, Crouse-Hinds Co.
- 60-16. Characteristics of Centrifugal Pumps & Compressors Which Affect The Motor Driver Under Transient Conditions. H. A. Wiegand, Ingersoll Rand Co.; L. B. Eddy, Universal Oil Products Co. (Re-presented for Discussion only)

WED. (Continued)

9:00 A.M.

HOTEL SHERATON-
ATLANTIC CRYSTAL
ROOM

Chairman:

L. J. Lunas, Westing-
house Electric Corp.

Sponsor:

Indicating and Integrat-
ing Instruments
Committee

INDICATING & INTEGRATING INSTRUMENTS

- 60-135. Thermal Voltage Converters for Accurate Voltage Measurements to 30 Megacycles Per Second. F. L. Hermach, E. S. Williams; National Bureau of Standards.
- CP60-219. Transistorized Footage Counter with Printout for the Paper Industry. S. Salowe, W. J. Schmidt; Westinghouse Electric Corp.
- 60-64. A New Impulse Metering System. C. J. Snyder, C. A. Booker; Westinghouse Electric Corp.
- CP60-136. An Astatic AC-DC Comparator with Wide Frequency Range. J. Pawlat, J. Wolloch; C. P. Goerz Co.

9:00 A.M.

HOTEL STATLER-
HILTON
GOLD BALLROOM

Chairman:

S. A. Haverstick, West-
inghouse Electric
Corp.

Sponsor:

Marine Transportation
Committee

MARINE TRANSPORTATION

- 60-145. Neutral Grounding as Applied to Marine Alternating Current Systems. R. J. McSweeney, W. A. Hall; Gibbs & Cox, Inc.
- 60-146. Advantages of Ungrounded Marine Electrical Systems. A. M. Bruning, E. W. Lusby; Westinghouse Electric Corp.
- CP60-147. S. S. Brasil & Argentina Electrical Installation. H. E. Senger, Moore-McCormack Lines, Inc. (To Be Presented on Board the S.S. Argentina at 2.00 p.m.)

9:00 A.M.

HOTEL SHERATON-
ATLANTIC EAST
ROOM

Chairman:

L. S. Schwartz, New York
University

Sponsor:

Communication Theory
Committee

COMMUNICATION THEORY

- CP.* Burst Correcting Codes. D. W. Hagelbarger, Bell Telephone Labs., Inc.
- CP.* A New Group of Codes for Correction of Dependent Errors in Data Transmission. C. M. Melas, International Business Machines Corp.
- 60-142. Radio Communication with Orthogonal Time Functions. H. F. Harmuth, Stromberg-Carlson Co.
- CP60-213. Null-Zone Envelope Detection in Binary Systems. J. J. Metzner, K. C. Morgan; New York University.
- 59-1076. On the Transmission of Information by Orthogonal Time Functions. H. F. Harmuth, Radio Communications Lab. (Re-presented for Discussion only)

WED. (Continued)

9:00 A.M.

HOTEL SHERATON-
ATLANTIC COLONIAL
ROOM**Chairman:**W. E. Phillips, Leeds and
Northrup Co.**Sponsor:**Telemetering
Committee**INDUSTRIAL TELEMETERING TECHNIQUES**

- CP.* A Current Balance Telemetering Transmitter for Pilot Wire Applications. T. Barabutes, Westinghouse Electric Corp.
- CP.* Principles of Multiplexing. W. J. Mayo-Wells, National Bureau of Standards.
- 60-245. Development and Application of Time-Division Multiplexing I Telemetering Equipment for Data Transmission on an Electric Power System. C. P. Almon, Jr., and J. Donelson, Jr.; Tennessee Valley Authority.
- CP60-261. A New Pulse Duration Telemetering System for Industry. J. R. Casserly, L. Johnsen, D. E. Woodbridge; Applied Science Corp. Princeton.

9:00 A.M.

HOTEL STATLER-
HILTON
PENN TOP SOUTH**Chairman:**J. A. Rawls, Virginia
Electric and Power
Co.**Sponsor:**Transmission and Distri-
bution Committee**TOWERS, POLES AND CONDUCTORS**

- 60-53. Economics of Single and Bundle Conductors for Extra-High-III Voltage Transmission. P. A. Abetti, C. B. Lindh, H. O. Simmons; General Electric Co.
- 60-189. The Effect of Tighter Conductor Tensions on Transmission III Line Costs. E. Fritz, Potomac Electric Power Co.
- 60-239. Broken Wire Assumptions—AIEE Report of Transmission and III Distribution Committee prepared by Towers, Poles and Conductors Subcommittee. E. Fritz, Chairman.
- 60-190. An Analysis of Galloping Electric Transmission Lines. III W. N. McDaniel, Baltimore Gas & Electric Co.
- CP60-72. Design of Chute-des Passes 345 KV Transmission Line. H. B. White, Aluminum Co. of Canada, Ltd.

9:00 A.M.

HOTEL STATLER-
HILTON
PENN TOP NORTH**Chairman:**J. L. Keuhlthau, Allis
Chalmers Mfg. Co.**Sponsor:**Rotating Machinery
Committee**ROTATING MACHINERY**

- 60-125. Impulse Testing of Rotating A-C Machines. AIEE ASA C-50 III Subcommittee, J. B. McClure, Chairman.
- CP60-168. A Generalized Procedure for Fault Location in 2 Pole Lap Wound DC Armatures Using A Standard Surge Comparator. F. A. Scheda, J. J. Riley; Westinghouse Electric Corp.
- CP.* Plyseal. H. E. Mazanek, T. J. Gair; General Electric Co.
- CP.* Experience with DC Testing of Machine Windings. E. Westgaard, Technical University of Norway; J. Sletbak, Norwegian Research Inst. of Electricity Supply.
- CP.* Puncture Hazard Involved in DC Testing of Large Synchronous Machines. L. G. Virsberg, ASEA Research Labs.
- 58-1391. Accelerated Voltage Endurance Tests. R. G. Rhudy, H. E. III Mazanek; General Electric Co. (Re-presented for Discussion only)

WED. (Continued)

9:00 A.M.

HOTEL STATLER-
HILTON
GEORGIAN ROOM**Chairman:**J. A. Smith, General
Electric Co.**Sponsor:**Switchgear and Substa-
tions Committees**SWITCHGEAR—SUBSTATIONS**

- CP.* Use of Rod Gaps for Substation Protection. T. F. Watson, R. Hiatt; Commonwealth Associates.
- 60-205. Insulation Coordination of Circuit Breakers During Operation. A. L. Streator, W. R. Wilson; General Electric Co.
- CP60-228. Power Circuit Breaker Insulation Coordination—The Required Minimum Volt-Time Characteristics For Power Circuit Breakers. O. Naef, American Electric Power Service Corp., C. E. Asbury, Commonwealth Associates.
- CP60-262. Automatic Line Transfer Equipment for Supervisory Systems with Direct Wire Interconnecting Channels. L. E. Monacchi, Consolidated Edison Co. of New York; W. Hodges, A. R. Christman, General Electric Co.

9:00 A.M.

HOTEL STATLER-
HILTON
GRAND BALLROOM**Chairman:**E. W. Woody, Appala-
chian Power Co.**Sponsor:**

Relays Committee

RELAYS

- 60-163. Transistorized Phase Comparison Relaying Principles and III Circuits. C. G. Dewey, M. E. Hodges; General Electric Co.
- 60-252. Transistorized Phase Comparison Relaying Application & III Tests. S. H. Horowitz, American Electric Power Service Corp.; A. J. McConnell, General Electric Co.; H. T. Seeley, General Electric Co.

9:00 A.M.

HOTEL STATLER-
HILTON SKYTOP**Chairman:**E. L. Brancato, U. S.
Naval Research Labs.**Sponsor:**Electrical Insulation and
Nucleonics
Committees**RADIATION EFFECTS SYMPOSIUM**

- CP.* Calculation of Absorbed Dose from Electron Irradiation. C. H. Cheek, V. J. Linnenbom; U. S. Naval Research Lab.
- CP.* Radiation Effects and Electronic Components. E. R. Pfaff, Admiral Corp.
- CP.* Dosimetry. W. Metscher, Wright Air Development Center.

WED. (Continued)

9:00 A.M.

HOTEL STATLER-
HILTON EAST ROOM

Chairman:

J. C. McPherson, Inter-
national Business
Machines Corp.

Sponsor:

Computing Devices
Committees

APPROACHES TO THE SOLUTION OF COMPUTER PROBLEMS

60-128. Automation of Computer Panel Wiring. G. W. Altman,
I L. A. DeCampo, C. R. Warburton; International Business
Machines Corp.

60-129. The Magnetic Analog, With Spiral Search Coils, A. D.
I Moore, University of Michigan.

CP.* Universal Modulus (Matrix Logic VI). E. J. Schubert,
Monitor Systems, Inc. (formerly with Burroughs Corp.).

CP.* Automatic Multiprogram Operating System. C. H. Gaudette,
Y. C. Lo; Minneapolis-Honeywell.

CP60-216. Automatic Program Checkout. A New Approach. R. P. Sell,
Minneapolis-Honeywell Regulator Co.

2:00 P.M.

HOTEL SHERATON-
ATLANTIC RED ROOM

Chairman:

P. H. Gleichauf,
General Electric Co.

Sponsor:

Electronics Committee

THERMIONIC ENERGY CONVERTERS

CP.* Construction of a Thermionic Energy Converter. F. H. Cor-
regan, K. G. Hernqvist, RCA Labs.; F. G. Block, G. Y. East-
man, J. R. Fendley, E. J. Hills, Radio Corp. of America.

CP.* The Los Alamos Plasma Thermocouple. D. J. Roehling, Uni-
versity of California.

CP.* State of the Art of the High-Vacuum Thermionic Converter.
E. A. Baum, General Electric Co.

CP.* Recent Progress in the Development of Nuclear Powered
Thermionic Converter Power Systems. J. Barnard, General
Electric Co.

CP.* Effects of Anode Emission in Vacuum Thermionic Power Con-
verters. A. E. Dugan, Lockheed Missiles and Space Division.

CP.* The Effect of Staging on the Performance of Thermionic
Converters. G. N. Hatsopoulos, Massachusetts Institute of
Technology.

CP.* Potentialities of Cascaded Thermionic-Solid State Convert-
ers. W. J. van der Grinten, General Electric Co.

2:00 P.M.

HOTEL SHERATON-
ATLANTIC
BALLROOM

Co-Chairmen:

G. H. St. Onge, Esso
Research and
Engineering Co. and
A. J. Lehman,
Freeport Sulphur Co.

Sponsor:

Chemical and
Petroleum Industry
Committees

CHEMICAL AND PETROLEUM INDUSTRIES

60-55. Evaluation of Alternative Power Distribution Systems for Re-
II finery Process Units. W. H. Dickinson, Esso Research &
Engineering Co. (Re-presented for Discussion only).

CP.* Wire and Cable for Chemical Plants. F. S. Deck, E. I. DuPont
de Nemours & Co., Inc.

CP60-56. The General-Purpose Analog Computer. E. A. Clarke,
Humble Oil & Refining Co.

WED. (Continued)

2:00 P.M.

HOTEL SHERATON-
ATLANTIC EAST
ROOM

Chairman:

B. B. Curdts, J. G.
Biddle Co.

Sponsor:

Special Instruments and
Auxiliary Apparatus
Indicating and
Integrating Instru-
ments Committees

2:00 P.M.

HOTEL SHERATON-
ATLANTIC COLONIAL
ROOM

Chairman:

H. N. Eanes, Alabama
Power Co.

Sponsor:

Domestic and Commer-
cial Applications
Committee

2:00 P.M.

HOTEL STATLER-
HILTON
PENN TOP SOUTH

Chairman:

H. A. Frey, General
Electric Co.

Sponsor:

Transmission and Distri-
bution Committee

SPECIAL INSTRUMENTS AND MEASUREMENTS

60-1. Bibliography on Ground Resistance and Potential Gradient
I Measurements. AIEE Subcommittee of Special Instruments
& Auxiliary Apparatus Committee, J. C. Parker, Chairman.

CP60-176. The Use of the Electrolytic Tank for Determining Exter-
nal Inductances of Enclosed Conductors. L. L. Mankoff, R. H.
Brealey, Jr.; General Electric Co.

CP60-220. The Role of A Standards Laboratory in a Missile Plant.
S. W. Paulson, E. E. Zimmerman, Chrysler Corp.

CP.* Some Fundamental Properties of Matter as Related to Meas-
urement and Control of Wire Tension. E. J. Saxl, Tensitron,
Inc.

ELECTRICAL SPACE HEATING AND HEAT PUMPS

60-28. A Statistical Method for Determining Heat Losses in Elec-
trically Heated Residences. E. E. Linden, The Narragansett
Electric Co.

CP.* Heat Storage as Applied to Residential Heat Pumps. J. A.
Eibling, Battelle Memorial Institute.

CP.* Economics of Heat Pumps. M. Wilson, Carrier Corp.

CP.* Calculating the Electric Heating Load. W. R. New, Tennes-
see Valley Authority.

INSULATORS AND RADIO INFLUENCE

60-191. Measuring the Lightning Strength of High Voltage Insulators.
III A. D. Lantz, Jr., Ohio Brass Co.

60-93. A Comparison of European and American Wet Flashover Test
III Methods. B. E. Kingsbury, General Electric Co.

60-90. The Electric Stress Grading of Insulator Strings and Their
III Radio Influence Voltages. A. S. Denholm, National Research
Council.

60-192. Radio Frequency Propagation and Attenuation on the Amer-
III ican Electric Power Dequine-Olive 345 KV Line. L. O.
Barthold, J. J. LaForest, General Electric Co.; R. H. Schlo-
mann, American Gas & Electric Service Corp.; F. J. Trebby,
Kaiser Aluminum & Chemical Corp.

60-95. Radio Interference Studies for Extra-High Voltage Lines in
III Ontario. J. Reichman, J. R. Leslie; The Hydro-Electric
Power Commission of Ontario.

WED. (Continued)

2:00 P.M.

HOTEL STATLER-
HILTON
GEORGIAN ROOM*Chairman:*
H. G. Frus, Duquesne
Light Co.*Sponsor:*
Switchgear Committee**SWITCHGEAR**

60-209. The Effect of Current Chopping in Current Breakers on Networks and Transformers—I. Theoretical Considerations. T. H. Lee, General Electric Co.

60-207. The Effect of Current Chopping in Circuit Breakers on Networks and Transformers—II. Experimental Techniques and Investigations. A. N. Greenwood, General Electric Co.

CP60-208. Physical Factors in Expulsion Type Fuse Cutout Design. R. J. Bronikowski, Line Material Industries.

CP60-107. Mechanical Loadings on Circuit Breaker Bushings. E. F. Huston, The Ohio Brass Co.; E. B. Rietz, I-T-E Circuit Breaker Co.

2:00 P.M.

HOTEL STATLER-
HILTON
GRAND BALLROOM*Chairman:*
H. C. Barnes, American
Electric Power Service
Corp.*Sponsor:*
Relays Committee**RELAYS**

60-155. A New Approach to the Pilot Wire Protection of Transmission Lines Using Leased Pilot Wires Having Relatively Long Electrical Characteristics. J. H. Neher, Philadelphia Electric Co.

60-164. Subharmonic Ferro-Resonance in Coupling-Capacitor Potential-Device and Method of Prevention. T. T. Norimatsu, Electrotechnical Laboratory; H. Uyeda, Nissin Electric Co., Ltd.

60-26. Bibliography of Relay Literature 1957-1958. AIEE Subcommittee on Bibliography of Relay Literature of the Relays Committee, R. W. Hirtler, Chairman.

2:00 P.M.

HOTEL STATLER-
HILTON EAST ROOM*Chairman:*
E. J. Schubert, Monitor
Systems*Sponsor:*
Computing Devices
Committee**DESIGN THEORY OF COMBINATIONAL SWITCHING CIRCUITS**

CP.* Introduction to Switching (Boolean) Algebra. N. R. Scott, University of Michigan.

CP.* Binary Numbers, Codes and Translators. W. J. Cadden, IBM Corp.

CP.* Formulation of Switching Problems. J. P. Runyon, Bell Telephone Labs.

CP.* Representation of Switching Functions. E. J. Tanana, Western Electric Co.

CP.* Minimization Theory. E. J. McCluskey, Jr., Princeton University.

CP.* Design Using Computers. T. C. Bartee, Massachusetts Inst. of Technology.

WED. (Continued)

2:00 P.M.

HOTEL STATLER-
HILTON SKYTOP*Chairman:*
J. C. Pigg, Oak Ridge
National Laboratory*Sponsor:*
Electrical Insulation and
Nucleonics
Committees

2:00 P.M.

HOTEL STATLER-
HILTON
PENN TOP NORTH*Chairman:*
J. F. Davis, General
Electric Co.*Sponsor:*
Rotating Machinery
Committee

2:00 P.M.

HOTEL SHERATON-
ATLANTIC CRYSTAL
ROOM*Chairman:*
D. R. Davidson, Cleve-
land Electric Illumi-
nating Co.*Sponsor:*
Safety Committee

2:00 P.M.

HOTEL STATLER-
HILTON
GOLD BALLROOM*Chairman:*
W. H. MacWilliams, Bell
Telephone Labs.*Sponsor:*
Man-Machine Integra-
tion Committee**RADIATION EFFECTS SYMPOSIUM**

60-89. Post Irradiation Thermal and Electrical Properties of Magnet Wire Insulation. J. W. Kallander, U. S. Naval Research Lab.

CP.* Thermoelectric Power. P. H. Klein, General Electric Co.

CP.* Transmission of Electromagnet Waves Through an Ionized Atmosphere. W. A. Greenhow, Chance Vought Aircraft Corp.

ROTATING MACHINERY

60-169. A Practical Commutator Primitive for Generalized Machine III Theory. T. H. Barton, McGill University; C. V. Jones, Liverpool University.

CP.* Basis for Inductance Calculations in Commutation Design—II. H. E. Koenig, H. K. Kesavan, J. D. Edick; Michigan State University.

CP.* Digital Techniques in Commutation Design—III. H. K. Kesavan, Michigan State University.

CP.* A New Criterion for Satisfactory Commutation—I. H. K. Kesavan, H. E. Koenig, Michigan State University.

60-41. End Component of Zero Sequence Reactance of A-C Machines. III R. T. Smith, The University of Texas.

SYMPOSIUM ON GROUNDING FOR SAFETY

Panel Members:

CP.* T. C. M. Martin, University of California.

CP.* W. L. Clifton, Hydro-Electric Power Commission of Ontario.

CP.* H. L. Rorden, American Electric Power Service Corp.

CP.* E. Dunbar, Potomac Electric Power Co.

MAN-MACHINE INTEGRATION IN COMPLEX CONTROL SYSTEMS

CP.* Automatic Maintenance Operation in an Electronic Telephone Central Office. W. Ulrich, Bell Telephone Labs.

CP.* Use of an Electronic Data Processing System in Making Military Operational Decisions. R. G. Pfefferkorn, International Electric Corp.

CP.* Experience in Using the Sage Computer for Sage System Operator Training and Analysis of Operator Performance. J. L. Morey, Systems Development Corp.

WED. (Continued)

7:30 P.M.

HOTEL STATLER-
HILTON
GRAND BALLROOM**Chairman:**F. B. Bramhall, Lenkurt
Electric Co., Inc.**Sponsor:**

Communication Division

7:30 P.M.

HOTEL STATLER-
HILTON
GEORGIAN ROOM**Chairman:**C. T. Hatcher, Consoli-
dated Edison Co. of
N. Y., Inc.**Sponsor:**Technical Operations
Department**THURSDAY—Feb. 4**

9:00 A.M.

HOTEL STATLER-
HILTON EAST ROOM**Chairman:**A. P. Stern, General
Electric Co.**Sponsor:**

Electronics Committee

9:00 A.M.

HOTEL STATLER-
HILTON GRAND
BALLROOM**Chairman:**D. D. Pidhayny, Ramo-
Wooldridge Corp.**Sponsor:**Feedback Control
Systems Committee**THE INTERNATIONAL TELECOMMUNICATIONS UNION AND
ITS DECENNIAL CONFERENCES OF 1959**

- CP.* The Geneva Plenipotentiary Meeting. F. C. deWolf, Dept. of State.
- CP.* International Telephone Regulations. W. E. Bloecker, American Telephone & Telegraph Co.
- CP.* American Telegraph Regulations. M. H. Woodward, Federal Communications Commission.
- CP.* The Radio Regulations and the IFRB. P. D. Miles, International Radio Advisory Committee.

FORUM OF TECHNICAL COMMITTEE CHAIRMEN**MODERN CIRCUIT TECHNIQUES—I**

- CP.* Esaki Diode Characterization. D. E. Thomas, Bell Telephone Labs.
- CP.* Tunnel Diode Circuit Aspects and Applications. W. F. Chow, U.S. Davidsohn, Y. C. Hwang, C. S. Kim, G. B. Ober; General Electric Co.
- CP.* Ferroelectric Energy Converter Circuits. S. R. Hoh, I.T.T. Labs.
- CP.* High Speed Silicon PNP Diodes. A. N. Baker, J. M. Goldey, I. M. Mackintosh; Bell Telephone Labs.
- CP.* Cascaded Automatic Gain Control. J. S. Brown, General Electric Co.
- 60-57. Locking Range of an Oscillator for Different Non-Linearities. I B. R. Nag, University of Calcutta.
- 60-6. Stable Transistor Wide-Band Direct-Current Amplifiers. R. H. Okada, University of Pennsylvania. (Re-presented for Discussion only).
- 60-20. Fundamental Considerations of Power Dissipation Limits in Some Bistable Transistor Pulse Circuits. H. Raillard, General Electric Co. (Re-presented for Discussion only).

CONTROL SYSTEM COMPONENTS

- CP.* Analog to Digital Devices. W. Gains, P. P. Fischer.
- CP.* Variable Reactance and Linear Differential Transformer Type Transducers. C. W. Baird.
- CP.* A. C. Servo Motors, Resolvers, etc. T. N. Feng, E. Gamble.
- CP.* Gyros. C. Janoff.
- CP.* A Paper Covering the Objectives of Component System Performance Evaluation Subcom. J. R. Shull.

THURS. (Continued)

9:00 A.M.

HOTEL STATLER-
HILTON WEST ROOM**Chairman:**W. E. Miller, General
Electric Co.**Sponsor:**Metal Industry
Committee

9:00 A.M.

HOTEL STATLER-
HILTON SKYTOP**Chairman:**R. D. Churchill, General
Electric Co.**Sponsor:**Production and Appli-
cation of Light
Committee

9:00 A.M.

HOTEL STATLER-
HILTON
PENN TOP SOUTH**Chairman:**V. N. Vaughan, Jr.,
American Telephone
and Telegraph Co.**Sponsor:**Data Communication
Committee**AUTOMATION SYSTEMS IN METAL INDUSTRY**

- CP.* Advanced Electrical Systems for Application to Metal Industry Processes. W. H. Dauberman, Westinghouse Electric Corp.
- CP.* Automation for Sinter Plants. R. L. Houlton, D. E. Hamilton; General Electric Co.
- CP.* Data Accumulation and Logging Systems for Steel Strip Processing Lines. G. J. Hay, Westinghouse Electric Corp.
- CP.* Servo Control for Synchronized Conveyors. A. E. Lewis, Clark Controller Co.

PRODUCTION AND APPLICATION OF LIGHT

- 60-24. Voltage-Temperature Life Testing of Fluorescent Ballast Insulation Systems. C. A. Howlett, General Electric Co. (Deceased). Presented by P. H. Landolt.
- CP.* Acceptance and Use of Higher Lighting Levels. G. J. Taylor, Day-Brite Lighting Inc.
- CP.* Integrated Lighting Air-Conditioning Systems. W. S. Fisher, General Electric Co.

**CAPABILITIES OF THE TELEPHONE NETWORK FOR DATA
TRANSMISSION**

- CP.* Evaluating the Telephone Message Plant for Data Transmission—Description of Testing Program. A. A. Alexander, American Telephone and Telegraph Co.
- CP.* Basic Transmission Characteristics of the Telephone Network, Net Loss, Bandwidth, Delay and Noise. D. W. Nast, Bell Telephone Labs.
- CP.* Data Transmission Performance of the Telephone Network—Error Rate, Error Distribution and Error Control, R. M. Gryb, Bell Tel. Labs.
- CP60-99. Data-Phone-Customer Usage Results. R. W. Ralston, American Telephone & Telegraph Co.
- CP.* A High Speed (105,000 bit per second) Data Transmission System. R. H. Coe, Pacific Telephone and Telegraph Co.; R. T. James, American Telephone and Telegraph Co.

THURS. (Continued)

9:00 A.M.

HOTEL STATLER-
HILTON PENN TOP
NORTH*Chairman:*L. R. Montfort, Bell
Telephone Labs.*Sponsor:*Wire Communications
Comittee

9:00 A.M.

HOTEL SHERATON-
ATLANTIC CRYSTAL
ROOM*Chairman:*G. E. Farmer, Tennessee
Valley Authority*Sponsor:*Power System Commu-
nications Committee

9:00 A.M.

HOTEL SHERATON-
ATLANTIC RED ROOM*Chairman:*H. R. Armstrong,
Detroit Edison Co.*Sponsor:*Protective Devices
Committee**WIRE COMMUNICATIONS**

- CP.* E6 Voice Repeater—Background and Theory of Operation. L. Hochgraf, Bell Telephone Labs.
- CP.* E6 Voice Repeater—Description and Testing. J. O. Smethurst, Bell Telephone Labs.
- CP.* E6 Voice Repeater—Packaging Design. L. Pedersen, Bell Telephone Labs.
- CP.* E6 Voice Repeater—Production Planning. R. Mittermann, Western Electric Co.
- CP.* E6 Voice Repeater—Engineering and Installation. E. J. Doyle, T. J. Talley, III; American Telephone and Telegraph Co.

POWER SYSTEM COMMUNICATIONS

- 60-242 Telemetering Applications and Operating Experience on a III Large Power System. D. E. Johannson, Bonneville Power Administration.
- 60-243 Neutralizing Chokes for Telephone Lines Entering Power III Stations. O. Ramsaur, Pennsylvania Power & Light Co.
- 60-244 Operation of a Power Line Carrier System During Sustained III Line Faults. D. E. Jones, The Hydro-Electric Power Commission of Ontario.

PROTECTIVE DEVICES

- 60-249. Application for Arresters for Lightning Protection of Multi- III Line Substations. J. M. Clayton and F. S. Young; Westinghouse Electric Corp.
- 60-250. Arrester Protection of High Voltage Stations Against Lightning. III G. D. Breuer, R. H. Hopkinson, I. B. Johnson, A. J. Schultz; General Electric Co.
- CP.* An Analysis of Arrester Operating Duty—Using a Thermal Approach. E. F. Reis, M. C. Galiyano, Pennsylvania Power & Light Co.; J. Teno, Lehigh University.
- CP.* Radio Influence Voltage Values for Lightning Arresters. H. R. Armstrong, The Detroit Edison Co.
- CP.* Problems in Lightning Arrester Standardization. W. F. Grifard, Commonwealth Associates, Inc.

THURS. (Continued)

9:00 A.M.

HOTEL SHERATON-
ATLANTIC COLONIAL
ROOM*Chairman:*C. F. Paulus, Cleveland
Electric Co.*Sponsor:*Power Generation
Committee

9:00 A.M.

HOTEL SHERATON-
ATLANTIC
BALLROOM*Chairman:*R. A. Hunt, Cleveland
Electric Illuminating
Co.*Sponsor:*Substations and Trans-
formers Committees

9:00 A.M.

HOTEL SHERATON-
ATLANTIC PARLOR F*Chairman:*T. J. Higgins, University
of Wisconsin*Sponsor:*Basic Sciences
Committee**POWER GENERATION PLANNING**

- 60-256. An Approach to Peak Load Economics. C. D. Galloway, L. K. III Kirchmayer, W. D. Marsh, A. G. Mellor. General Electric Co. (Re-presented for Discussion only).
- 60-156. Load and Capacity Models for Generation Planning by Simu- III lation. C. J. Baldwin, C. A. DeSalvo, Westinghouse Electric Corp.; C. H. Hoffman, E. C. Plant, Public Service Electric and Gas Co.
- 60-251. The Use of Simulated Reserve Margins to Determine Genera- III tor Installation Dates. C. J. Baldwin, D. P. Gaver, Westinghouse Electric Corp.; C. H. Hoffman, J. A. Rose, Public Service Electric and Gas Co.
- CP.* Announcement of Future Roundtable Discussion on Power Station Automation. D. M. Sauter, Westinghouse Electric Corp.

SUBSTATIONS AND TRANSFORMERS

- CP60-42. 400 MVA Bulk Power Substation in Metropolitan Area. C. M. Short, H. L. Holland; City of Los Angeles Dept. of Water & Power.
- 60-175. Some Characteristics of Audible Noise of Power Transformers III and Their Relationship to Audibility Criteria and Noise Ordinances. M. W. Schulz, Jr., R. J. Ringlee; General Electric Co.
- CP60-238. Sound Barrier Walls for Transformers. W. G. on Technical Investigations of the Subcommittee on Audible Sound of the AIEE Transformer Committee, M. W. Schulz, Jr., Chairman.
- CP.* Mobile Test Unit Brings Factory Testing to Power Trans- former Repair Shop. E. A. Thompson, W. H. Schneider; Westinghouse Electric Corp.

BASIC SCIENCES

- CP60-193. Generalized Recurrence Relations in the Analysis of Non- linear Systems. A. A. Wolf, Stromberg-Carlson Co.
- CP.* Determination of the Transient Response of the Heaviside— Bessel Non-Uniform Transmission Line. D. T. Frankos, T. J. Higgins.
- CP60-194. Electro-Magnetic Induction Damping of Vibratory Motion. L. B. Cherry, Lamar State College of Technology.
- 60-196. Voltage Regulation in Modern Aircraft Electric Power Sys- I tems. A. Krausz, Space Technology Labs., Inc.; H. A. Kahle, Jack & Heintz, Inc.
- CP60-195. A Transistorized DC Voltage Regulator for Direct Re- placement of Carbon-Pile Regulators. P. D. Corey, W. O. Hansen; General Electric Co.
- 60-240. An Analysis of Transfer in Gas Shielded Welding Arcs. W. J. I Greene, Air Aeduction Co., Inc. (Re-presented for Discus- sion only).
- 60-241. The Measurement of Temperature in Welding Arcs. H. C. I Ludwig, Westinghouse Electric Corp. (Re-presented for Dis- cussion only).

THURS. (Continued)

9:00 A.M.

HOTEL STATLER-
HILTON
GOLD BALLROOM*Chairman:*
H. P. Weirich, Fansteel
Metallurgical Corp.*Sponsor:*
Semiconductor Metallic
Rectifiers Committee**SEMICONDUCTOR RECTIFYING DEVICES AND APPLICATIONS—I**

- CP60-67. A Silicon Controlled Rectifier—Its Characteristics and Ratings—II. D. K. Bisson, R. F. Dyer; General Electric Co.
- CP.* 100 Kilowatt Trinstors. J. Philips, E. W. Torok, Westinghouse Electric Corp.
- CP60-227. Switching Characteristics of Silicon Power Controlled Rectifiers—I, Turn-on Action. I. Somos, General Electric Co.
- CP.* A Thermal Compression—Bonded Low Temperature—Coefficient Voltage Regulating Diode. J. B. Singleton, H. D. Sloan; Bell Telephone Labs., Inc.
- 60-19. An Investigation of the Dynamic Switching Properties of I Four-Layer Diodes. G. E. McDuffie, Jr., The Catholic University of America and W. L. Chadwell, U. S. Dept. of Defense formerly with The Catholic University of America. (Re-presented for Discussion only).

9:00 A.M.

HOTEL STATLER-
HILTON
GEORGIAN ROOM*Chairman:*
F. J. Maginniss, General
Electric Co.*Sponsor:*
Computing Devices
Committee**APPLICATION OF COMPUTERS IN MANUFACTURING**

- CP.* Integrated Systems Planning. B. Grad, General Electric Co.
- CP.* Production Line Balancing. A. L. Paul, Westinghouse Electric Corp.
- CP60-131. An Experiment in Simulation of Factory Operation on a Digital Computer. R. S. Clement, General Electric Co.
- CP60-132. Complete Manufacturing Information Produced by Computer for Large A. C. Motor Coils. T. N. Kyriazi, R. C. Fuller; Westinghouse Electric Corp.

9:00 A.M.

HOTEL SHERATON-
ATLANTIC EAST
ROOM*Chairman:*
A. R. Eckles, University
of Vermont*Sponsor:*
Electrical Techniques in
Medicine and Biology
Committee**PANEL DISCUSSION ON "NEW CHALLENGES TO ELECTRICAL ENGINEERS FROM MEDICAL AND BIOLOGICAL PROBLEMS"***Supported by the National Science Foundation Grant #10675.*

Opening Address: J. H. Foote—President, AIEE.

- CP.* Physiology. S. Talbot, The Johns Hopkins Hospital
- CP.* Radiology: G. Henny—Temple University.
- CP.* Biology: O. Schmitt—University of Minnesota.
- CP.* Space Medicine: A. Hetherington—Air Research and Development Command.

THURS. (Continued)

2:00 P.M.

HOTEL STATLER-
HILTON EAST ROOM*Chairman:*
L. D. Wechsler, General
Electric Co.*Sponsor:*
Electronics Committee**MODERN CIRCUIT TECHNIQUES—II**

- CP.* Solid State Switching Logic for Airborne Control Systems. K. H. Doerenkamp, R. W. Churchill; Minneapolis-Honeywell Regulator Co.
- CP.* A Switching Amplifier for a Space Vehicle Stable Platform Control System. J. McHugh, General Electric Co.
- CP.* Characteristics of Wide Band Direct Coupled Amplifiers. J. Varga, General Electric Co.
- CP.* Transistor Morse to Teleprinter Code Converter. J. F. Cunniff, C. E. Theall, Jr.; C. G. S. Labs., Inc.
- CP.* The Design of the Generator Voltage Regulator. B. M. Van Emden, Hydro-Aire Corp.

2:00 P.M.

HOTEL STATLER-
HILTON GRAND
BALLROOM*Chairman:*
L. J. Kazda, University
of Michigan*Sponsor:*
Feedback Control
Systems Committee**MATHEMATICIANS LOOK AT NONLINEAR CONTROL SYSTEMS**

- CP60-109. Discrete Models for Nonlinear Systems. W. Kaplan, University of Michigan.
- CP.* Problems of Asymptotic Behavior and Stability. L. Cesari, Purdue University & RIAS.
- CP60-110. Recent Advances in the Analysis and Synthesis of Nonlinear Systems. A. A. Wolf, Stromberg-Carlson Co.
- 60-111. On A Systematic Approximation to the Partition Method for II Analysis of A Class of Nonlinear Systems. Y. H. Ku, J. H. Dietz, University of Pennsylvania; A. A. Wolf, Stromberg-Carlson Co.
- CP.* Mimial Time Problems and Maximum Principle. L. A. Zadeh, University of California.
- CP.* Bibliography on Recent Contributions in the Nonlinear Theory Area. T. J. Higgins, University of Wisconsin.

2:00 P.M.

HOTEL STATLER-
HILTON WEST ROOM*Chairman:*
E. H. Browning, West-
inghouse Electric
Corp.*Sponsor:*
Metal Industry
Committee**ELECTRIC SYSTEMS FOR METAL INDUSTRY**

- CP.* The Rectifier Power Supply on the Lukens Steel Reversing Plate Mill. R. A. Hamilton, General Electric Co.
- CP.* Rectifier Power Supplies for Auxiliary Drives. S. J. Roumanis, General Electric Co.
- CP.* Application of Rotating Magnetic Stirrers to Electric Arc Furnaces. R. D. Thomas, Westinghouse Electric Corp.

THURS. (Continued)

2:00 P.M.

HOTEL STATLER-
HILTON
GEORGIAN ROOM*Chairman:*A. W. Jacobson, Bristol
Co.*Sponsor:*Recording & Controlling
Instrumentation
Committee**ANALOG AND DIGITAL DATA HANDLING**

- 60-114. A Precision Continuous Voltage Reference for Industrial Recorders. P. B. Robinson, General Electric Co.
- 60-113. Design and Performance Characteristics of a High-Speed Wide Chart Recorder. J. C. Garrigus, The Bristol Co.
- 60-112. A Power Line Transient Recorder. C. H. Hoshall, Minneapolis-Honeywell Regulator Co.
- 60-104. A Solid State Digital Computing System for Electrical Load Monitoring. R. J. Thomas, Union Carbide Nuclear Co.; J. O. Gustafson, Bailey Meter Co.; G. E. Foster, Lundell & Co.
- 60-158. The Combi-System—A Proposal for New Concepts in Digital Data Processing. H. Schwab, Consolidated Electrodynamics,

2:00 P.M.

HOTEL STATLER-
HILTON
PENN TOP SOUTH*Chairman:*V. N. Vaughan, Jr.,
American Telephone
and Telegraph Co.*Sponsor:*Telegraph Systems
Committee**TELEGRAPH SYSTEMS**

- CP.* Freight Car Report Sorting System. C. R. Fisher, Stromberg-Carlson Co.
- CP60-183. A Step-Driven Digital Magnetic Recorder. J. G. Hansen, Stromberg-Carlson Co.
- CP.* The 82B1 Military Teletypewriter Message Switching System. W. M. Bacon, G. A. Locke, Bell Tel. Labs. Inc.
- CP60-253. A High Capacity Teletypewriter Terminal Set. J. F. Auwaeter, Teletype Corp.
- CP.* Recent Advances in Printing Telegraph Apparatus. W. Y. Lang, Bell Telephone Labs., Inc.
- CP.* Advancements in the Facsimile Art During 1959. W. H. Bliss, RCA Labs.

2:00 P.M.

HOTEL STATLER-
HILTON
PENN TOP NORTH*Chairman:*S. B. Weiner,
Stromberg-Carlson
Co.*Sponsor:*Wire Communications
Committee**WIRE COMMUNICATIONS**

- CP.* A Pole Mounted Negative Impedance Repeater. H. W. Clark, Stromberg-Carlson Co.
- CP60-254. An Application of the E3 Negative Impedance Repeater. J. W. Joyner, Southern Bell Telephone and Telegraph Co.
- CP60-43. The REA-1 Transposition System. A. G. Chapman, J. M. Flanagan, Rural Electrification Administration; J. V. Buscemi, Anaconda Wire & Cable Co.
- CP.* Wire Line Communications on the Union Pacific Railroad. C. O. Jett, Union Pacific Railroad.
- 60-44. An All Transistorized Trunk Carrier System. F. H. Gardner, Stromberg-Carlson Co.

THURS. (Continued)

2:00 P.M.

HOTEL SHERATON-
ATLANTIC CRYSTAL
ROOM*Chairman:*H. H. Wagner, Pennsylv-
ania Transformer Co.*Sponsor:*

Transformers Committee

2:00 P.M.

HOTEL SHERATON-
ATLANTIC RED ROOM*Chairman:*R. W. Ferguson, West-
inghouse Electric
Corp.*Sponsor:*System Engineering
Committee

2:00 P.M.

HOTEL SHERATON-
ATLANTIC COLONIAL
ROOM*Chairman:*J. G. Noest, Consoli-
dated Edison Co. of
N. Y., Inc.*Sponsor:*Power Generation
Committee**TRANSFORMERS**

- 60-80. Dielectric Tests on Transformers as Influenced by Further BIL Reductions. J. R. Meador, N. E. Dillow, General Electric Co.
- CP.* Some Aspects of Ground Current Measurements During Transformer Impulse Tests. L. C. Aicher, Allis-Chalmers Mfg. Co.
- 60-182. Psuedo-Final Voltage Distribution in Impulsed Coils and III Windings. P. A. Abetti, General Electric Co.
- CP.* Front-of-Wave Air Gap Data Suggests Refinement in New Standard. C. A. Long, C. L. Moore; Westinghouse Electric Co.

POWER SYSTEM ECONOMIC DISPATCH

- 60-179. Power System Economic Load Allocation Using a New III Equation for Transmission Losses. M. J. Fisher, Washington University.
- 60-82. A New Method of Making Transmission Loss Formulas by Means of Eigenvalues and Modal Matrices. E. E. George, Ebasco Services Inc.
- CP.* Direct Calculation of Transmission Loss Formula—I. L. K. Kirchmayer, H. H. Happ, General Electric Co.; G. W. Stagg, J. F. Hohenstein, American Electric Power Service Corp.
- CP.* Hydro-Thermal Economic Scheduling—Computational Experience with Coordination Equations. P. L. Dandeno, The Hydro-Electric Power Commission of Ontario.
- CP.* Hydro-Thermal Economic Scheduling—Solution by Incremental Dynamic Programming. B. Bernholz, L. J. Graham; The Hydro-Electric Power Commission of Ontario.

POWER GENERATION AND NEW ENERGY SOURCES

- CP60-108. A New Minimum Excitation Limiter for Electric Utility Generator Regulating Systems. P. O. Bobo, N. Kormanik, H. A. Steinbruegge, Westinghouse Electric Corp.
- CP60-157. A Simplified Method for Determining a Transfer Scheme on Generating Station Auxiliary Buses. J. L. Barker, S. M. Hussey, S. J. Sweeney, Boston Edison Co.
- CP.* Thermoelectric and Mechanical Conversion of Solar Power. R. C. Schlichtig, A. J. Morris, Boeing Airplane Co.
- CP.* Recent History of Thermoelectric Developments. S. J. Angello, Westinghouse Electric Corp.

THURS. (Continued)

2:00 P.M.
HOTEL SHERATON-
ATLANTIC
BALLROOM

Chairman:
C. R. Jacobsen,
Commonwealth
Associates, Inc.

Sponsor:
Substations Committee

2:00 P.M.

HOTEL SHERATON-
ATLANTIC PARLOR F

Chairman:
P. Klein, General
Electric Co.

Sponsor:
Solid State Devices and
Basic Sciences
Committees

2:00 P.M.

HOTEL STATLER-
HILTON SKYTOP

Chairman:
J. C. Fraser, General
Electric Co.

Sponsor:
Electrical Insulation and
Nucleonics
Committees

2:00 P.M.

HOTEL STATLER-
HILTON
TERRACE BALLROOM

Chairman:
R. A. York, General
Electric Co.

Sponsor:
Semiconductor Metallic
Rectifiers Committee

SYMPOSIUM ON EXTRA HIGH VOLTAGE SUBSTATIONS**THERMOELECTRICITY**

- CP.* Theoretical Bounds on the Thermoelectric Figure of Merit. F. J. Donahoe, Franklin Institute Labs.
- CP60-173. Thermoelectric Concepts for Engineers. A. G. Milnes, N. Alfonso; Carnegie Inst. of Technology.
- 60-18. The Effect of Source and Sink Thermal Resistance on Thermoelectric Generator Performance. P. E. Gray, Massachusetts Inst. of Technology.
- CP60-174. Transient Response and Ripple Effects in Thermoelectric Cooling Cells. N. Alfonso, A. G. Milnes; Carnegie Institute of Technology.
- 58-821. A Non-Destructive Breakdown Phenomenon In Selenium Rectifiers. A. C. English, University of California and W. H. Tobin, General Electric Co. (Re-presented for Discussion only).
- CP.* Synthesis of Thermoelectric Generators. M. E. Talaat, The Matin Co.

RADIATION EFFECTS ROUNDTABLE DISCUSSION

- CP.* Sources of Radiation Effects Information. R. E. Bowman, Battelle Memorial Institute.
- CP.* Correlation of Radiation Effects Information. W. Bohan, International Business Machines.
- CP.* Design Application of Radiation Effects Information. W. R. Langdon, General Electric Co.
- CP.* Proof-Testing of Radiation Effects Information. D. Majeske, Bendix Systems.

SEMICONDUCTOR RECTIFYING DEVICES AND APPLICATIONS—II

- CP60-68. Transient Thermal Impedance of Semi-Conductor Devices. E. J. Diebold, Perkin Engineering Corp.; W. Luft, International Rectifier Corp.
- CP60-69. Power Semiconductor Ratings Under Transient and Intermittent Loads. F. W. Gutzwiller, T. P. Sylvan; General Electric Corp.
- CP60-70. Problems Encountered in Applying the Silicon Controlled Rectifier to Control Tungsten Lamp Loads. C. S. Daugherty, Vickers, Inc.
- CP60-71. Trinistor Triode Power Inversion. F. J. Hierholzer, Westinghouse Electric Corp.

THURS. (Continued)

2:00 P.M.

HOTEL SHERATON-
ATLANTIC EAST
ROOM

Chairman:
G. C. Riggle, National
Institute of Health

Sponsor:
Electrical Techniques in
Medicine and Biology
Committee

FRIDAY—Feb. 5

9:00 A.M.

HOTEL SHERATON-
ATLANTIC
BALLROOM

Chairman:
R. E. Kuba, Power
Equipment Co.

Sponsor:
Feedback Control Sys-
tems Committee

9:00 A.M.

HOTEL SHERATON-
ATLANTIC CRYSTAL
ROOM

Chairman:
H. G. Frostick, U. S.
Steel Corp.

Sponsor:
Industrial Control
Committee

ELECTRICAL TECHNIQUES IN MEDICINE AND BIOLOGY

- CP.* Thermo-Electrical Applications in Bio-Medical Studies. J. D. Mees, Westinghouse Electric Corp.
- CP.* An X-Ray Tube with Grid Control for Exposures in Cine-radiography. T. H. Rogers, Machlett Labs.
- CP.* Microliter Oxygen Detector in Medical Research. V. W. Bolie, Iowa State University.
- 60-100. Instrumentation for the Diagnosis of Coronary-Artery Disease. D. F. Moyer, G. D. Talbott; Dayton, Ohio.
- CP.* New Developments in Heart-Lung Bypass Systems. G. C. Riggle, J. M. F. DeBroske; National Institutes of Health.
- CP.* Use of a Low Power Nuclear Reactor in Biology and Medicine. A. J. Blotcky, A. L. Dunn, R. E. Ogborn; Veterans Adm. Hospital.
- CP60-101. Experiments with Air Ions on the Trachea. J. C. Beckett, Wesix Electric Heater Co.; A. P. Krueger, University of California.
- 59-236. Technical Solutions to the Problem of Reducing Patient Dosage. J. E. Jacobs, General Electric Co. (Re-presented for Discussion only).

NON-LINEAR CONTROL—II

- 60-115. Input-Output Cross-Correlation Functions for Some Memory Type Nonlinear Systems with Gaussian Inputs. H. R. Leland, Cornell Aeronautical Laboratory, Inc. of Cornell University.
- 60-116. Nonlinear Compensator for a Piecewise Linear Second Order Feedback System. M. Athanassiades, O. J. M. Smith; University of California.
- 60-117. Stability Analysis of Dual-Mode Servomechanisms. J. E. Gibson, E. S. McVey; Purdue University.
- 60-118. Instrument Servomechanisms with Backlash, Coulomb Friction and Stiction. M. P. Pastel, G. J. Thaler; U.S. Naval Postgraduate School.

INDUSTRIAL CONTROL

- 60-30. D-C Magnetic Crane Hoist Control for A-C Powered Cranes. A. H. Myles, M. C. Davies, L. J. Srnka; Square D Co.
- CP60-235. ARC Suppression Techniques and Devices. F. Miller, Square D Co.
- CP.* Control Components for Industrial Automation. V. E. Verheyden, General Electric Co.
- CP.* A Study of an Engine Generator Control System. R. J. Mudd, H. P. Contesse, V. C. Rideout; Allis-Chalmers Mfg. Co.

FRI. (Continued)

9:00 A.M.

HOTEL SHERATON-
ATLANTIC COLONIAL
ROOM**Chairman:**H. F. Caley, Western
Union Telegraph Co.**Sponsor:**Data and Wire Com-
municating Systems
Committees**DATA COMMUNICATIONS OVER WIRE SYSTEMS**

- 60-27. The Effect of Delay Distortion on Data Transmission. P. I Mertz, The RAND Corporation.
- CP60-229. Layout and Adjustment of a Nationwide Facsimile Network for WeatherMap Service. W. D. Cannon, T. F. Cofer, Western Union Telegraph Co.
- 60-45. A Delay Distortion Simulation Set. F. C. Dunbar, Bell Telephone Labs., Inc.
- CP60-46. A Test Set for Measurement of Envelope Delay Distortion at Audio Frequencies With 1 uSEC Precision. W. A. Codd, Stromberg-Carlson Co.
- CP.* A Survey of Cable Characteristics for Data Communication. F. B. Wood, International Business Machines Corp.

RADIO COMMUNICATIONS SYSTEMS

- CP60-159. A New Control Terminal for Mobile Telephone Service. L. E. Getgen, G. McGibbon, Lenkurt Electric Co., Inc.
- CP60-160. Automation Applied to Mobile Radio Transmission Surveys. H. E. Strong, V. Feldkircher; The Ohio Bell Telephone Co.
- 60-161. Intermodulation Effects in FM and PM Systems. B. E. I Love, American Tel. & Tel. Co.
- CP.* Service Area of an Airborne Television Station. M. T. Decker, National Bureau of Standards.
- 60-7. I Optimum Design Considerations For Radio Relays Utilizing the Tropospheric Scatter Mode of Propagation. C. A. Parry, Page Communication Engineers, Inc. (Re-presented for Discussion only).

TRANSFORMERS

- CP.* A Report on the Proposed AIEE Test Procedure for Evaluation of Insulation Systems for Specialty Transformers. P. A. Vance, General Electric Co.
- CP.* Test Equipment Used to Evaluate Specialty Transformer Insulation Systems in Accordance with the Proposed AIEE Test Procedure. E. W. Lindsay, Westinghouse Electric Corp.
- CP.* Evaluating a Specialty Transformer Insulation System by the Proposed AIEE Test Procedure. D. S. Stephens, E. W. Lindsay, Westinghouse Electric Corp.
- CP.* Specialty Transformer Life Test Procedures in Selecting Impregnating Varnishes. D. H. Briggeman, G. I. Duncan; General Electric Co.

FRI. (Continued)

9:00 A.M.

HOTEL STATLER-
HILTON GOLD
BALLROOM**Chairman:**C. W. Watchorn, Penn-
sylvania Power and
Light Co.**Sponsor:**System Engineering and
Power Generation
Committees

9:00 A.M.

HOTEL STATLER-
HILTON GEORGIAN
ROOM**Chairman:**F. M. Hull, The Detroit
Edison Co.**Sponsor:**Insulated Conductors
Committee

9:00 A.M.

HOTEL STATLER-
HILTON SKYTOP**Chairman:**J. R. Perkins, Jr., E. I.
duPont deNemours
& Co., Inc.**Sponsor:**Electrical Insulation
Committee**POWER GENERATING CAPACITY PROBLEMS**

- CP.* Bibliography of Load and Frequency Control Literature 1922-1957. J. Preminger, Israel Institute of Technology.
- CP60-37. Application of Probability Methods to Generating Capacity Problems. AIEE Probability Applications Working Group: Presentation of Report and Panel Discussion by: H. A. Adler, A. K. Falk; C. D. Galloway, C. Kist, E. S. Loane and L. K. Kirchmayer, Chairman.

INSULATED CONDUCTORS

- 60-94. III Mathematical Solution to the Problem of the Control of the Thermal Environment of Buried Cables. J. V. Schmill, The Mexican Light and Power Co., Ltd.
- 60-141. III Characteristics of Power Cable Shielding. T. N. Mitropoulos, R. J. Fogel, C. J. Tang; Simplex Wire & Cable Co.
- CP.* A New High Voltage Capacitor-Graded Pothead. E. F. Huston, The Ohio Brass Co.

CORONA EFFECTS

- CP60-97. A Capacitance Bridge Method for Measuring Integrated Corona Charge Transfer and Power Loss Per Cycle. T. W. Dakin, P. J. Malinaric; Westinghouse Electric Corp.
- 60-15. I The Measurement and Influence of Surface Charges on the Inception Voltage Between Dielectric and Metal Dielectric Surfaces. S. I. Reynolds, General Electric Co.
- CP.* The Study of Discharges in Dielectric Voids by Photomultiplier Methods. N. M. Bashara, University of Nebraska.
- CP.* Ionization and Electron Attachment Coefficients in Alkyl Chlorides. J. C. Devins, O. H. LeBlanc; General Electric Co.
- CP.* Electrical Tracking Resistance of Polymers. G. M. L. Sommerman, Westinghouse Electric Corp.

FRI. (Continued)

9:00 A.M.

HOTEL STATLER-
HILTON PENN TOP
SOUTH

Chairman:

J. S. Ewing, Reliance
Electric and Engi-
neering Co.

Sponsor:

Rotating Machinery
Committee

9:00 A.M.

HOTEL STATLER-
HILTON
PENN TOP NORTH

Chairman:

K. B. McEachron, Jr.,
Case Institute of
Technology

Sponsor:

Education Committee

9:00 A.M.

HOTEL STATLER-
HILTON EAST ROOM

Chairman:

C. L. Hogan, Motorola,
Inc.

Sponsor:

Basic Sciences
Committee

ROTATING MACHINERY

- 60-98. Calculation of Stray Load Losses in D-C Machinery. E. III Erdelyi, University of Delaware.
- CP60-170. Armature Tooth Pulsations Eddy Current. M. J. Pasculle, Westinghouse Electric Corp.
- 60-154. The Effect of Rectifier Power Supply on Large D-C Motors. III R. M. Dunaiski, General Electric Co.

EDUCATION

- CP.* The Public Schools in Relation to Electrical Engineering. T. M. Linville, General Electric Co.
- CP60-491. Industry and Advanced Education. L. N. Stone, Oregon State College.
- CP60-217. The AIEE: An Educational Catalyst. C. R. Vail, Duke University.
- CP60-490. Secondary School Education. A. C. Herweh, University of Cincinnati.

BASIC SCIENCE

- 60-197. A Method for the Design of Holding Electromagnets. J. T. I Ludwig. Minneapolis-Honeywell Regulator Co.
- 60-198—Inductors Biased with Permanent Magnets—Part I. J. T. I Ludwig, Minneapolis-Honeywell Regulator Co.
- 60-199. Inductors Biased with Permanent Magnets—Part II. Design and Synthesis. J. T. Ludwig. Minneapolis-Honeywell Regulator Co.
- CP60-200. The Determination of the Hysteresis Curve for Thick Tape Cores. P. Dentella, Fivre Co.; E. DellaTorre, Rutgers University.
- CP60-201. An Analysis of a Polarized Electro Magnetic Drive System and of Vibrator Systems. R. S. Nunn, Hampshire, England.

FRI. (Continued)

9:00 A.M.

HOTEL STATLER-
HILTON WEST ROOM

Chairman:

T. Liimatainen, Dia-
mond Ordnance Fuse
Labs.

Sponsor:

Solid State Devices
Committee

2:00 P.M.

HOTEL SHERATON-
ATLANTIC RED ROOM

Chairman:

P. T. Sproul, Bell Tele-
phone Labs.

Sponsor:

Radio Communication
Systems Committee

2:00 P.M.

HOTEL SHERATON-
ATLANTIC COLONIAL
ROOM

Chairman:

O. W. B. Reed, Jr.,
Jansky & Bailey, Inc.

Sponsor:

Broadcasting
Committee

MOLECULAR ELECTRONICS—I

- CP.* Molelectronics. H. W. Henkels, Westinghouse Electric Corp.
- CP.* A Categorization of Molecular Engineering. J. W. Brouillette, S. K. Ghandi, A. Lesk; General Electric Co.
- CP.* Phenomena of Interest to Molecular Electronics. R. D. Larson, J. M. Blasingame; Wright Air Development Center.
- CP.* R. H. Rediker, Lincoln Labs.
- CP.* H. R. Owens, Texas Instrument, Inc.

RADIO COMMUNICATION SYSTEMS

- 60-54. Radio Frequency Interference Considerations in the TD-2 I Radio Relay System. H. E. Curtis, Bell Telephone Labs., Inc.
- CP60-224. Radio Communication in Aviation. P. Caporale, Federal Aviation Agency.
- CP60-162. A Format for a Fundamental Plan for the Improvement of Telecommunication Facilities in Underdeveloped Countries. C. A. Parry, Page Communications Engineers, Inc.
- CP.* R. F. Transmission Line Engineering. R. F. Lewis, Prodelin, Inc.
- CP60-9. Matching of High-Loss Transmission Section (With Application to Plain Wave Transmission Through Thin Conductor Film). C. Polk, University of Rhode Island.

TELEVISION—COLOR AND MONOCHROME

- 60-59. Redstone Arsenal Closed Circuit Educational T.V. System. I J. P. Argo, I. N. Howell, Southern Bell Telephone & Telegraph Co.
- CP.* Aspects of the Land Color System (Including Demonstration) W. Hughes, Iowa State College.
- CP.* A Field Sequential Color Mobile Unit to Work with Ediphor. L. Tyrrell, Teletone.
- CP60-60. Automatic Logging of AM, FM, and TV Transmitting Station Parameters. G. Ehrenberg, Minneapolis-Honeywell Regulator Co.
- 60-11. An Omnidirectional Circular Antenna Array Excited Parasitically by a Central Driven Element. H. P. Neff and J. D. Tillman, The University of Tennessee.
- 60-260. Dial Selected Industrial Television for Ticket Reservation I Facilities. J. W. Alinsky, Dage Television Div., Thompson Products, Inc. (Re-presented for Discussion only)

FRI. (Continued)

2:00 P.M.

HOTEL STATLER-
HILTON
GRAND BALLROOM*Chairman:*
C. W. Miller, Westing-
house Electric Corp.*Sponsor:*
Transformers
Committee**TRANSFORMERS**

- CP.* Short-Time Overcurrent Ratings of CT's and CB's Proposed Co-ordination Standards. G. S. Duffus, Canadian Westinghouse Co., Ltd.
- 60-58. Permalax—A New Insulation System. M. F. Beavers, E. L. III Raab, J. C. Leslie; General Electric Co.
- 60-81. Oil Preservation Systems, Factors Affecting Ionisation in Large Transformers. A. T. Chadwick, D. H. Ryder, A. E. Brierley; English Electric Co., Ltd.
- CP.* Studies of Insulating Oil in New and Used Transformer. T. K. Sloat, Westinghouse Electric Corp.; V. A. Banevicius, Cleveland Electric Illuminating Co.

2:00 P.M.

HOTEL STATLER-
HILTON
GOLD BALLROOM*Chairman:*
J. E. Van Ness, North-
western University*Sponsor:*
System Engineering
Committee**POWER SYSTEM SHORT CIRCUIT CURRENT CALCULATION**

- CP.* Digital Computer Study of the Resynchronizing of a Turbo-Alternator. R. N. Sudan, Cornell University.
- 60-180. Digital Calculation of Line-To-Ground Short Circuits by III Matrix Method. A. H. El-Abiad, Purdue University.
- CP60-181. Digital Calculation of Three-Phase Short-Circuits by Matrix Method. H. E. Brown, C. E. Person, Commonwealth Edison Co.; L. K. Kirchmayer, General Electric Co.; G. W. Stagg, American Electric Power Service Corp.
- CP60-255. Digital Calculations of Single Phase to Ground Faults. H. E. Brown, C. E. Person, Commonwealth Edison Co.

2:00 P.M.

HOTEL STATLER-
HILTON
GEORGIAN ROOM*Chairman:*
F. M. Hull, The Detroit
Edison Co.*Sponsor:*
Insulated Conductors
Committee**INSULATED CONDUCTORS**

- 59-892. The Texada Island Submarine Cable Crossing. P. J. Croft, III British Columbia Power Commission (formerly with Canada Wire & Cable Co.)
- 60-13. Gas-Filled Cavities in Solid-Type Cables. N. Klein, Israel III Inst. of Technology.
- CP.* Correlation Between Impregnant Stability Under Vacuum Discharge and Life of Solid-Type Oil-Impregnated Paper Cable on Accelerated High Voltage Load Cycle Test. A. L. McKean, E. J. Merrell; Phelps Dodge Copper Products Co.
- CP.* Improving Building Wire Performance. R. H. Lee, E. I. DuPont de Nemours & Co., Inc.

FRI. (Continued)

2:00 P.M.

HOTEL STATLER-
HILTON EAST ROOM*Chairman:*
H. Sohon, University of
Pennsylvania*Sponsor:*
Basic Sciences
Committee**BASIC SCIENCES**

- 60-202. The Synthesis of Linear Filters with Real or Imaginary Transfer Functions. E. G. Gilbert, J. Otterman; University of Michigan. I
- 60-203. Difference Equations and Their Applications. L. A. Pipes, I University of California.
- 60-31. Generalized Brillouin Flow. G. Kent, Syracuse University. I
- CP60-204. Conformal Transformations in Analog Simulations of Non-Laplacian Fields. J. R. Allder, Space Technology Labs., Inc.; W. J. Karplus, University of California; R. N. Bryan, Pacific Semiconductors, Inc.

2:00 P.M.

HOTEL STATLER-
HILTON
PENN TOP SOUTH*Chairman:*
A. H. Hoffmann, West-
inghouse Electric
Corp.*Sponsor:*
Rotating Machinery
Committee**ROTATING MACHINERY**

- CP.* Selecting and Applying Electro-Magnetic Friction Clutches. R. L. Kotnik, Fawick Corp.
- CP.* Electrostatically Responsive Fluids. J. A. Mason, Warner Electric Brake & Clutch Co.
- CP.* Characteristics & Application of Spring Engaged Magnetic Clutch. B. E. Wrensch, Stearns Electric Corp.
- 60-5. An Improved Method of Corona Suppression for High Voltage III Rotating Machines. V. E. Manni, W. Schneider, Westinghouse Electric Corp. (Re-presented for Discussion only).
- CP.* Progress Report on Evaluation of Very Low Frequency Testing. B. V. Bhimani, General Electric Co.
- CP.* Some Characteristics of Ionization Under Direct Voltage Stress. B. V. Bhimani, General Electric Co.

2:00 P.M.

HOTEL STATLER-
HILTON
PENN TOP NORTH*Chairman:*
G. S. Brown, Massa-
chusetts Institute of
Technology*Sponsor:*
Education Committee**EDUCATION**

- CP60-134. Trends in Undergraduate Electrical Engineering Curricula. M. L. Manning, South Dakota State College of Agriculture and Mechanic Arts.
- CP.* Education of the Teacher of Electrical Engineering. H. A. Foecke, University of Notre Dame, G. B. Hoadley, North Carolina State College, L. A. Kilgore and G. M. L. Sommerman, Westinghouse Electric Corp.
- CP60-493. Graduate Education in Electrical Engineering in the United States—1959. E. C. Easton, Rutgers University; T. L. Martin, Jr., The University of Tucson; J. H. Mulligan, Jr., New York University.
- CP.* Educating Electrical Engineers for Professional Careers. S. Linke, Cornell University.
- 60-17. Education for Expanding Horizons in Electric Power. G. S. III Brown, Massachusetts Institute of Technology. (Re-presented for Discussion only.).

FRI. (Continued)

2:00 P.M.

HOTEL STATLER-
HILTON WEST ROOM

Chairman:

H. V. Noble, Wright Air
Development Center

Sponsor:

Solid State Devices
Committee

MOLECULAR ELECTRONICS—II

- CP.* Some New Examples of Molecular Engineering. R. W. Aldrich, N. Holonyak, Jr., I. A. Lesk; General Electric Corp.
- CP.* Theory and Applications of a Monolithic Null Device. W. Kaufman, Westinghouse Electric Corp.
- CP.* Microminiature Full Adder. E. Keonjiam, American Bosch Arma Corp.
- CP.* Microelectronics—A Circuit System Employing Microminiaturizing Components. E. Steele, W. B. Warren, R. A. Dgudmensen; Hughes Products.

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 COMMUNICATION AND ELECTRONICS.
- II APPLICATION AND INDUSTRY.
- III POWER APPARATUS AND SYSTEMS.

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COMMITTEE MEETINGS

MONDAY, FEBRUARY 1ST

9:00 A.M.—Noon

W.G. on AIEE Test Code for Synchronous Machines #503 . . . Village Room
 Nominating Committee . . . Boston Room
 Executive Subcommittee of I. & C.P.S. . . . Room 361*
 Electro-Chemical Processes Subcommittee of C.I. . . . Empire Suite II
 Research Committee . . . Buffalo Room
 Public Relations Committee . . . Room 362*

9:00 A.M.—2:00 P.M.

Textile Subcommittee of G.I.A.C. . . . Schuyler Room

9:30 A.M.—Noon

Lamme Medal Committee . . . Empire Suite I

9:30 A.M.—12:30 P.M.

The American Automatic Control Council . . . Parlor B*

10:00 A.M.—Noon

Sections Committee . . . Dartmouth Room
 Data Acquisition & Transformation Subcommittee of C.D. . . . Town Room

10:30 A.M.—Noon

Members for Life Fund . . . Cornell Room

11:30 A.M.—2:00 P.M.

Luncheon—Power Transformer W.G. of E.T.S. . . . Room 363*

12:00 Noon—2:00 P.M.

Luncheon—General Session . . . Pennsylvania Room
 Luncheon—Sections Committee . . . Dartmouth Room

4:00 P.M.—6:00 P.M.

Educational Publications Committee . . . Town Room
 Chemical Processes Subcommittee of C.I. . . . Dartmouth Room
 Liquid Insulation Subcommittee of E.I. . . . Village Room
 Cathodic Protection Subcommittee of C.I. . . . Room 363*
 Solid Insulation Subcommittee of E.I. . . . Buffalo Room
 Battery Subcommittee of C.I. . . . Room 362*
 Study Group 6, Laboratory and Field Data . . . Room 366*
 Technical Information Subcommittee of E.I. . . . Empire Suite I
 Conversion Substation Subcommittee . . . Parlor B*
 Capacitor Subcommittee of T & D . . . Boston Room
 Computer Systems Subcommittee (Special Meeting) . . . Pennsylvania Room
 Middle Eastern District . . . Room 361*
 1960 M.A. Conference Steering Committee . . . Cornell Room
 Land Transportation Committee . . . Empire Suite II
 Textile Subcommittee of G.I.A.C. . . . Schuyler Room
 Pulse Transformer W.G. . . . Room 364*

*Located at Sheraton-Atlantic Hotel, Broadway & 34th Street, New York, N. Y.

5:30 P.M.—7:00 P.M.

Sections Get-Together . . . Red Room*

TUESDAY, FEBRUARY 2ND

7:30 A.M.—9:30 A.M.

Canadian Breakfast . . . Cornell & Dartmouth Rooms

9:00 A.M.—11:30 A.M.

Special Publications Committee . . . Room 361*

9:00 A.M.—Noon

TOD Manual Subcommittee . . . Town Room
 Prime Mover Control and Protection Subcommittee . . . Room 366*
 District TOD Representatives Subcommittee . . . Room 363*
 System Planning Subcommittee . . . Room 364*
 Synchronous Machinery Subcommittee . . . Village Room
 Insulation Evaluation AIEE 511 W.G. . . . Parlor D*
 General Industry Applications Committee . . . Empire Suite II
 Recognition Awards Committee . . . Schuyler Room
 Nucleonics Committee . . . Parlor C*
 Advisory Panels to the National Bureau of Standards . . . Parlor B*

9:00 A.M.—4:30 P.M.

Student Branches . . . Pennsylvania Room
 Periodicals and Transactions . . . Empire Suite I
 Radio Noise W.G. . . . Boston Room

12:00 Noon—2:00 P.M.

Luncheon—Authors Electrostatic Processes Subcommittee . . . Room 361*

12:00 Noon—3:00 P.M.

Luncheon—Registration of Engineers . . . Room 362*

12:00 Noon—5:00 P.M.

Luncheon—Power Generation Administrative Subcommittee . . . Dartmouth Room

1:00 P.M.—4:00 P.M.

System Operating Subcommittee of S.E. . . . Room 363*

2:00 P.M.—4:30 P.M.

Thermal Evaluation of Mica W.G. . . . Parlor D*
 Basic Sciences Committee . . . Empire Suite II
 Computers and Logic Devices . . . Parlor B*
 Membership Committee . . . Town Room
 Electric Welding Committee . . . Room 366*
 Transfers Committee . . . Village Room
 Electronics Committee . . . Cornell Room
 System Economics Subcommittee S.E. . . . Buffalo Room

2:00 P.M.—5:00 P.M.

Packaging Industry Subcommittee of G.I.A.C. . . . Room 364*

*Located at Sheraton-Atlantic Hotel, Broadway & 34th Street, New York, N. Y.

- 2:00 P.M.—6:00 P.M.**
Frequency Range Transformers W.G. Parlor C*
- 2:30 P.M.—4:00 P.M.**
Ladies Auxiliary Washington Room
- 4:00 P.M.—6:00 P.M.**
Insulation Subcommittee, R.M. Room 361*
Magnetic Amplifier Materials Schuyler Room
Induction Machinery Subcommittee, R.M. Room 362*
Chemical Industry Committee Parlor B*
Administrative Subcommittee of S.E. Room 363*
- 5:30 P.M.—10:00 P.M.**
Dinner—Computing Devices Committee Parlor D*

WEDNESDAY, FEBRUARY 3RD

- 8:00 A.M.—9:00 A.M.**
Special Technical Conference Subcommittee TOD Town Room
- 8:30 A.M.—11:30 A.M.**
Breakfast—Domestic and Commercial Applications Committee . Boston Room
- 9:00 A.M.—11:30 A.M.**
Professional Development & Recognition Dept. Schuyler Room
Electric Power Distribution for Industrial Plants, I. & C.P.S. . Room 361*
Control Components Subcommittee of F.C.S. Room 363*
Methods of Measurements Subcommittee P.S.C. Buffalo Room
- 9:00 A.M.—Noon**
Constitution and By-Laws Committee Empire Suite I
Safety Committee Parlor E*
Characteristics of Loads I. & C.P.S. Town Room
W.G. on Voltage Nomenclature, I. & C.P.S. Room 362*
Semiconductor Metallic Rectifiers Committee Parlor D*
Systems Engineering Committee Cornell Room
Power Generation Parlor F*
Equipment Design Standards Subcommittee Room 1001**
Science and Electronics Div. Parlor C*
New Activities Committee Dartmouth Room
Industry Division Committee Room 1101**
- 9:00 A.M.—1:00 P.M.**
1960 Workshop Task Group of the Computer Systems Subcommittee
Empire Suite II
- 9:00 A.M.—4:00 P.M.**
W.G. on Temperature Standards for Conductor Cooled Machines . Room 366*
- 9:00 A.M.—5:00 P.M.**
Publications Dept. Village Room
General Administration Dept. Pennsylvania Room
Cement Industry Subcommittee of G.I.A.C. Parlor B*

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- 12:00 Noon—2:00 P.M.**
Luncheon—Indicating & Integrating Instruments Committee . Schuyler Room
Luncheon—Electrostatic Processes Subcommittee Room 363*
- 12:00 Noon—3:00 P.M.**
Luncheon—Metal Industry Committee Room 361*
- 12:00 Noon—4:30 P.M.**
Luncheon—General Applications Div. Buffalo Room
- 12:00 Noon—5:00 P.M.**
Luncheon—Industrial Power Rectifiers Room 364*
- 12:30 P.M.—5:00 P.M.**
Luncheon—A.S.A. C57 Town Room
- 1:00 P.M.—4:00 P.M.**
Nucleonic and Radiation Instrumentation Committee Dartmouth Room
Substation W.G. on Project 56.3 Cornell Room
New Activities Executive Subcommittee Room 362*
- 1:00 P.M.—5:00 P.M.**
Computer Systems Subcommittee Empire Suite II
- 2:00 P.M.—4:00 P.M.**
Substation W.G. on Project 57.1 Aluminum Buses Parlor C*
Communication Theory Committee Room 363*
Feedback Control Systems Committee Boston Room
Substation W.G. on Project 59.1 Minimum Clearances Parlor A*
- 2:00 P.M.—5:00 P.M.**
Wireline Protection Subcommittee P.S.C. Room 1101**
Microwave Subcommittee of P.S.C. Room 1001**
Electronics Circuits & Systems Subcommittee Room 1105**
Education Committee Empire Suite I
Automation & Data Processing Committee To be Announced
Industrial & Commercial Power Systems Committee Parlor F*
Fortescue Fellowship Schuyler Room
Telemetry Committee Parlor D*
Power Division Committee ASCE Board Room**
Telegraph Systems Committee Parlor E*
Application of Probability Methods Subcommittee S.E. Room 817**

- 4:00 P.M.—6:00 P.M.**
Magnetic Amplifier Standards Subcommittee Room 364*
Corona Effects Subcommittee of E.I. Room 361*
Substation W.G. on Project 56.3—Revision of ASA C37.2 Parlor A*
Gaseous Insulation Subcommittee of E.I. Room 362*
Transmission Substation Subcommittee Parlor C*
Thermal Evaluation Subcommittee of E.I. Boston Room
Magnetic Amplifier Theory Subcommittee Cornell Room
Magnetic Amplifier Definitions Subcommittee Dartmouth Room
Wire Communication Systems Committee Room 366*
Equipment Design Standards Subcommittee P.S.C. Room 363*

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- 5:00 P.M.—7:00 P.M.**
Data Communication Committee Schuyler Room
- 5:30 P.M.—7:30 P.M.**
Johns Hopkins Alumni Get-Together Pennsylvania Room
- 8:00 P.M.—10:30 P.M.**
Magnetic Amplifiers Committee Cornell Room

THURSDAY, FEBRUARY 4TH

- 9:00 A.M.—5:00 P.M.**
Power Sources Subcommittee—A.S.T.C. Room 817**
- 9:00 A.M.—11:30 A.M.**
Lightning & Insulator Subcommittee of T & D Room 362*
Measurements on Dielectrics Subcommittee S.I.A.A. Room 361*
- 9:00 A.M.—Noon**
A.C. Ship's Service Systems Grounding M.T. Town Room
Solid State Devices Committee Parlor D*
Distribution Subcommittee of T & D Village Room
Systems Stability W.G. of T & D Empire Suite I
Technical Operations Dept. Pennsylvania Room
Instrument Accessories Subcommittee S.I.A.A. Room 1001**
Computer Applications Subcommittee of S.E. Parlor C*
Broadcasting Committee Empire Suite II
Electro-Thermal Processes Subcommittee C.I. Parlor B*
- 9:00 A.M.—4:30 P.M.**
Electric Systems for Commercial Buildings Schuyler Room
- 12:00 Noon—3:00 P.M.**
Luncheon—Production & Application of Light Committee . . . Room 362*
- 12:00 Noon—3:00 P.M.**
Luncheon—Radio Communication Systems Committee Room 361*
- 12:30 P.M.—2:00 P.M.**
Luncheon—Electrical Techniques in Medicine and Biology . . . Room 364*
Luncheon—Technical Operations Dept. Cornell Room
Luncheon—Special Instruments & Auxiliary Apparatus Committee
Empire Suite II
- 2:00 P.M.—4:00 P.M.**
Substation W.G. on Project 57.2—Location & Design of Substations
Village Room
- 2:00 P.M.—4:30 P.M.**
Towers, Poles & Conductors Subcommittee of T & D Boston Room
Power System Communications Committee Dartmouth Room
Planning & Coordination Committee Pennsylvania Room
Administration Subcommittee I.C. Town Room

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- Instrumentation Division Parlor E*
General Systems Subcommittee of T & D Empire Suite I
Fundamental Electric Standards Subcommittee of S.I.A.A. . . . Room 1001**
Industrial Control Committee Room 366*
Protective Devices Committee Cornell Room
Design Automation Subcommittee Parlor B*

3:00 P.M.—4:30 P.M.

- Broadcasting Committee Room 361*

4:00 P.M.—6:00 P.M.

- Substation W.G. on Project 53.1 Parlor D*
Electrical Insulation Committee Room 364*
Radiation Subcommittee E.I. Skytop
Automatic & Supervisory Systems Subcommittee Empire Suite II
Distribution Substation Subcommittee Village Room

FRIDAY, FEBRUARY 5TH

9:00 A.M.—5:00 P.M.

- Ground Resistance and Potential Gradient Measurements Subcommittee S.I.A.A.
Room 362*

9:00 A.M.—Noon

- Advancement of Power Engineering Room 361*
Electric Heating Committee Village Room
Transmission & Distribution Committee Dartmouth Room
Basic Science Permanent Magnet Subcommittee Boston Room
Board of Directors Pennsylvania Room
Substation Committee Buffalo Room
Electric Coupling Subcommittee of R.M.C. Schuyler Room
Nuclear Congress Committee Town Room

12:00 Noon—2:00 P.M.

- Luncheon—Board of Directors Cornell Room
Luncheon—DC Machinery Subcommittee of R.M. Empire Suite II

2:00 P.M.—5:00 P.M.

- Board of Directors Pennsylvania Room

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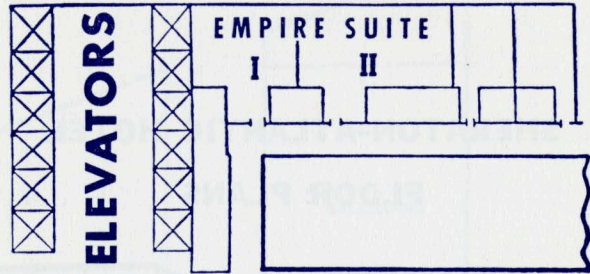
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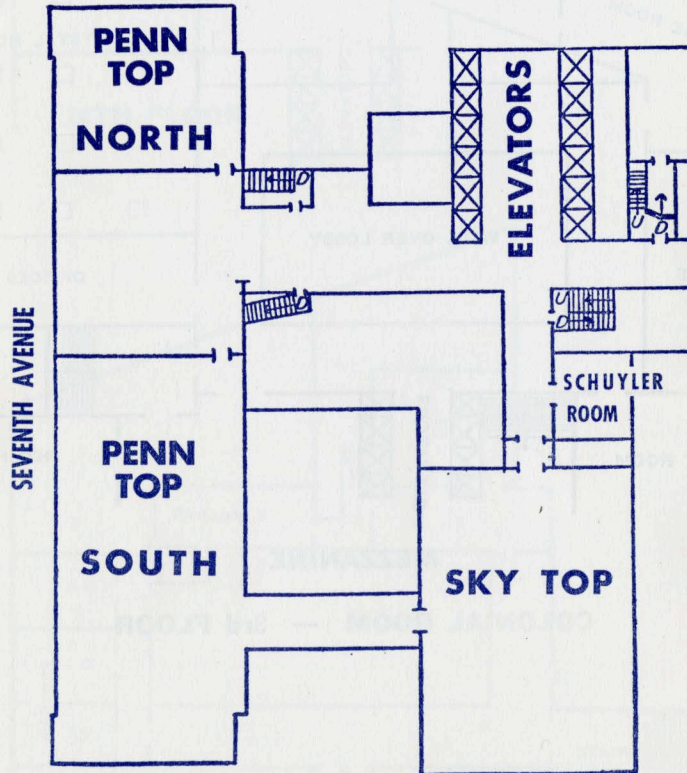
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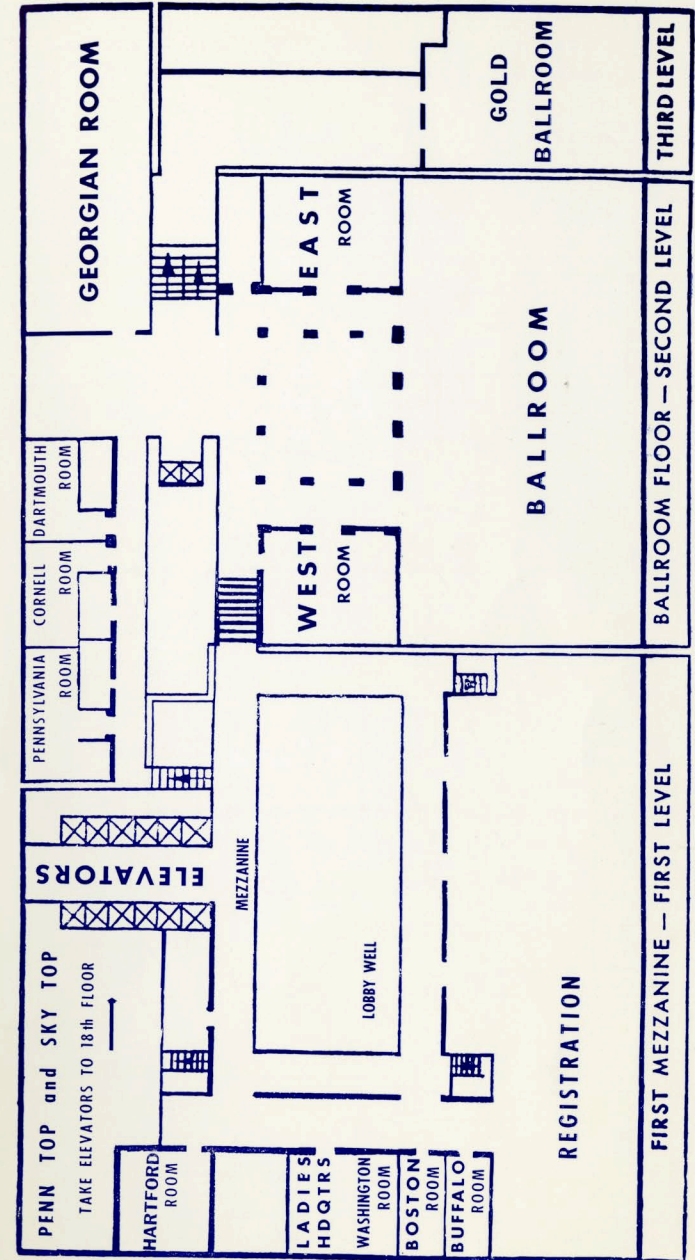
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PLAN OF HOTEL STATLER

SHELTERED PASSAGeways BETWEEN BUILDINGS

