American Institute of Electrical Engineers

SUMMER GENERAL MEETING

Program

Please retain for use during entire meeting

MONTREAL, QUEBEC

JUNE 24 – JUNE 28

1957

Meeting Headquarters

SHERATON MT. ROYAL HOTEL

GENERAL INFORMATION

For those who attend the Summer General Meeting this year in Montreal, there awaits a full week of stimulating technical sessions and social entertainment. With the members of the Montreal Section as hosts, we can assure our guests a most enjoyable and well-spent week. Headquarters for the meeting is the Sheraton Mount Royal Hotel.

At our Annual Meeting, Monday afternoon, June 24th, the Lamme Medal presentation to Dr. H. H. Beverage will take place. There will also be an award of Honorary Membership to Past President Donald A. Quarles, Deputy Secretary of Defense.

On the social side there will be an informal Sunday tea, buffet-luncheons Monday through Friday, a Smoker and a President's Reception, followed by an informal dinner-dance.

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

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

Technical Sessions and Discussions are covered by the "Technical Sessions Guide" at the discretion of the presiding officers. Usually 10 minutes will be allowed for the presentation of each paper and 5 minutes for each discussion. To receive consideration for publication, discussion on TRANSACTIONS Papers in duplicate must be left with the Chairman and/or sent to Edward C. Day, Assistant Secretary, Technical Operations Department, AIEE, 33 West 39th Street, New York 18, New York, before July 12, 1957. Discussions received later may not be included, depending upon the printing schedule of the paper to which the discussion is directed. The original typewritten double-spaced copy, together with original illustrations as photographs or inked tracings should be submitted.

Advance Copies of Papers may be purchased by members at the Technical Papers Desk at the uniform price of $.40 each ($.80 each for nonmembers). Only numbered papers are available. Mail orders, particularly from out-of-town members, are advisable inasmuch as an adequate supply of each paper at the meeting cannot be assured. Coupon Books in $10.00 denominations are available for those who wish to avoid remittance by check or otherwise. Mail orders should be addressed to the AIEE Order Department, 33 West 39th Street, New York 18, 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.

SCHEDULE OF EVENTS

For information on Social Events, Inspection Trips and Ladies Events, see separate folder.

MONDAY, JUNE 24

9:00 a.m.
- Radio Communications Systems
- Suburban Electrification
- Symposium on Radiation Effects on Dielectrics
- Magnetic Amplifiers
- Relays and Power System Communications
- Transmission and Distribution I
- Transmission and Distribution IA

2:00 p.m. Annual Meeting

TUESDAY, JUNE 25

9:00 a.m.
- Section Delegates Conference
- Safety
- Land Transportation
- Symposium on Thermal Evaluation
- Telegraph Systems and Data Transmission
- Textile Industry
- Magnetic Amplifiers
- Substations

2:00 p.m.
- Section Delegates Conference
- Safety
- Land Transportation
- Symposium on Gaseous Dielectrics
- Computing Devices
- Symposium on Power System Communication Planning
- Magnetic Amplifiers
- Textile Industry

WEDNESDAY, JUNE 26

9:00 a.m.
- Indicating & Integrating Instruments
- Metallic Rectifiers
- Symposium on Corona Effects of Dielectrics
- Communication Switching Systems
- Computing Devices
- Switchgear
- Insulated Conductors

2:00 p.m.
- Industrial Power Rectifiers
- Communication Theory
- Computing Devices
- Switchgear
- Feedback Control Systems
- Insulated Conductors
- Stationary Telemetering
- Industrial Power Systems

7:00 p.m. Feedback Control Systems

THURSDAY, JUNE 27

9:00 a.m. Wire Communications
Computing Devices
Applied Mathematics
System Engineering
Insulated Conductors
Management
Industrial Power Systems

2:00 p.m. Wire Communications
Transformers
Research
Special Instruments & Auxiliary Apparatus
Computing Devices and System Engineering
Insulated Conductors
Power Generation
Computing Devices

FRIDAY, JUNE 28

9:00 a.m. Transformers
Industrial Control
Rotating Machinery
Computing Devices
System Engineering & Power Generation
Transmission & Distribution II
Radio and Television Broadcasting
Basic Sciences

2:00 p.m. Transformers
Rotating Machinery
Computing Devices
Transmission & Distribution III
Power Generation
Hagerstown Educational Television Project
Transmission & Distribution IIIA

Monday, June 24

9:00 a.m.—Radio Communications Systems
Radio Communications Committee
Salon B
R. D. CAMPBELL, Presiding

57-706. I "The Canadian Transcontinental Microwave System," S. Bonneville, The Bell Telephone Company of Canada.

CP.* "Simultaneous Transmission of Television and Telephone Multiplex Over a Single Microwave Channel on the Trans-Canada TD-2 System," U. C. P. Strahlendorf, A. J. Wade and H. E. Curtis.

57-707. I "Light-Route Microwave Systems in Canada," A. J. Dinnin, The Bell Telephone Company of Canada.

57-647. "A Canadian Point of View on Radio Frequency Spectrum Management," C. M. Brant, Department of Transport.

CP.* "New Automatic Frequency Control System Suitable for Single Sideband Reception and FM Transmission," L. R. Kahn, Crosby Laboratories, Inc.

9:00 a.m.—Suburban Electrification
Land Transportation Committee
Brittany Room
L. W. BIRCH and S. B. LENT, Presiding

CP57-728. "Symposium on Electrification of Railway Commuter Service Part I—Problems Confronting Railway Commuter Service," T. F. Perkinson, General Electric Co.

CP.* "Electric Motive Power for Railway Commuter Service," L. J. Hibbard, Westinghouse Electric Corp.

CP57-730. "Factors Influencing Future Electrification of Railway Commuter Service—Part II," H. F. Brown, Gibbs & Hill, Inc.

CP.* Conclusion—J. Stair, Jr., Pennsylvania Railroad.

9:00 a.m.—Symposium on Radiation Effects on Dielectrics
Dielectrics and Nucleonics Committees
Birks Hall (Sir George Williams College)
M. C. HALLECK, Presiding

CP.* "Measurements of Radiation Doses by Absorption and Luminescence Changes in Solids," J. H. Schulman, Naval Research Laboratory.

CP.* "Naval Research Reactor and Nuclear Research Program," E. N. Stirewalt, Naval Research Laboratory.

CP.* "The Control System of the Naval Research Reactor," Marvin P. Young and George F. Wall, Naval Research Laboratory.

CP.* "Problems Associated with the Irradiation Testing of Transformers at Hi-Temperature," W. R. Langdon, General Electric Co.

CP.* "The Effect of Nuclear Irradiation on Small Transformers and Materials at Hi-Temperature," J. C. Fraser, General Electric Co.

CP57-708. Effects of Electron Irradiation on the Electrical Properties of "Mylar". E. L. Brancato and J. G. Allard, U. S. Naval Research Laboratory.

9:00 a.m.—Magnetic Amplifiers
Magnetic Amplifier Committee
Ballroom
H. W. LORD, Presiding

57-765. I "The Operation of the Current-Type Self-Balancing Magnetic Amplifier," A. D. Krall, U. S. Naval Ordnance Laboratory.

57-766. I "Magnetic Amplifier Analysis and Application Using Block-Diagram Techniques," R. M. Hubbard, Boeing Airplane Co.

CP57-767. "The Effective Feedback Factor of Self-Balancing Magnetic Amplifiers," W. A. Geyger, U. S. Naval Ordnance Laboratory.

CP57-768. "The Direct Current Controlled Alternating Voltage Source, A New Magnetic Amplifier," E. W. Manteuffel and R. O. McCary, General Electric Co.

CP57-769. "Differential Magnetic Multivibrators," C. H. R. Campling, Queen's University.

MONDAY (continued)

9:00 a.m.—Relays and Power System Communications
Relays and Power System Communications Committees
Normandie Room
W. K. SONNEMANN, Presiding

57-655. III "Evaluation of Operating Principles with Microwave Relaying," J. Berdy, H. J. Fiedler, F. C. Krings and A. J. McConnell, General Electric Co.

57-650. III "An Appraisal of Remote and Local Back-Up Relaying," L. F. Kennedy and A. J. McConnell, General Electric Co.

CP57-656. "A New Concept in Subtransmission Line Protection," T. G. Brennan and C. G. Dewey, General Electric Co.

57-657. III "Meeting the Electric Service Requirements of Critical Process Industries," H. L. Deloney and Jack Davey, Louisiana Power & Light Co.

CP57-658. "Relaying Associated with the Expansion of the Sabine River Works Electrical System," W. A. Hammer and L. C. McGee, E. I. DuPont de Nemours & Co.

9:00 a.m.—Transmission and Distribution—I
Transmission and Distribution Committee
Salon D
J. T. LUSIGNAN, Presiding

57-633. III "Performance Charts for Three-Phase Transmission Circuits Under Balance Operation," K. J. Cox and Edith Clarke, University of Texas.

57-630. III "Economic Aspects of Direct-Current Power Transmission," J. G. Holm, Consulting Engineer, New York.

57-796. III "Digital Short Circuit Solution of Power System Networks Including Mutual Impedance," Martin J. Lantz, Bonneville Power Administration.

57-797. III "Self Inductance of Bus Conductors with Complex Cross Section," Hazen H. House and Phillips Whidden, Aluminum Co. of America.

9:00 a.m.—Transmission and Distribution—IA
Transmission and Distribution Committee
Sheraton Hall
I. B. JOHNSON, Presiding

57-798. III "Capacitor Switching Phenomena in Networks Containing Long Transmission Lines," O. I. Elgerd, University of Florida.

CP57-799. "Transient Recovery Voltages on Power Systems—Part II—Practical Methods of Determination," S. B. Griscom, D. M. Sauter, H. M. Ellis, Westinghouse Electric Corp.

57-800. III "Transient Recovery Voltages on Power Systems—Part I—Analysis and Tests of the Ontario Hydro Systems," P. L. Dandeno and W. Watson, The Hydro-Electric Power Commission of Ontario, and J. K. Dillard, Westinghouse Elec. Corp.

CP57-902. "Rating of Autotransformers Having Three Windings," Eric T. B. Gross, Illinois Institute of Technology, and Robt. Bolger, Commonwealth Edison Co.

2:00 p.m.—Annual Meeting
Ballroom
President M. S. COOVER, Presiding

1. Report of the President, M. S. Coover.
2. Report of the Board of Directors.
3. Report of the Treasurer, W. J. Barrett
4. Report of the Committee of Tellers on:
   (a) Votes for Nominees for AIEE offices
   (b) Proposed Constitutional Amendments
   (c) Vote on Amending of Certificate of Incorporation
5. (a) Introduction of and presentation of President's badge to W. J. Barrett
   (b) Response by Mr. Barrett
6. Presentation of the Lamme Medal to Dr. H. H. Beverage, Director of Radio Research Laboratory, Radio Corporation of America
   (a) The Establishment of the Medal. C. W. Franklin, Chairman, Lamme Medal Committee.
   (b) The Career of the Medalist. Dr. E. W. Engstrom, Executive Vice President, Radio Corporation of America

   (c) Presentation of the Medal and Certificate by President M. S. Coover
   (d) Response by Dr. Beverage
7. Montreal Section Prize Paper Awards by President M. S. Coover.
8. Introduction of District Student Prize Paper Winners.
9. Award of Honorary Membership to Past President Donald A. Quarles, Deputy Secretary of Defense
10. Other business.

Tuesday, June 25

9:00 a.m.—Section Delegates Conference
Normandie Room
DIXON LEWIS, Presiding

9:00 a.m.—Safety
Safety Committee
Brittany Room
G. MOES, Presiding

CP.* "Hazards in Reactor Operation," R. M. Johnston, Atomic Energy of Canada, Ltd., and D. C. King, CSA Testing Laboratories

CP.* "Medical Aspects of Radiation Hazard Control in a Power Reactor Installation," R. M. Taylor, National Cancer Institute of Canada.

9:00 a.m.—Land Transportation
Land Transportation Committee
Classroom (Sir George Williams College)
J. D. SYLVESTER and D. F. HANEY, Presiding

CP.* "Description and Maintenance Procedures of Electrical and Air-Conditioning Equipment on Canadian Pacific Railway Company Stainless Steel Passenger Car Equipment," A. E. McGruer, Canadian Pacific Railway Co.

CP.* "Rehabilitation of Diesel-Electric Locomotive Electrical Equipment," T. H. Murphy and R. L. Bogardus, Westinghouse Electric Corp.

CP.* "A Railroad Leaves a City Street," C. H. Jones, Chicago South Shore & South Bend Railroad.

55-207. II "Multiple-Unit Rectifier Motive Power Inductive-Coordination Considerations on the New York, New Haven and Hartford Railroad," L. J. Hibbard, Westinghouse Electric Corp., F. T. Garry, Southern New England Telephone Co., and G. N. Loomis, New York, New Haven and Hartford R.R. Co. (Re-presented for Discussion Only).

56-256. II "The Lightweight Train—Its Power Supply and Auxiliaries," J. L. Swarner, Pullman-Standard Car Mfg. Co. (Re-presented for Discussion Only).

9:00 a.m.—Symposium on Thermal Evaluation
Dielectrics Committee
Birks Hall (Sir George Williams College)
L. J. BERBERICH, Presiding

CP.* "The Effect of Temperature and Gamma Radiation on the Mechanical Properties of Some Wire Enamels and a Silicone," E. L. Mincher, General Electric Co.

CP.* "Progress Report on the Thermal Evaluation of Varnishes," P. L. Hedrick, Minnesota Mining and Manufacturing Co.

CP.* "Procedure for Establishing the Temperature Classification of Enameled Magnet Wire," J. F. Dexter, Dow Corning Corporation.

57-709. I "Effect of Wire Metal on the Thermal Life of Enameled Magnet Wire," J. H. Thomas and J. F. Dexter, Dow Corning Corporation. (Re-presented for Discussion Only).

9:00 a.m.—Telegraph Systems and Data Transmission
Telegraph Systems and Data Communications Committees
Salon B
R. B. SHANCK, Presiding

57-705. "Loading Coils for Ocean Cables," E. L. Newell, Western Union Telegraph Co.

TUESDAY (continued)

CP.* "Experimental Data Transmission—Digital Subset Using Magnetic Tape," J. E. Schwenker, Bell Telephone Laboratories, Inc.

CP.* "Error Detection on Five-Level Telegraph Codes," W. B. Blanton, Western Union Telegraph Co.

CP.* "Telex—A New Telegraph Service for Canada," by C. J. Colombo, Canadian Pacific Railway Co.

CP.* "Telex Connections Between Canada and the United States," by I. S. Coggeshall, Western Union Telegraph Co.

9:00 a.m.—Textile Industry

General Industry Applications Committee
Sheraton Hall
J. H. BINA, Presiding

CP.* "Process Instrumentation from Spinning to Finishing," J. C. Langlois, Honeywell Controls, Ltd.

CP57-713. "Electronic Controls As Applied to Process Instrumentation," A. D. Entwistle, DuPont of Canada, Ltd.

CP57-714. "Adjustable Frequency Drives," A. T. Bachelor and C. G. Helmick, Westinghouse Electric Corp.

CP57-715. "D-C Adjustable Speed Drives—A Prelude to Automation," G. Forsberg, Canadian General Electric Co.

CP.* "A.C. Commutator Motors and Their Application in the Textile Industry," C. I. Sym-Smith, Brown Boveri Canada Ltd.

9:00 a.m.—Magnetic Amplifiers

Magnetic Amplifiers Committee
Ballroom
D. FELDMAN, Presiding

57-770. I "Magnetically Regulated Reference Power Supply," R. A. Raber, General Electric Co.

CP57-771. "A Magnetic Amplifier Voltage Current Overload Protection Circuit," R. J. Distler and C. Sturzenbecker, Bell Telephone Laboratories, Inc.

57-772. I "Operational Magnetic Amplifiers with Multiple Control Windings," T. Kadota and H. C. Bourne, University of California.

CP57-649. "Low-Level Magnetic Amplifier Performance at 150°C," C. C. Thompson, General Electric Co.

CP57-773. "A Fast-Response, Full-Wave Magnetic Amplifier," G. E. Lynn, Westinghouse Electric Corp.

9:00 a.m.—Substations

Substations Committee
Salon D
W. S. SCHEERING, Presiding

CP57-717. "Basic Concepts in the Design of Electrical Bus for Short Circuit Conditions," A. C. Bates, R. & IE Equipment Div. of I-T-E Circuit Breaker Co.

CP57-718. "Temperature Rise and Joint Resistance Tests of Three-Phase Bus Assemblies of Aluminum and Copper," E. K. Lanctot, Aluminum Company of America.

57-719. III "Recommended Grounding Practices for Single Polarity Direct Current Structures," Conversion Substation Subcommittee.

CP57-720. "Station Control Circuitry with Microwave Relaying," B. F. Wirtz, The Cleveland Electric Illuminating Co.

CP57-721. "Remote Control of Generating Stations Over Radio Channel," R. H. Ferguson and W. W. H. Dean, Canadian Westinghouse Co., Ltd.

2:00 p.m.—Section Delegates Conference

Sections Committee
Normandie Room
DIXON LEWIS, Presiding

2:00 p.m.—Safety

Safety Committee
Brittany Room
G. MOES, Presiding

CP.* "Canadian Development in Defibrillation," R. O. Heimbecker, The Banting Institute, University of Toronto.

TUESDAY (continued)

CP.* "The Ground Detector Problem in Hospital Operating Rooms," N. L. Kusters, National Research Council.

CP57-643. "The Canadian Electrical Codes and Committees," F. R. Whatmough, CSA Testing Laboratories.

2:00 p.m.—Land Transportation

Land Transportation
Classroom (Sir George Williams College)
J. G. INGLIS and C. A. KOCH, Presiding

CP57-699. "Mercury-Arc Rectifiers in Urban Transportation," J. T. Harvey, Toronto Transit Commission.

CP57-791. "Comparison of Aluminum and Steel Subway Cars," L. W. Bardsley, Toronto Transit Commission.

CP.* "Ore Haulage on the Quebec, North Shore, and Labrador Railroad." A talk illustrated with motion pictures.

CP57-729. "Series Capacitors Applied to Rectifier Motive Power Units," L. J. Hibbard and T. J. Bliss, Westinghouse Electric Corp.

2:00 p.m.—Symposium on Gaseous Dielectrics

Dielectrics Committee
Birks Hall (Sir George Williams College)
T. W. LIAO, Presiding

CP.* "Time Studies of Corona Discharges," L. A. Bornstein, New York University.

CP57-82. "The Use of Sulfur Hexafluoride in Waveguides", W. H. Mears and S. R. Orfeo, General Chemical Research Lab., T. Anderson and A L. Reeves, Airtron, Inc.

CP57-242. "The Effect of Space Charge on the Breakdown of Sulfur Hexafluoride in Nonuniform Fields." D. Berg and C. N. Works, Westinghouse Electric Corporation.

57-309. I "General Considerations of Toxicity of Gaseous Dielectrics," David Lester, Yale University. (Re-presented for Discussion Only).

57-710. I "The Electrical Conductivity of Chlorinated Hydrocarbons," John Hart and A. G. Mungall, National Research Council of Canada. (Re-presented for Discussion Only).

2:00 p.m.—Computing Devices

Computing Devices Committee
Salon D
E. L. HARDER, Presiding

CP57-673. "Matrix Analysis of Logical Networks," E. J. Schubert, Westinghouse Elec. Corp.

CP.* "Coded Binary Counters for High-Speed Operation," A. W. Carlson.

57-674. I "The RCA Bizmac Tapefile," J. A. Brustman, R. E. Montijo and J. M. Uritis, Radio Corporation of America.

CP57-675. "Relay Scanning Design Technique Generates High-Accuracy and Speed in Analog-To-Digital Transducer Measurements," A. F. Kay, Non-Linear Systems, Inc.

2:00 p.m.—Symposium on Power System Communication Planning

Power System Communications Committee
Sheraton Hall
L. F. KENNEDY, Presiding

S. C. Bartlett, American Gas & Electric Service Corp., New York.

C. W. Cogburn, Florida Power & Light Co., Miami, Florida.

G. E. Farmer, Tennessee Valley Authority, Chattanooga, Tennessee.

E. S. Kocsam, Pennsylvania Electric Co., Johnstown, Pennsylvania.

K. O. Sten, Boston Edison Company, Boston, Massachusetts.

2:00 p.m.—Magnetic Amplifiers

Magnetic Amplifiers Committee
Ballroom
H. L. KELLOGG, Presiding

57-774. I "Magnetic Output Amplifiers for Digital Control," Andress Kernick and H. A. Perkins, Westinghouse Electric Corp.

57-775. I "High Frequency Magnetic Servo Amplifier for Airborne Control Systems," W. R. Seegmiller, General Electric Co.

CP57-776. "Reactions of Bistable B-H Loops on Magnetic Amplifiers," R. E. Morgan, General Electric Co.

57-631. "Two-Phase Motor Drive Using Static Frequency Doubler
I Amplifiers," G. W. Dick, P. P. Biringer and G. R. Slemon, University of Toronto.

2:00 p.m.—Textile Industry

General Industry Applications Committee
Salon B
J. H. BINA, Presiding

CP.* "Wire and Cable in the Textile Industry," G. C. Stinson, Northern Electric Co., Ltd.

CP.* "Motor Enclosures for the Textile Industry," C. Bouggy, Reliance Electric & Engineering Co., Ltd.

CP.* "Getting the Most From Your Indicating Electrical Instruments," J. H. Lee, Bepco Canada Ltd.

PANEL DISCUSSION: Maintenance Problems on Electrical Equipment in the Textile Industry.
Panel Chairman: J. G. McAllister, Courtaulds Canada Ltd.

Wednesday, June 26

9:00 a.m.—Indicating & Integrating Instruments

Indicating and Integrating Instruments Committee
Classroom (Sir George Williams College)
J. H. MILLER, Presiding

57-559. "A Self-Balancing Transformer Core Loss Bridge," A. H.
I Foley, General Electric Co.

CP57-664. "The Definition and Measurement of the Time Constant and Response Time of Thermal Converters," F. L. Hermach, National Bureau of Standards.

57-651. "An Improved Single Phase Watthour Meter," J. G. Landry &
I J. F. Scamman, G. E. Co.

CP57-792. "Design of a New Two-Stator Watthour Meter," D. M. Smith, General Electric Co.

CP.* "Electrical Standardization Procedures Abroad," F. K. Harris, National Bureau of Standards.

9:00 a.m.—Metallic Rectifiers

Metallic Rectifiers Committee
Normandie Room
D. E. TRUCKESS, Presiding

CP57-793. "Silicon Rectifiers in Brushless Machinery," H. W. Henkels, H. R. Camp, J. R. Fortier, W. J. Shilling and R. E. Smith, Westinghouse Electric Corp.

CP57-794. "High Frequency Power Rectification Using Silicon Diodes," S. E. Rauch and G. E. Mahaffey, American Machine & Foundry Co.

CP.* "Applications of Semi-Conductor Rectifiers in Electrochemical Industry," R. P. Stratford, General Electric Co.

CP57-795. "Failure Rate Studies on Silicon Rectifiers," N. F. Bechtold, Signal Corps Engineering Labs., and C. L. Hanks, Battelle Memorial Institute.

CP.* "Electroplating Power Supply Design Considerations," J. E. Main, General Electric Co.

9:00 a.m.—Symposium on Corona Effects of Dielectrics

Dielectrics Committee
Birks Hall (Sir George Williams College)
T. W. DAKIN, Presiding

CP57-716. "Microameter Equipment for High Voltage D-C Insulation Tests," M. Kurtz and K. D. Robertson, Hydroelectric Power Commission of Ontario.

57-711. "Internal Corona Spaces in Cables," 1. Manometric Detection
I of Internal Corona. 2. Autographic Mapping of Corona Spaces. D. W. Kitchin and O. S. Pratt, Simplex Wire and Cable Co.

CP.* "Measurements of the Resistance of Insulating Materials to External Corona in Air," W. T. Starr, General Electric Co.

57-690. "Corona Measurement and Interpretation," T. W. Dakin and
I J. N. Lim, Westinghouse Research Laboratory.

WEDNESDAY (continued)

9:00 a.m.—Communication Switching Systems

Communication Switching Systems Committee
Salon B
WILLIAM KEISTER, Presiding

CP.* "Engineering and Economical Problems of Telex Service," Albert Jipp, Siemens and Halske A.G.

57-808. "Quality Assurance—An Essential Part of the Western Electric
I Manufacturing Process," I. O. Karraker, Western Electric Co.

57-810. "Dynamic Gaging and Automatic Adjusting of Wire Spring
I Relays," John G. Weeks, Western Electric Co.

CP57-809. "Subdivision of Telephone Traffic," Imre Molnar, General Telephone Laboratories.

CP.* "Experimental Remote Line Concentrator for No. 5 Crossbar System," A. E. Joel, Bell Telephone Laboratories.

9:00 a.m.—Computing Devices

Computing Devices Committee
Brittany Room
J. A. O'BRIEN, Presiding

CP57-676. "The Elimination of Motor-Generator Sets as Transient Buffers for Sage Computers." J. J. Gano, Massachusetts Institute of Technology.

CP57-677. "Cycle and Delay Time Considerations in a Real-Time Digital Computer," Herbert Freeman, Sperry Gyroscope Co.

CP57-678. "The Economics of Component Parts Selection," E. F. Fuegel, IBM Corp.

CP57-679. "Experiences in Setting Up a Sage Prototype Computer," W. J. Canty, Massachusetts Institute of Technology.

9:00 a.m.—Switchgear

Switchgear Committee
Ballroom
J. C. WOODS, Presiding

57-724. "The How and Why of Expulsion Fuse Cutouts," R. A. Wood,
III R & IE Equipment Div .of I-T-E Circuit Breaker Co.

CP57-725. "Insulation Phenomena of Compressed Air," L. D. McConnell, Canadian Westinghouse Co., Ltd.

57-726. "The Use of SF_6 for High Power Arc Quenching," W. M.
III Leeds, T. E. Browne, Jr., A. P. Strom, Westinghouse Electric Corp.

57-637. "A New 69 KV Dead Tank Compressed Air Circuit Breaker,"
III J. P. Skillen and D. H. McKeough, Canadian Westinghouse Co., Ltd.

CP57-727. "Voltage Recovery Rates Associated With Transmission Line Faults," C. H. Titus and W. F. Skeats, General Electric Co.

9:00 a.m.—Insulated Conductors

Insulated Conductors Committee
Sheraton Hall
M. W. GHEN, Presiding

57-652. "Thermal and Mechanical Problems on 138 KV Pipe Cable in
III New Jersey," A. S. Brookes and T. E. Starrs, Public Service Electric & Gas Co.

57-660. "The Calculation of the Temperature Rise and Load Capa-
III bility of Cable Systems," J. H. Neher, Philadelphia Electric Co., and M. H. McGrath, General Cable Corp.

CP57-731. "1956 National Electric Code—A Review," R. C. Graham and L. H. Selden, Rome Cable Corp.

CP.* "The Stability of Electrical Insulation on Control Cable," G. C. English, R. H. Brown and R. R. Cope.

2:00 p.m.—Industrial Power Rectifiers

Industrial Power Rectifiers Committee
Normandie Room
J. R. DRAVIS, Presiding

CP57-696. "Rectifier Equipment Developed for Industry in Canada," J. J. Dravis and T. A. Carter, Canadian Westinghouse Co., Ltd.

WEDNESDAY (continued)

CP57-697. "First Canadian Built Pumpless Rectifier," R. H. Stuart and Janos de Warga, Canadian General Electric Co., Ltd., Fred Langvee, Aluminum Co. of Canada Ltd.

CP57-698. "Improvements to Ignitron Rectifier Vacuum Auxiliaries," W. G. Clarkson and C. F. Currey, Canadian Westinghouse Co., Ltd.

57-700. "Application of a Mechanical Rectifier to a Cyclotron," Jack
II Warren, Singmaster & Breyer.

2:00 p.m.—Communication Theory

Communication Theory Committee
Salon B
L. G. ABRAHAM, Presiding

CP.* "Human Information—Handling Capabilities," J. C. R. Licklei-der, Massachusetts Institute of Technology.

57-722. "Some Relations Between Television Picture Redundancy and
I Bandwidth Requirements," K. H. Powers and H. Staras, Radio Corporation of America.

CP57-723. "Statistical Encoding for Text and Picture Communication," W. S. Michel, Bell Telephone Laboratories, Inc.

CP.* "Some Characteristics of the Homo Sapiens Signal Convertor, Its Bandwidth and Signal to Noise Ratio," G. C. Sziklai, Westinghouse Electric Corp.

57-635. "Information Theory Impact on Modern Communications,"
I Pierre Mertz, Bell Telephone Laboratories, Inc.

2:00 p.m.—Computing Devices

Computing Devices Committee
Brittany Room
PHILIP ADAMSON, Presiding

CP.* "Combined Analog-Digital Simulation of Sampled Data Systems," H. K. Skramstad, National Bureau of Standards.

CP.* "Simplified Two-Channel Data Link for Real-Time Combined Analog-Digital Simulation," J. L. Greenstein, Astronautics Division of Convair.

CP.* "Acceptance Tests and First Applications of a Combined Analog-Digital Simulation System," G. West, Ramo-Wooldridge Corp.

PANEL DISCUSSION: Combined Analog-Digital Simulation. Above three authors as panels members including Mr. Max Palevsky of Packard-Bell Computer Corp.

2:00 p.m.—Switchgear

Switchgear Committee
Ballroom
J. C. WOODS, Presiding

CP57-811. Symposium of the Working Group on Calculation of Faults in D-C Circuits
"Short Circuit Characteristics of D-C Rotating Machines," H. A. Brust.
"Short Circuit Characteristics of Power Rectifiers," W. A. Munson.
"Short Circuit Characteristics of Batteries," R. H. Kaufmann.
"External Circuit Data," D. C. McClintock.
"Summary of Ratings of D-C Interrupters," M. S. Carlson.
"Application Guide for D-C Interrupters," H. A| Brust.

2:00 p.m.—Feedback Control Systems

Feedback Control Systems Committee
Birks Hall (Sir George Williams College)
J. R. RAGAZZINI, Presiding

57-634. "An Analytic Method for Finding the Closed Loop Frequency
II Response of Nonlinear Feedback Control System," Katsuhiko Ogata, University of Minnesota.

CP57-777. "Dynamic Representation of a Hydraulic Constant Speed Drive," P. E. Smith, Massachusetts Institute of Technology.

CP57-778. "Optimizing Control Systems," R. L. Cosgriff and R. A. Emerling, Ohio State Univ.

WEDNESDAY (continued)

CP57-779. "A Describing Function Representation for the Multiple Nonlinearities of Two Stage Electrohydraulic Control Valves," John Zaborszky, Washington University, and H. J. Harrington, McDonnell Aircraft Corp.

CP57-780. "Generalized Charts of the Effects of Nonlinearities in Two Stage Electrohydraulic Control Valves," John Zaborszky, Washington University, and H. J. Harrington, McDonnell Aircraft Corp.

CP57-781. "The Response of a Non-Linear Control System to a Sinusoidal Contaminated by Random Noise," P. N. Nikiforuk, Quebec, P.Q., Canada.

CP57-782. "Stability and Physical Realizability Considerations in the Synthesis of Multipole Control Systems," Herbert Freeman, Sperry Gyroscope Co.

57-605. "Quasi-Optimization of Relay Servos by use of Discontinuous
II Damping," W. L. Harris, Jr., C. McDonald, G. J. Thaler, U. S. Naval Postgraduate School, (Re-presented for Discussion Only).

57-393. "A New Method for Compensating Contactor Servomecha-
II nisms," J. E. Embler, Aluminum Co. of America, C. H. Weaver, University of Tennessee, (Re-presented for Discussion Only).

57-388 "Adaptive Servomechanisms," R. F. Drenick and R. A. Shah-
II bender, Radio Corporation of America. (Re-presented for Discussion Only).

2:00 p.m.—Insulated Conductors

Insulated Conductor Committee
Sheraton Hall
L. E. FOGG, Presiding

57-732. "Corona Level Scanning of High Voltage Power Cables," F.
III H. Gooding and H. B. Slade, The Okonite Co.

57-638. "Paper Cable Saturants, European Preferences and Selec-
III tion," G. E. Bennett, Dussek Bros. & Co.

CP.* "Improved Cable Insulating Oils," S. C. Bartlett, J. E. Morrow and E. S. Ross.

CP57-734. "The Development of the Polyethylenes and Their Application to Cables," E. E. McIlveen, The Okonite Co.

57-735. "Liquid Thermosetting Resins Applied to Cable Installation
III and Maintenance," E. W. Bollmeier, Minnesota Mining & Mfg. Co.

2:00 p.m.—Stationary Telemetering

Telemetering Committee
Classroom (Sir George Williams College)
W. E. PHILLIPS, Presiding

CP57-896. "A Tubeless Industrial Telemeter of the Frequency Type," D. E. Kotas and J. Parnell, Minneapolis Honeywell-Brown Instrument Division.

CP57-897. "An Improved Electronic Telemetering System Employing Saturable Reactors," T. Barbutes, Westinghouse Electric Corp.

CP57-898. "A Precision High Speed Telemetering Oscillator," D. Garshman and J. A. Fraunfelder,* Leeds and Northrup Co.
*Formerly with Leeds and Northrup Co.

CP57-899. "Reproducing a Shaft Rotation by Digital Coding," Ivan Flores, Remington Rand Univac, Div. of Sperry Rand Corp.

CP57-900. "Design and Application Notes on the Use of Telephone Company Facilities for Telemetering," J. A. Parnell and J. M. Brooks, Minneapolis Honeywell-Brown Instrument Division.

2:00 p.m.—Industrial Power Systems

Industrial Power Systems Committee
Salon D
R. A. BLOUNT, Presiding

57-639. "Economic Evaluation of Industrial Power System Relia-
II bility," W. H. Dickinson, Esso Research & Engineering Co.

CP57-640. "Industrial Application of High Frequency Power," V. C. Geckler, New Departure Division General Motors Corporation.

CP57-641. "A Report on the Use of D-C Overpotential Testing in Industrial Power Systems," Victor Wouk, Beta Electric, Division of Sorensen & Company, Inc.

57-304. II "Locating Surge Arrestors and Capacitors for Rotating Machine Protection on Industrial Power Systems," A. H. Knable and D. Dalasta, Allis-Chalmers Mfg. Co.

7:00 p.m.—Feedback Control Systems

Feedback Control Systems Committee
Salon D

SUBJECT: "OBJECTIVES AND TRENDS IN FEEDBACK CONTROL SYSTEMS PROGRESS."

SPEAKERS: DR. GORDON S. BROWN—Head Dept. of Electrical Engineering, Massachusetts Institute of Technology.
DR. DONALD P. ECKMAN—Professor of Instrumentation, Case Institute of Technology.
DR. EUGENE M. GRABBE—Computer Systems Division, Ramo-Wooldridge.
DR. S. W. HERWALD—Manager Air Arm Division, Westinghouse Electric.
ORVILLE E. ORBOM—Manager Instrumentation and Automation, Allegheny Ludlum Steel Corp.
HARRY PALMER—Manager Engineering Specialty Control Dept., General Electric.

MODERATOR: HAROLD CHESTNUT—Control System Engineer, General Engineering Laboratory, General Electric.

Thursday, June 27

9:00 a.m.—Wire Communications

Wire Communications Committee
Classroom (Sir George Williams College)
D. G. GEIGER, Presiding

CP.* "Canadian Progress in Telephone Communication," C. H. McGuire, Bell Telephone Co. of Canada, Ltd.

CP57-783. "Structural and Electrical Coordination in Canada," C. L. Roach, Bell Telephone Co. of Canada, Ltd.

CP57-733. Communications by the Canadian Railways (Six Years of Progress). A. S. Walker, Canadian Pacific Communications.

57-784. I "A Statistical Approach to Telephone Transmission Maintenance," J. B. Pringle and G. Gaudet, Bell Telephone Co. of Canada, Ltd.

9:00 a.m.—Computing Devices

Computing Devices Committee
Birks Hall (Sir George Williams College)
S. N. ALEXANDER, Presiding

CP.* "Survey of Information Retrieval Tools Now Available," by Jack Rabinow, Rabinow Engineering Company.

CP.* "The Magnacard Development," by Dr. Ragnar Thorensen, Magnavox Corporation.

CP.* "Status Report on the Rapid Selector," by Philip Ordung, Yale University, and Thomas Bagg, National Bureau of Standards.

CP.* "A Photographic System for Data Retrieval and Presentation," by Howard R. Ball, Bureau of Ships, Department of the Navy.

9:00 a.m.—Applied Mathematics

Basic Sciences Committee
Salon B
H. SOHON, Presiding

57-741. I "A New Method for Solving Simultaneous Equations by Block Elimination," John L. C. Löf, The University of Connecticut.

57-742. I "A New Application of the Hurwitz-Routh Stability Criteria," Theron Usher, Jr., Yale University.

THURSDAY (continued)

CP.* "Recurrence Relations in the Solution of a Certain Class of Non-Linear Systems," A. A. Wolf.

57-743. I "Design Relationships for Iron-Core Filter Chokes," Theron Usher, Jr., Yale University.

57-744. I "Temperature Rise of Solid Junctions Under Pulse Load," E. J. Diebold, International Rectifier Corp.

9:00 a.m.—System Engineering

System Engineering Committee
Ballroom
A. P. FUGILL, Presiding

57-670. III "Relay Protection and Control of the 138 KV Underwater Cable Tie Between Vancouver and the B. C. Mainland," S. B. Wilkinson, Canadian Westinghouse Co., Ltd., and A. Rohrmayer, B. C. Engineering Co.

57-671. III "Analysis of Simultaneous Line-To-Ground Faults," G. I. Stillman, Public Service Electric & Gas Co.

CP57-672. "Economic Comparison of Switched Capacitors and Voltage Regulators for System Voltage Control," W. S. Ku, Public Service Electric & Gas Co.

9:00 a.m.—Insulated Conductors and Protective Devices

Insulated Conductors and Protective Devices Committees
Brittany Room
G. J. CROWDES, Presiding

CP.* "Dielectric Strength of Cable Insulations," A. H. Shepherd and P. H. Ware.

CP.* "Aerial Cable Installation Practice and Service Experience," W. A. Thue.

CP.* "Lightning Performance of Aerial Cables—Field and Laboratory Studies," W. A. Thue and J. M. Clayton.

57-736. III "Surge Performance and Protection of Aerial Cable," H. R. Armstrong and R. T. Curto, The Detroit Edison Co.

57-737. III "Surge Performance of Aerial Cable, Part I—Surge Testing of the Aerial Cable and Analysis of the Test Oscillograms," A. J. Schultz, F. C. Van Wormer and A. R. Lee, General Electric Co.

57-738. III "Surge Performance of Aerial Cable, Part II—Mathematical Analysis of the Cable Circuits and Synthesis of the Test Oscillograms," F. C. Van Wormer, A. J. Schultz and A. R. Lee, General Electric Co.

CP.* "The Summary of Questionnaire on Field Experience with Aerial Cable," Report of W. G. on Lightning Protection of Aerial Cable.

9:00 a.m.—Management

Management Committee
Sheraton Hall
L. R. GATY, Presiding

CP.* "Economic Implications of Automation," J. J. Brown, Industrial Automation, Ltd.

CP.* "Human Side of Automation," G. R. Cowan, B. F. Goodrich Co.

9:00 a.m.—Industrial Power Systems

Industrial Power Systems Committee
Salon D
LEO DOLKART, Presiding

CP57-642. "The Tie Between a Utility and an Industrial When the Industrial has Generation," D. V. Fawcett, Canadian Westinghouse Company, Ltd.

CP.* "Power Distribution at Powell River," O. M. Julson, Powell River Company, Ltd.

CP57-644. "Power Distribution and Protective Features in the Mannesmann Tube Mill," E. J. Bartley, A. Ketvirtis and I. S. Cooper, Foundation of Canada Engrg. Corp., Ltd.

CP57-645. "Equations for the Inductances and Current Distribution of Multiple-Conductor Single-Phase and Polyphase Busses," T.H. Chin, Univ. of Pittsburgh, T. J. Higgins, U. of Wisc.

THURSDAY (continued)

CP57-646. "Equations for Evaluating Short-Circuit Forces on Multiple-Strap Single-Phase and Polyphase Busses for Supplying Low Frequency Induction Furnaces," T. H. Chin, Univ. of Pittsburgh and T. J. Higgins, Univ. of Wisconsin.

56-767. II "A Transient Stability and Voltage Study for a Modern Oil Refinery Distribution System," C. W. Boice, C. F. Braun & Co., S. R. Durand & D. Dalasta, Allis-Chalmers Mfg Co. (Re-presented for discussion only.)

2:00 p.m.—Wire Communications

Wire Communications Committee
Classroom (Sir George Williams College)
R. S. CARUTHERS, Presiding

57-785. I "The Work of the International Telecommunication Union in the Field of Telephoney," W. E. Bloecker, American Telephone & Telegraph Co., and G. A. Caldwell, Bell Telephone Co. of Canada, Ltd.

CP57-786. "A Review of Telephone Development in Western Europe and in Underdeveloped Areas," G. D. Wallenstein, Lenkurt Electric Co.

CP57-787. "A New Method of Frequency Error Correction in Carrier Systems," B. R. Stachiewicz, Stromberg-Carlson Co.

CP57-788. "System Aspects of a Basegroup Transfer-Converter for Interconnecting Different Carrier Systems," Herbert Echevarria, Lenkurt Electric Co.

2:00 p.m.—Transformers

Transformers Committee
Birks Hall (Sir George Williams College)
J. R. MEADOR, Presiding

57-749. III "Current Transformer Error Calculations," N. A. Hills, Moloney Electric Co. of Canada, Ltd.

57-119. III "Cascade Potential Transformers," G. Camilli, General Electric Co., H. R. Lucas, Canadian General Electric Co., L. W. Marks and C. H. Tuttle, General Electric Co.

57-750. III "Loading of Ventilated Dry-Type Transformers," L. C. Whitman, General Electric Co.

57-117. III "Transformer Noise Problem—Performance of Acoustic Treatments and Vibration Isolators," A. T. Edwards, Hydro-Electric Power Commission of Ontario.

CP57-751. "Emergency Loading of Power Transformers," J. B. Hodtum, Allis-Chalmers Mfg. Co.

2:00 p.m.—Research

Research Committee
Sheraton Hall
J. E. HOBSON, Presiding

CP.* "Research in Canada for the Power Industry," B. G. Ballard.

CP.* "Research Projects of the Electric Utility Industry," H. P. Seelye.

CP57-712. "Progress in Power Apparatus," F. J. Vogel, Allis-Chalmers Manufacturing Co.

CP.* "Electrical Energy and Extractive Metallurgy," L. M. Pidgeon.

2:00 p.m.—Special Instruments & Auxiliary Apparatus

Special Instruments and Auxiliary Apparatus Committee
Salon B
H. SOHON, Presiding

57-648. I "Measurement of Voltage Ratio at Audio Frequencies," W. C. Sze, National Bureau of Standards.

57-662. I "A Fourteen Channel Displacement Measuring Device Utilizing Magnetic and Paper Tape Recording," G. R. Partridge, Raytheon Mfg. Co., J. W. Dunkin, R. L. Anderson and R. C. Geldmacher, Purdue University.

57-353. I "The Response of Resistance Voltage Dividers to Steep Front Impulse Waves," A. F. Rohlfs, J. S. Kresge and F. A. Fisher, General Electric Co.

CP57-663. "A Voltage-Limited Capacitance Divider," L. L. Alston and J. M. Russell, The Royal Technical College.

2:00 p.m.—Computing Devices and Systems Engineering

Computing Devices and System Engineering Committee
Ballroom
E. W. KNAPP, Presiding

57-680. III "Electric Analog Circuits for Exact Economic Dispatch," R. Bruce Shipley, Consulting Engineer, Chattanooga, Tennessee.

57-681. III "Automatic Calculation of Load Flows," A. F. Glimm, General Electric Co., and G. W. Stagg, American Gas & Electric Service Corp.

57-682. III "Nodal Iterative Solution of Power Flow Problem Using IBM 604 Digital Computer," Donald McGillis, Quebec Hydro-Electric Commission.

57-683. III "Digital Computation of Induction Motor Transient Stability," J. L. Gabbard and J. E. Rowe, Union Carbide Nuclear Company.

2:00 p.m.—Insulated Conductors

Insulated Conductors Committee
Brittany Room
F. M. HULL, Presiding

57-739. III "BPA High Voltage Cable Studies," R. J. Mather, F. J. McCanna, E. Demirjian, Bonneville Power Administration.

57-740. "Past and Present Practice and Experience on High Voltage Underground Cable Systems in France," R. A. Tellier, Electricite de France.

CP.* "St. Lawrence River High Voltage Submarine Cable Crossing," D. M. Farnham, S. Cunha, G. B. Shanklin and H. D. Short.

2:00 p.m.—Power Generation

Power Generation Committee
Normandie Room
J. H. KINGHORN, Presiding

57-686. III "Antifriction Bearings for Kaplan Hubs," G. T. Abernathy, Newport News Shipbuilding & Dry Dock Co.

57-687. III "Vertical Waterwheel Turbine Clearance Adjustment Through the Controlled Deflection of Generator Thrust Bearing Supports," D. K. Venus and C. C. Sargeant, Canadian Westinghous Co., Ltd.

57-688. III "Low Cost Power House Vertical Waterwheel Generators," D. R. RITCEY AND C. C. SARGEANT, Canadian Westinghouse, Co., Ltd.

CP57-689. "The Evolution of the Modern Waterwheel Generator in Canada," G. D. Floyd and H. R. Sills, Canadian General Electric Co., Ltd.

2:00 p.m.—Computing Devices

Computing Devices Committee
Salon D
S. N. ALEXANDER, Presiding

CP.* "Patent Searching by Punched Card Techniques," by Donald D. Andrews, U. S. Patent Office.

CP.* "The Application of Information Retrieval Systems to Military Logistics," by Andrew S. Allott, Office of the Chief of Ordnance, Department of the Army.

CP.* "Mechanized Dictionary for Language Translation," by Gilbert King, International Telemeter Corporation.

CP.* Information Retreival Requirements in the Library Sciences," by Robert E. Bray, Library of Congress.

Friday, June 28

9:00 a.m.—Transformers

Transformers Committee
Brittany Room
D. L. LEVINE, Presiding

57-752. III "Extremal Area Effect for Large Area Electrodes for the Electric Breakdown of Transformer Oil," K. H. Weber and H. S. Endicott, General Electric Co.

FRIDAY (continued)

CP57-753. "Transformer Oil Preservation," J. R. Meador and N. E. Dillow, General Electric.

CP.* "An Improved Method of Oil Preservation and Its Effect on Gas Evolution," R. J. Ringlee, W. J. Degnan and G. G. Doucette.

57-636. III "Corona Measurements on Oil Insulated Transformers," E. J. Adolphson and F. J. Vogel, Allis-Chalmers Mfg. Co.

57-754. III "The Use of Neutral Current Measurements During Chopped Wave Impulse Tests on Transformers," G. W. Lengnick and S. L. Foster, Allis-Chalmers Mfg. Co.

9:00 a.m.—Industrial Control

Industrial Control Committee
Birks Hall (Sir George Williams College)
L. H. MATTHIAS, Presiding

CP57-789. "An All-Electric Automatic Control System for Maximizing Flow Through a Multiple Station Pipeline," B. Ewers, Phillips Petroleum Co., H. B. Rath, Leeds & Northrup Co.

CP57-702. "The Testing of HRC Current Limiting High Voltage Fuses," S. M. Prout, Canadian Controllers Ltd.

CP57-703. "A Digital Flying Extensometer for Temper Rolling Mills," N. S. Wells, The Steel Company of Canada, Ltd.

CP57-704. "Adjustable Speed Control of A.C. Motor Drives for Movable Traffic Bridges," H. J. Crawford, W. D. Duerksen, and J. C. Orr, Canadian Westinghouse Co., Ltd.

CP.* "Adjustable Voltage Travelling Bucket Cranes," E. A. Horsley, Provincial Engrg., Ltd.

9:00 a.m.—Rotating Machinery

Rotating Machinery Committee
Salon K
G. W. HERZOG, Presiding

57-758. III "Low Frequency Performance of a Wound Rotor Induction Motor for Mine Hoist Drives," G. L. Tiley and F. F. Dixon, Canadian Westinghouse Co., Ltd.

57-759. III "A Low Frequency Generator and Frequency Changer for A.C. Mine Hoist Drives," C. W. Elliot, W. Boesel and E. Zucker, Canadian Westinghouse Co., Ltd.

CP57-760. "Analysis of D-C Rotating Machines as Two-Port Networks —I," V. C. Rideout, The University of Wisconsin.

CP57-761. "Analysis of D-C Rotating Machines as Two-Port Networks —II," W. B. Swift, The University of Wisconsin.

9:00 a.m.—Computing Devices

Computing Devices Committee
Normandie Room
H. HAMER, Presiding

CP57-790. "Dynamic Response of Flight Tables," F. T. Nicholson, University of Penna.

CP57-701 "Spectrum Analysis of Random Noise Generators," L. G. Polimerou, CONVAIR.

CP.* "An Integrated Analog-Digital Technique for Investigation of Dynamic Systems," H. G. Lustig, Boeing Airplane Co.

CP57-661 "The Generation of Functions for Analog Computing," P. E. Stanley, Purdue University.

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

Power Generation and System Engineering Committees
Sheraton Hall
L. K. KIRCHMAYER, Presiding

57-691. III "A Simplified Basis for Applying Probability Methods to the Determination of Installed Generating Capacity Requirements," C. W. Watchorn, Pennsylvania Power & Light Co.

57-692. III "Use of Probability Methods in the Economic Justification of Interconnecting Facilities Between Power Systems in South Texas," A. Pat Jones, Central Power & Light Co., A. C. Mierow, Central & South West Operating Committee.

FRIDAY (continued)

57-693. III "Control of Reactive KVA with Modern Amplidyne Voltage Regulators," A. S. Rubenstein and W. W. Walkley, General Electric Co.

CP.* "Selecting Criteria for Transient Stability in Power System Planning," B. L. Lloyd and C. A. DeSalvo, Westinghouse Electric Corp.

9:00 a.m.—Transmission and Distribution—II

Transmission and Distribution Committees
Ballroom
J. A. RAWLS, Presiding

CP.* "Higher Retentions for Longer Pole Life," Dr. C. W. Leach and Albert Hess, U. S. Steel Corp.

57-654. III "Structural Selection of ACSR for Transmission Lines," P. G. Malburg, Aluminum Co. of Canada, Ltd.

CP57-801. "An Automatically Precisely Controlled System for Vibrating Conductors" A. T. Edwards, The Hydro-Electric Power Commission of Ontario.

CP.* "Prevention of Below Ground Corrosion of Transmission Tower Structures." By E. J. Higgins, American Gas and Electric Service Corp.

CP57-807. "Galvanized Steel Tower Footing Corrosion Survey," F. W. Farr & R. V. Moorman, Bonneville Power Administration.

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

Television and Aural Broadcasting Committee
Salon D
C. G. LLOYD, Presiding

57-659. I "The Canadian Broadcasting Corporation's Radio Service in Canada," N. R. Olding, Canadian Broadcasting Corp.

57-665. I "The Development of Television in Canada," J. E. Hayes, Canadian Broadcasting Corp.

CP57-666. "Video Testing Techniques in Television Broadcasting," A. Ste. Marie, P. O. Box 10, Snowdon, Montreal, Quebec.

CP.* "Current Practices in TV Lighting and TV Lighting Controls," Herbert More, Kliegl Bros., Universal Electric Stage Lighting Co., Inc.

CP.* "A Combining Filter to Allow Simultaneous Transmission from a Single Antenna of Two Complete Television Stations Operating on Different Channels," G. B. Mac Kimmie, RCA-Victor Co., Ltd.

9:00 a.m.—Basic Sciences

Basic Sciences Committee
Classroom (Sir George Williams College)
A. B. MACNEE, Presiding

57-745. "Subharmonics in Iron-Cored Reactor Oscillatory Circuits," A. E. Mostafa and M. I. El-Karaksi, Alexandria University, Egypt, (by title only).

57-746. I "Electric Non-Linear Computation Performed by Linear Elements," M. S. M. Abou-Hussein, University of Cairo, Egypt, (by title only).

CP57-747. "Instantaneous Resistance Analysis Method of Network Analysis," Ira Ritow, Republic Aviation Corp.

CP57-748. "Constant Resistance Networks to the Aid of Network Synthesis," Dov Hazony, Electro Measurements, Inc.

CP.* "On the Order of the Differential Equation Describing an R-L-C Network," J. Otterman, University of Michigan.

2:00 p.m.—Transformers

Transformers Committee
Brittany Room
C. W. MILLER, Presiding

57-632. III "An Electronic Electrometer as a Versatile Corona Detector," J. G. Anderson and J. S. Kresge, General Electric Co.

57-755. III "Magnetic Amplifier Control for Load Tap Changing Equipment," Bryan Webb, Jr., and G. D. Throop, Westinghouse Electric Corp.

57-756. III "Analysis of Three-Limb Transformer Cores and a New Instrument for Measurement of Exciting Current Waveforms," J. K. Delson, General Electric Co.

FRIDAY (continued)

57-757. III "Excitation Requirements of Three-Phase, Core-Type, Three-Legged Wye-Connected Transformers," C. S. Walker, Oak Ridge National Laboratory.

2:00 p.m.—Rotating Machinery

Rotating Machinery Committee
Salon K
C. C. SARGEANT, Presiding

57-762. III "Predicting Insulation Failures with Direct Voltage," C. M. Foust and B. V. Bhimani, General Electric Co.

CP.* "Insulation Evaluation for Medium Size Machines Using Form-Wound Motorettes," G. L. Moses.

57-763. III "Permanent Magnet Generators—Part I—Theory," D. J. Hanrahan and D. S. Toffolo, U. S. Naval Research Laboratory.

57-764. III "A New Device Ensuring Operating Reliability of Large Constant Gap Generators in Underexcited Conditions," Francois Cahen and B. Favez, Electricite de France.

2:00 p.m.—Computing Devices

Computing Devices Committee
Normandie Room
D. F. CASSIDY, Presiding

CP.* "The Power Control Simulator," R. W. Kettlety, General Electric Co.

CP.* "An Automatic A-C Network Analyzer Load Control Unit," J. J. Gravel, General Electric Co.

CP57-684. "Analog Computer Study of the Transient Performance of a Dual Cycle Boiling Water Reactor Nuclear Power Plant," D. W. Leiby, General Electric Co.

CP57-685. "A Rolling Mill Analogue for the Study of Nonlinear Problems Associated with Gauge Control," L. R. Hulls and K. R. Canfor, Canadian Westinghouse Co., Ltd.

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

Transmission and Distribution Committee
Ballroom
F. V. SMITH, Presiding

CP57-802. "Radio Influence Effects of Surface Treatments on Small Conductors," P. D. Tuttle, Aluminum Co. of America, W. E. Pakala, Westinghouse Electric Corp., H. L. Rorden, American Gas & Electric Service Corp.

CP57-803. "Radio Influence from Transmission Lines as a Function of Conductor Gradients," W. E. Pakala, Westinghouse Electric Corp., G. D. Lippert, American Gas & Electric Service Corp.

57-804. III "The Radio Influence Characteristics of Bundle and Single Conductors (Tidd Project)," W. E. Pakala, Westinghouse Electric Corp., G. D. Lippert, American Gas & Electric Service Corp., S. C. Bartlett, American Gas & Electric Service Corp., B. J. Sparlin, Westinghouse Electric Corp.

CP57-805. "Two Year Lightning Experience on 345 KV Lines," H. L. Rorden, E. S. Zobel, G. D. Lippert, American Gas & Electric Service Corp.

57-806. III "Corona Loss Measurements on Bundle Conductors 500-KV Test Project of AG&E," B. L. Lloyd, Westinghouse Electric Corp., Otto Naef, American Gas & Electric Service Corp.

2:00 p.m.—Power Generation

Power Generation Committee
Sheraton Hall
K. J. GRANBOIS, Presiding

57-694. III "Integration of Hydro and Thermal Power Resources in Alberta," M. M. Williams, Calgary Power Ltd.

57-695. III "The Bersimis—LAC CASSE 1¼ Million Horsepower Development," H. F. Abbott, Quebec Hydro-Electric Commission.

57-653. III "The Electrical Features of the St. Lawrence Power Project," John Saloma, Chas. T. Main, Inc.

FRIDAY (continued)

2:00 p.m.—Hagerstown Educational Television Project

Television and Aural Broadcasting Committee
Salon D
C. M. BRAUM, Presiding

CP57-667. "Pioneering in Televised Education," J. R. Brugger, Board of Education, Hagerstown, Maryland.

CP.* "Establishing and Equipping the Hagerstown Educational Television Project," L. L. Lewis, Radio Corporation of America.

57-668. I "Closed-Circuit Network for Educational Television," W. C. Warman, The Chesapeake & Potomac Telephone Co.

CP57-669. "Television Systems for In-School Teaching," M. H. Kraus, Jerrold Electronics Corp.

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

Transmission and Distribution Committee
E. L. KANOVSE, Presiding
Classroom (Sir George Williams College)

CP.* "Combating Corrosion of Tower Footings, Anchors and Grounding Systems," C. H. Schofer of Pennsylvania Power and Light.

CP.* "New England Electric System's Experience with Below Ground Corrosion of Metals," A. E. Hill, NEPSCO.

CP.* "Steps for Reducing Underground Corrosion on Multi-grounded Distribution Lines," O. W. Zastrow, Rural Electrification Administration.

CP*. "History of Below Ground Corrosion of Steel Tower Footings on The Virginia Electric and Power Co. System," J. A. Rawls, Virginia Electric & Power Co.

SUMMER GENERAL MEETING COMMITTEES

General

F. L. Lawton, *Chairman*
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COMMITTEE MEETINGS

Monday, June 24

9:30 a.m.—Lightning Protection of Rotating Machines....Salon F
10:00 a.m.—Sections .....Salon A
10:00 a.m.—Professional Conduct .....Salon M
2:00 p.m.—Annual Meeting .....Ballroom
2:00 p.m.—Magnetic Amplifiers Definitions Subcommittee..Salon A
4:00 p.m.—Land Transportation .....Salon B
4:00 p.m.—Distribution Subcommittee .....Salon F

Tuesday, June 25

8:00 a.m.—Breakfast—Electrical Systems for Commercial Bldgs. Subcommittee .....Salon M
9:00 a.m.—Section Delegates Conference .....Normandie Room
9:00 a.m.—Working Group of AIEE Standard #4 Men's Common Room*
9:00 a.m.—Power Division .....Salon A
9:00 a.m.—F.C.S. Component Specifications Subcommittee Students Conf. Room*
9:00 a.m.—Metallic Rectifiers .....Salon F
9:00 a.m.—Nucleonics .....Salon J
9:00 a.m.—Working Group on Switching Surges .....Salon K
9:00 a.m.—Computing Devices .....Salon I
9:00 a.m.—E. E. Educational Medal Subcommittee .....Room 902
9:00 a.m.—Communication Division .....Room 901
12:00 noon—Luncheon—Indicating & Integrating Instruments Salon I
12:00 noon—Computing Devices .....Buffet Luncheon
2:00 p.m.—Section Delegates Conference .....Normandie Room
2:00 p.m.—Industrial Power Systems .....Salon K
2:00 p.m.—Science & Electronics Div. .....Salon A
2:00 p.m.—Corona, Radio, and TV Interference W. G.....Salon J
2:00 p.m.—Video and Audio Transformers W. G. .....Salon F
2:00 p.m.—F.C.S. Component Specifications Subcommittee Student's Conf. Room*
2:00 p.m.—Power Generation Administrative Group.....Room 902
2:00 p.m.—Working Group of AIEE Standard #4 Men's Common Room*
2:00 p.m.—Data Communications .....Salon M
2:00 p.m.—General Systems Subcommittee .....Room 901
4:00 p.m.—Radio Comunications .....Salon I

Wednesday, June 26

9:00 a.m.—Technical Groups .....Sample Room
9:00 a.m.—Admission and Advancement Department .....Salon A
9:00 a.m.—Comunication Theory .....Salon F
9:00 a.m.—Magnetic Amplifiers .....Salon K
9:00 a.m.—Periodicals and Transactions .....Room 901

9:00 a.m.—Student Branches ..... Salon J
9:00 a.m.—Working Group of AIEE Standard #4 Men's Common Room*
9:00 a.m.—Power System Communications ..... Salon M
9:00 a.m.—System Economics Subcommittee.. Student's Conf. Room
9:00 a.m.—Transformer Audible Sound Working Group.... Salon I
9:00 a.m.—Research ..... Sample Room
9:00 a.m.—Hydro Electric Subcommittee ..... Sample Room
9:00 a.m.—Telegraph Systems ..... Room 902
10:00 a.m.—System Engineering ..... Student's Conf. Room
12:00 noon—Luncheon—Instrumentation Division ..... Salon F
12:00 noon—Luncheon—Public Relations ..... Salon A
2:00 p.m.—Student Branches ..... Salon J
2:00 p.m.—Industry Division ..... Room 901
2:00 p.m.—Administrative Department ..... Salon F
2:00 p.m.—Magnetic Amplifier Theory Subcommittee Student's Conf. Room*
2:00 p.m.—Transformer Audible Sound Working Group.... Salon I
2:00 p.m.—Communication Switching Systems ..... Salon A
2:00 p.m.—AIEE Standard #4 ..... Room 902
2:00 p.m.—Power Generation ..... Salon K
4:00 p.m.—Basic Sciences ..... Salon M
4:30 p.m.—AIEE Executive and Finance ..... Room 902
7:30 p.m.—Forum of Technical Committee Chairmen Cartier Room

Thursday, June 27

9:00 a.m.—Electronics Planning Subcommittee ..... Salon A
9:00 a.m.—Towers, Poles and Conductors ..... Sample Room
9:00 a.m.—Vice Presidents & District Secretaries ..... Salon J
9:00 a.m.—Technical Operations Department ..... Salon I
9:00 a.m.—Substations ..... Salon K
9:00 a.m.—Analog Computer Subcommittee ..... Salon F
9:00 a.m.—Electronics Transformer Subcommittee ..... Room 901
9:00 a.m.—Feedback Control Systems ..... Salon M
9:00 a.m.—Educational Publications ..... Room 902
12:00 noon—T.V. & Aural Broadcasting ..... Buffet Luncheon
12:00 noon—Luncheon—Technical Operations Department.. Salon I
2:00 p.m.—General Industry Applications ..... Salon A
2:00 p.m.—Electronics ..... Salon L
2:00 p.m.—Vce Presdents & District Secretaries ..... Salon J
2:00 p.m.—Planning and Coordination ..... Salon I
2:00 p.m.—Management ..... Salon E
2:00 p.m.—Industrial Control ..... Student's Conf. Room*
2:00 p.m.—Joint Division Committee on Automation & Data Processing ..... Room 902
2:00 p.m.—T.V. & Aural Broadcasting ..... Salon M
2:00 p.m.—Transmission and Distribution ..... Salon K
2:00 p.m.—Publications ..... Salon F
4:00 p.m.—Wire Communications ..... Room 901

Friday, June 28

9:00 a.m.—Board of Directors ..... Salon B
12:00 noon—Induction Machinery Subcommittee ..... Salon F
2:00 p.m.—Board of Directors ..... Salon B
2:00 p.m.—Joint AIEE-IRE Dielectric Devices Subcommittee ..... Salon A

*Located at Sir George Williams College

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