

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS



FALL
GENERAL MEETING

Program

*Please retain for use during
entire meeting*

DETROIT, MICHIGAN

OCTOBER 15 - 20, 1961

Meeting Headquarters

STATLER-HILTON HOTEL



SCHEDULE OF EVENTS

- 2:00 p.m.** T & D Symposium—Advanced Line Design
System Planning & Economics
Induction Machinery
Computers
Communication Switching II
Neuron Physiology and Threshold Logics (SSCTLD)
Wire Communications
Substations Round Table

7:00 p.m. Trip to International Salt Co. Detroit Mine

7:30 p.m. Forum of Technical Committee Chairmen

THURSDAY, OCTOBER 19

8:45 a.m. Trip to Chrysler Corp. Plymouth Plant

- 9:00 a.m.** Feedback Control Systems
Fuel Cells
Rotating Machinery
Plasma Physics, Superconductivity and Space Hazards
T & D Symposium—Conductors
Safety
Panel Discussion on “Electrical Safety in Swimming Pools”
Transformers
Introduction to Speed—Independent Circuits (SSCTLD)

9:45 a.m. Ladies’ Tour to Canada

1:15 p.m. Trip to Phoenix Memorial Laboratory, University of Michigan

1:30 p.m. Trip to Detroit General Post Office

- 2:00 p.m.** Very High Temperature Sources and Converters
Transformers
Progress in Accelerators
Space Communication Systems
Excitation Systems
Samuel H. Caldwell Memorial Session: Finite Automata (SSCTLD)

8:00 p.m. Evening Party

8:30 p.m. Informal Evening Session: Open Problems in Switching Theory (SSCTLD)

FRIDAY, OCTOBER 20

- 9:00 a.m.** Logic Network Synthesis (SSCTLD)
Second Symposium on Butyl Rubber Wire and Cable Insulation
Industrial Control
Power Generation

2:00 p.m. Second Symposium on Butyl Rubber Wire and Cable Insulation
Proposed Graphical Symbols for Digital Computers (SSCTLD)

PAPERS MAY BE PURCHASED

Preprints of all *numbered* papers are on sale at 50¢ each to AIEE members (\$1.00 to nonmembers).

Papers bearing *Roman numerals* will be printed in the Transactions and the bimonthly publications as follows:

- I COMMUNICATION AND ELECTRONICS.
- II APPLICATIONS AND INDUSTRY.
- III POWER APPARATUS AND SYSTEMS.

**Asterisked papers* will be assigned numbers for sale at the same price at the meeting if copies are so provided by the authors; no further reproduction is presently scheduled.

After the meeting, all then unsold copies (including authors’ papers on sale) are available by order and remittance to AIEE Order Department, 345 East 47th Street, New York 17, N. Y. Coupon books in \$10 denominations are available by order from Headquarters to those who wish to avoid remittance by check or otherwise.

Monday, October 16

9:00 a.m.—Data Communication

Tuller Room, Tuller Hotel
Chairman: H. F. CALEY, Western Union Telegraph Co.
Data Communication Committee

- CP.* Simple Data Transmission Terminals. J. M. Wier, Bell Telephone Labs., Inc.
- CP.* A Multi-Frequency Data Set for Parallel Transmission Up to 20 Characters Per Second. B. R. Saltzberg, R. Sokoler; Bell Telephone Labs., Inc.
- CP.* An FM Data Set for Serial Transmission Up to 1600 Bits Per Second. S. T. Meyers, Bell Telephone Labs, Inc.
- CP.* PM Data Sets for Serial Transmission at 2000 and 2400 Bits Per Second. P. A. Baker, Bell Telephone Labs., Inc.
- CP.* An AM Vestigial Sideband Data Set Using Synchronous Detection for Serial Transmission Up to 3000 Bits Per Second. F. K. Becker, J. R. Davey, B. R. Saltzberg; Bell Telephone Labs., Inc.
- 61-1063. A 1650-Bit Per Second Data System for Use Over the I Switched Telephone Network. S. Brand (deceased) formerly with Bell Telephone Labs, Inc. and Lockheed Electronics Corp.; C. W. Carter (retired) formerly with Bell Telephone Labs., Inc. (Re-presented for Discussion only).
- 61-1020. A Buffer Store for Data Transmission. W. E. Baker, F. E. Froehlich; Bell Telephone Labs., Inc. (Re-presented for Discussion only).

9:00 a.m.—Industrial & Commercial Power Systems

Wayne Room, Statler-Hilton Hotel
Chairman: C. E. QUICK, Detroit Edison Co.
Industrial and Commercial Power Systems Committee

- CP.* Problems in Electric Service for a Large Cement Mill. R. F. Bergum, Detroit Edison Co.; J. A. Allan, St. Lawrence Cement Co.
- CP.* Characteristics of Loads in a Cement Plant. R. W. Sittner, General Electric Co.
- 61-1033. Proposed New Breaker Ratings and Their Effect on Application for Industrial Systems. A. H. Knable, Allis-Chalmers Mfg. Co.
- CP61-1047. How to Select Overcurrent Relay Characteristics. D. V. Fawcett, Canadian Westinghouse Co., Ltd.

MONDAY (continued)

9:00 a.m.—Transmission & Distribution

Ballroom, Statler-Hilton Hotel
 Chairman: J. T. LUSIGNAN, Ohio Brass Co.
Transmission and Distribution Committee

- CP61-1062. Bibliography on Wood Pole Transmission Lines. M. Darveniza, W. Wager; University of Queensland.
- 61-1043. Surge Impedance and Its Application to the Lightning Stroke. C. F. Wagner, A. R. Hileman; Westinghouse Electric Corp.
- 61-1036. Use of the A-C Network Analyzer and Electronic Differential Analyzer in the Study of Load-Frequency Control. G. G. Richardson, Bonneville Power Administration; T. C. Wang, Illinois Inst. of Technology.
- 61-1027. Radio Influence Testing on 70 Miles of 345 KV Horizontal Bundle Conductor. R. E. Graham, C. R. Bond; Ohio Edison Co.
- 61-1037. Pressure Type Connectors for Aluminum and Copper Conductors. N. Shackman, R. W. Thomas; I-T-E Circuit Breaker Co.

9:00 a.m.—Power System Communications

Skyroom, Tuller Hotel
 Chairman: H. J. FIEDLER, General Electric Co.
Power System Communications Committee

- 61-1011. Proposed Standard for Power System Communications III Apparatus. AIEE Equipment Design Standards Sub. #6 of Power System Communication Com., R. V. Rector, Chairman.
- 61-1010. Report of Methods of Measurements for the Application of III Power Line Carrier. AIEE Methods of Measurements Sub. of the Power System Communications Com., E. S. Kocsan, Chairman.
- CP.* A Static Approach to the Continuous Power Problem. J. A. Laukaitis, W. D. Modern, J. L. Fink, General Electric Co.
- CP.* Carrier Checkback Schemes for Unattended Substations. E. F. Statler, R. M. Reese, Pennsylvania Electric Co.

9:00 a.m.—Adaptive Communications

Michigan Room, Statler-Hilton Hotel
 Chairman: R. L. SHUEY, General Electric Co.
Communication Theory Committee

- CP.* Adaptive Communication Systems. G. S. Glinski, University of Ottawa.
- CP.* Adaptive Digital Communication for a Slowly Varying Channel. G. Lieberman, Radio Corp. of America.
- CP.* A Variable Rate Binary Communication System. N. G. Davies, W. L. Hatton; Canadian Defence Research Telecommunications Establishment.
- CP.* An Adaptive Communication System. C. V. Jakowatz, General Electric Research Lab.
- 61-1050. Coded Feedback Communication Systems. J. J. Metzner, I. K. C. Morgan; New York University Research Division (Re-presented for Discussion).
- 61-1096. Modulation and Signal Selection for Digital Data Systems. I. R. M. Lerner, Massachusetts Inst. of Technology (Re-presented for Discussion only).
- 61-1097. Binary Codes for Error Control. W. W. Peterson, University of Florida (Re-presented for Discussion only).

MONDAY (continued)

9:00 a.m.—Radio Communication

Park Room, Tuller Hotel
 Chairman: P. T. SPROUL, Bell Telephone Labs., Inc.
Radio Communication Systems Committee

- 61-1112. Digital Tropospheric Scatter. J. R. Poppe, A. J. Vadasz; General Electric Co.
- 61-1113. Santa Barbara County 6,000 MC Microwave System. R. K. I. Lentz, General Telephone Co. presented by D. H. Potter
- CP.* Concentric Ring Antenna Array. J. D. Tillman, G. W. Hoffman; University of Tennessee.
- CP61-1114. Radar Tracking Accuracy Improvement by Means of Pulse to Pulse Frequency Modulation. W. P. Birkemeier, University of Wisconsin; N. D. Wallace, Emerson Electric Co.
- CP61-1115. Active Doppler Acquisition Systems. C. H. Dawson, Philco Corp.
- 61-1048. A New Method of Space Exploration by Radar Using Incoherent Scattering. T. Laaspere, Dartmouth College, formerly with Cornell University. (Re-presented for Discussion only)

2:00 p.m.—General Session

Ballroom, Statler-Hilton Hotel
 M. C. WESTRATE, Presiding

Welcome: L. C. Mariani, Mayor of the City of Detroit; H. S. Mika, Chairman, The Michigan Section; A. W. Rauth, Vice President, The Eleventh District.

Guest Speaker: G. W. Romney, President, American Motors Corp. introduced by W. H. Frank, General Chairman.

Address: President W. H. Chase

Awards Presentation: S. Reid Warren, Jr., Chairman Recognition Awards Committee

1. **MEDAL IN ELECTRICAL ENGINEERING EDUCATION**—G. F. Corcoran, Professor and Chairman of Electrical Engineering, University of Maryland.
2. **WILLIAM M. HABIRSHAW AWARD**—Samuel B. Griscom, Advisory Engineer, Electrical Utility Engineering, Westinghouse Electric Corp.
3. **MORRIS E. LEEDS AWARD**—Theodore A. Rich, Consulting Engineer, General Engineering Laboratories, General Electric Co.
4. **MARVIN J. KELLY AWARD**—Harry Nyquist, Retired, Bell Telephone Laboratories.
5. **DAVID SARNOFF AWARD**—Charles H. Townes, Professor of Physics, Columbia University.

Tuesday, October 17

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

Tuller Room, Tuller Hotel
 Chairman: J. C. FRASER, General Electric Co.
Nucleonics and Electrical Insulation Committees

- CP.* Electrical Characteristics of Motional Pickup Transducers Under Combined Neutron and Gamma Irradiation. P. S. Olson, C. G. Collins, General Electric Co.
- CP.* Mapping of the Gamma Radiation Field of the General Engineering Laboratory 1 MEV Linear Accelerator by Use of Bausch and Lomb Silver Phosphate Glass Microdosimeter Rods. J. R. Coss, R. D. Downing; General Electric Co.
- CP.* Radiation Effects in Thermoelectrics I. The Effects of Ionizing Radiation on Commercial Grade Bismuth Telluride. J. W. Winslow, Jr., U. S. Naval Radiological Defense Laboratory.
- CP.* Transient Nuclear Radiation Effects on Electron Tubes and Transistors. R. G. Saelens, U. S. Army Research and Development Lab.

TUESDAY (continued)

9:00 a.m.—Symposium on Effect of Electric Arc Furnace Operation on Power Systems

Michigan Room, Statler-Hilton Hotel
Chairman: G. D. LAWRENCE, United States Steel Corp.
Chemical Industry Committee

CP61-1111. Effects of a Large Copper Melting Arc Furnace on an Electric Utility System. C. S. Crow, W. Saller, Public Service Electric & Gas Co.; F. D. Shaw, American Smelting & Refining Co.

9:00 a.m.—T & D Symposium—Line Electrical Features

Wayne Room, Statler-Hilton Hotel
Chairman: A. E. HILL, New England Power Service Co.
Transmission and Distribution Committee

CP61-1104 Basic Parameters in Determining the Insulation Requirements of Transmission Lines. J. M. Clayton, Westinghouse Electric Corp.

CP61-1099. Selection of Single and Bundle Conductors and Accessories for Acceptable Radio Noise Performance. L. O. Barthold, J. Kaminski, J. J. LaForest; General Electric Co.; H. E. House, Aluminum Co. of America.

61-1019. Safe Clearances and Protection Against Shocks During Live III Line Work. A. Elek, J. W. Simpson; The Hydro-Electric Power Commission of Ontario.

CP.* Questionnaire—Increasing Voltage of Existing Transmission Lines. R. H. Cumming, New England Power Service Co.

9:00 a.m.—Present Status of Fuel Cell Developments and Applications

Bagley Room, Statler-Hilton Hotel
Chairman: B. G. A. SKROTZKI, POWER, McGraw Hill Publishing Co., Inc.
Power Generation Committee

CP.* Fuel Cell Power. J. L. Platner, Allis-Chalmers Mfg. Co.

CP.* Status of Development and Future Prospects for the Ion-Exchange Membrane Fuel Cell. G. A. Phillips, General Electric Co.

CP.* Hydrogen-Oxygen Fuel Cell. D. M. Gage, Union Carbide Consumer Products Co.

CP61-1092. Fuel Cells and Utilities. J. D. Flynn, Cincinnati Gas and Electric Co.

9:00 a.m.—Data Communication

Park Room, Tuller Hotel
Chairman: R. M. KALB, Remington Rand Univac
Data Communication Committee

CP.* Four Phase Data System Evaluation by Digital Computer Simulation. M. A. Rapoport, Bell Telephone Labs., Inc.

61-1065. Two Measuring Techniques for the Investigation of Impulse Noise and Drop-Outs On Phone Lines. J. Kelley, J. Mercurio, D. Willard; The Mitre Corp.

CP.* Use of Orthonomial Functions for Encoding Against Non-Gaussian Noise Ambients. L. A. DeRosa, International Communications Systems.

CP61-1066. Transistorized 2 x 24 Channel Carrier Telegraph Equipment. K. Takahashi, T. Kishigami, Nippon Telegraph & Telephone Public Corp.; T. Matsuzaki, K. Sakurai, Nippon Electric Co., Ltd.

61-1023. Computer Simulation of the Use of Group Codes with Retransmission on a Gilbert Burst Channel. W. R. Cowell, H. O. Burton; Bell Telephone Labs., Inc. (Re-presented for Discussion only).

61-1012. Data System Tests Using Simulated Transmission Impairments. F. T. Andrews, Jr., Bell Telephone Labs., Inc. (Re-presented for Discussion only)

TUESDAY (continued)

2:00 p.m.—Chemical Industry

Skyroom, Tuller Hotel
Chairman: B. HUSOCK, Harco Corp.
Chemical Industry Committee

Corrosion in Action—International Nickel Co. (Film). Followed by Panel Discussion.

2:00 p.m.—T & D Symposium—Tower Structural Features

Wayne Room, Statler-Hilton Hotel
Chairman: F. A. JENKINS, Duke Power Co.
Transmission and Distribution Committee

CP61-1108. High Strength Steels for Tower Design. S. A. Wilson, Bethlehem Steel Co.

CP.* Higher Strength Steels Provide Design Flexibility. J. C. Pohlman, United States Steel Co.

CP61-1045. A Study of Use of Aluminum Towers for Extra High Voltage Transmission Systems. L. H. J. Cook, B. Cooper; International Power & Engineering Consultants Ltd.

CP61-1100. Guyed Mast High Voltage Transmission Structures. H. B. White, Aluminum Co. of Canada, Ltd.

CP61-1105. Development of Structure and Anchor Designs for Guyed "V" Type Towers. E. S. Zobel, American Electric Power Service Corp.

2:00 p.m.—Magnetohydrodynamic Electric Generation

Bagley Room, Statler-Hilton Hotel
Chairman: J. D. FLYNN, Cincinnati Gas and Electric Co.
Power Generation Committee

CP61-1091. The Direct Generation of Electric Power from a High-Velocity Gas Jet., D. J. Harris, University of Sheffield.

CP.* MHD Generation in a Central Station Power Plant. T. R. Brogan, Avco-Everett Research Lab.

CP.* Development of an MHD Generator. S. Way, Westinghouse Electric Corp.

2:00 p.m.—Basic Sciences

Tuller Room, Tuller Hotel
Chairman: W. D. ROWE, Sylvania Electric Corp.
Basic Sciences Committee

61-1051. Signal Flow Graph Theory for Linear Time Variable Systems. I E. B. Stear, A. R. Stubberud; University of California.

61-1053. Automatic Plotting of Characteristic Curves and Analogue I Solution of Algebraic Equations. D. Mitrovic, University of Belgrade.

CP.* An Analytic Approach to Root Locus. R. A. Walsh, Monsanto Chemical Co.

CP.* Subarea Determination of the Capacitance of a Square Coplanar Two-Plate Capacitor. B. L. Weinberg; T. J. Higgins, University of Wisconsin.

CP61-1052. Tunnel Diode Static Inverter. J. M. Marzolf, U. S. Naval Research Lab.

2:00 p.m.—Data Communication and Telegraph Systems

Park Room, Tuller Hotel
Chairman: J. B. BOOTH, American Tel. & Tel. Co.
Data Communication and Telegraph Systems Committees

61-1029 A New Billing and Collection System Using Teletypewriter I Techniques. E. W. Henches, New York Telephone Co.

CP61-1080. Videograph Communications Equipment. J. J. Stone, Jr., A. B. Dick Co.

TUESDAY (continued)

- CP.* Evaluation of Data Transmission and Coding on a Large Multiple Terminal Network. L. L. Corbett, M. Gordon, T. S. Stafford; IBM Corp.
- CP.* Recording and Visual Analysis of "Noise" Errors. A. E. Johanson, Bell Telephone Labs., Inc.
- CP.* Some Error Characteristics of a Data Communication System. R. L. Townsend, Bell Telephone Labs., Inc.
- CP.* Operation of a Large Multi-Point Network for Data. J. G. Glenn, Jr., American Tel. & Tel. Co.

2:00 p.m.—Symposium Switching Circuit Theory and Logical Design (SSCTLD)

Michigan Room, Statler-Hilton Hotel

Chairmen: R. S. LEDLEY, National Biomedical Research Foundation
T. H. MOTT, R. Lockheed Electronics Co.
Computing Devices Committee

PART I—KEYNOTE SESSION

Welcome Address—R. S. Ledley, National Biomedical Research Foundation Inc.

Opening Remarks—T. H. Mott, Jr., Lockheed Electronics Co.

Invited Address—H. Aitken, Harvard University.

PART II—MINIMIZATION OF BOOLEAN FUNCTIONS

- CP.* An Application of Linear Programming to the Minimization of Boolean Functions. A. Cobham, R. Fridshal, J. H. North; IBM Corp.
- CP.* Minimal Sums for Boolean Functions Having Many Unspecified Fundamental Products. E. J. McCluskey, Jr., Princeton University.
- CP.* Use of a List Processing Language in Programming Simplification Procedures. S. R. Petrick, Electronics Research Directorate.

Wednesday, October 18

9:00 a.m.—Power Station Control

Wayne Room, Statler-Hilton Hotel

Chairman: G. H. McDANIEL, American Electric Power Service Corp.
Power Generation Committee

- 61-1032. Control System Design for Generating Stations. J. G. Noest, III G. S. Storms; Consolidated Edison Co. of New York, Inc.
- CP61-1107. Industrial Control Application in Steam Electric Generating Stations. M. P. Smull; Southern Services, Inc.
- CP.* Control Power Sources in Electric Generating Stations. R. B. Miller, M. P. Roller; Iowa-Illinois Gas & Electric Co.

9:00 a.m.—T & D Symposium—Tower Foundations

Skyroom, Tuller Hotel

Chairman: J. A. RAWLS, Virginia Electric and Power Co.
Transmission and Distribution Committee

- CP61-1044. Installation of Machine Drilled Caisson Footings in Non-Cohesive Soils. J. C. Engimann, W. J. Fern; Commonwealth Edison Co.
- CP61-1095. Special Transmission Tower Foundations. A. A. Ferlito, A. V. Price; Ebasco Services, Inc.
- CP.* New Types of Footings for Transmission Line Structures. F. W. Farr, A. A. Osipovich, Bonneville Power Administration.
- CP61-1083. The Anchorage of Transmission Tower Foundations. M. Markowsky, N. J. McMurtrie; Hydro-Electric Power Commission of Ontario.

WEDNESDAY (continued)

9:00 a.m.—System Operation and Study

Ballroom, Statler-Hilton Hotel

Chairman: A. H. WILLENNAR, American Electric Power Service Corp.
System Engineering Committee

- CP61-1054. The Load Flow Problem—Its Formulation and Solution—Part I. A. H. El-Abiad, Purdue University; M. Watson, G. W. Stagg; American Electric Power Service Corp.
- 61-1055. Hydro-Thermal Economic Scheduling: Part IV—A Continuous Procedure for Maximizing the Weighted Output of a Hydro-Electric Generating Station. B. Bernholtz, L. J. Graham; The Hydro-Electric Power Commission of Ontario.
- CP61-1056. Input and Output Techniques for an On-Line Digital Computer. W. G. Beyer, W. B. Schultz, J. W. Hissey, Leeds and Northrup Co.
- CP61-1103. Use and Availability of Outage Records in the Planning of System Generating Plant Additions. H. A. Adler, Commonwealth Edison Co. E. H. Loane, General Public Utilities Corp.

9:00 a.m.—Substations Round Table

Tuller Room, Tuller Hotel

Chairman: J. B. OLIVER, Detroit Edison Co.
Substations Committee

- CP.* Electrical Features of Niagara Switchyard. L. M. Berry, Chas. T. Main, Inc.
- Installation Systems for Outdoor Control Cables. L. F. Martin NEAR (National Emergency Alarm Repeater). D. B. Masters Transformer Enclosures for Noise Reduction. E. H. Wendt Galloping Phenomenon of a Large Conductor. L. M. Berry Extra High Voltage Stations—One Line Diagrams. J. D. M. Phelps
- Mobile Substations (Procedures and facilities for placing in service). E. A. Thompson
- Digital Recording Equipment for Substation Metering Advantages and Disadvantages. W. A. Derr

9:00 a.m.—Semiconductor Rectifiers

Bagley Room, Statler-Hilton Hotel

Chairman: L. W. BURTON, General Electric Co.
Semiconductor Rectifiers Committee

- 61-1076. Definitions for Semiconductor Rectifier Components. AIEE I Rectifier Device Group of the Semiconductor Rectifier Com., J. R. Thurell, Chairman.
- CP61-1075. Semiconductor Rectifier Overload Ratings. J. S. Read, E. E. Von Zastrow; General Electric Co.
- CP61-1089. Proposed Test Standards for Semiconductor Rectifier Cells, Rectifier Diodes and Rectifier Stacks. AIEE Rectifier Device Test Group of the Semiconductor Rectifier Com., R. D. Lynch, Chairman.
- CP.* Commutation Voltage Transients in Polyphase Semiconductor Rectifier Circuits. N. A. Forbes, R. C. Whigham; Westinghouse Electric Corp.
- CP.* Design, Production and Quality Requirements of Silicon Rectifier Diodes for Automotive Applications. R. D. Lynch, L. F. Jones; Westinghouse Electric Corp.

9:00 a.m.—Communications Switching I

Gothic Room, Tuller Hotel

Chairman: F. D. REESE, Automatic Electric Labs.
Communication Switching Systems Committee

- CP61-1039. Economics of Exchange Lines Concentrators. J. R. Kershaw, Michigan Bell Telephone Co.

WEDNESDAY (continued)

- CP61-1040. Traffic Considerations in the Use of Exchange Line Concentrators. W. J. Blyth, Michigan Bell Telephone Co.
- CP61-1041. The New Line Concentrator IA. W. Whitney, Bell Telephone Labs, Inc.
- CP61-1093. Field Experience with a Wire Spring Crossbar Concentrator. R. P. Ebisch, General Telephone Co. of Pennsylvania; J. S. Belcher, Leich Electric Co.
- 61-817. The Relative Merits of Time Division Multiplex Versus Space I Division as a Mode of Operation for Electronic Telephone Exchanges. J. G. Pearce, General Dynamics/Electronics (Re-presented for Discussion only).

9:00 a.m.—Wire Communications

Park Room, Tuller Hotel

Chairman: B. P. Nicholls, Northern Electric Co., Ltd.

Wire Communications Committee

- 61-1069. A Tone Disabler for Bell System IA Echo Suppressors. L. I F. Bugbee, Jr., Bell Telephone Labs., Inc.
- 61-1046. A Stitched Wiring Process for Miniaturized Communications I Electronics. J. M. Coffin, L. B. Johnson; Lenkurt Electric Co., Inc.
- CP61-1070. The NX1 Exchange Trunk Carrier System. T. G. Fellows, A. Curran; Northern Electric Co., Ltd.
- CP61-1071. The Application of Carrier Systems to Exchange Trunk Plant in Canada. A. Curran, T. G. Fellows; Northern Electric Co., Ltd.
- CP61-1101. Deviation Equalizer for "N" Carrier Lines. M. Aruck, Bell Telephone Labs., Inc.

9:00 a.m.—Threshold Logic Design (SSCTLD)

Michigan Room, Statler-Hilton Hotel

Chairman: C. C. ELGOT, IBM Research Center

Computing Devices Committee

- CP.* Threshold Logic and Two-Person Zero-Sum Games. S. B. Akers, Jr., General Electric Co.
- CP.* On the Characterization of Threshold Functions. C. K. Chow, Burroughs Corp.
- CP.* Functional Forms of Majority Functions and a Necessary and Sufficient Condition for their Realizability. S. Muroga, IBM Research Center.
- CP.* The Profile Technique for the Design of Threshold Device Logic. O. B. Stram, Burroughs Corp.
- CP.* More About Threshold Logic. R. O. Winder, RCA Labs.

2:00 p.m.—T & D Symposium—Advanced Line Design

Skyroom, Tuller Hotel

Chairman: N. J. McMURTRIE, Hydro-Electric Power Commission of Ontario

Transmission and Distribution Committee

- CP61-1102. Transmission Lines on Restricted Rights of Way. A. H. Anderson, M. Markowsky; Hydro-Electric Power Commission of Ontario.
- CP61-1106. Reconductoring Transmission Lines. J. R. Steiner, Cleveland Electric Illuminating Co.
- CP61-1090. Conductor Vibration—A Study of Field Experience. C. B. Rawlins, K. R. Greathouse, R. E. Larson, Aluminum Co. of America.
- 61-1026. The Importance of Fretting in Vibration Failures of Stranded III Conductors. W. G. Fricke, Jr., C. B. Rawlins; Alcoa Research Labs.

WEDNESDAY (continued)

2:00 p.m.—System Planning and Economics

Ballroom, Statler-Hilton Hotel

Chairman: J. H. RIXSE, JR., Rural Electrification Administration

System Engineering Committee

- 61-798. Improving Transient Stability by Use of Dynamic Braking—III Part I. W. H. Croft, R. H. Hartley; Arizona Public Service Co. (Re-presented for Discussion only).
- CP61-1059. Improving Transient Stability by Use of Dynamic Braking—Part II. W. H. Croft, R. H. Hartley; Arizona Public Service Co.
- 61-1025. Determination of an Optimized Generator Expansion Pattern. R. J. Fitzpatrick, J. W. Gallagher, Philadelphia Electric Co.
- CP61-1057. The Break-Even Cost of Peaking Capacity. F. M. Heck, Jr., C. Morrison; The Potomac Edison Co.
- 61-1014. A Further Look At Cost of Losses. C. J. Baldwin, Westinghouse Electric Corp.; C. H. Hoffman, P. H. Jeynes, Public Service Electric & Gas Co.

2:00 p.m.—Induction Machinery

Wayne Room, Statler-Hilton Hotel

Chairman: R. F. HORRELL, Electric Machinery Mfg. Co.

Rotating Machinery Committee

- 61-1094. The Theory of the Induction Machine With Conducting III Sleeve Rotor. E. C. Guilford, University of Washington.
- 61-1013. The Polyphase Induction Motor with Solid Rotor Effects of III Saturation and Finite Length. G. Angst, General Electric Co.
- 61-1038. Generalized Temperature Standards for A-C Motors. C. G. III Veinott, Reliance Electric and Engineering Co.
- CP61-1067. Analogue for Canned Motor Temperature Analysis. G. W. Penney, Carnegie Inst. of Technology; C. I. Thomson; Westinghouse Electric Corp.
- CP61-1030. Application of General Equations of Induced Voltage and Armature Reaction—Part I: Performance of an Induction Machine. H. H. Hwang, Essex College, Assumption University of Windsor.
- 61-221. Transient Torques in 3-Phase Induction Motors During Switching Operations. M. R. Chidambara, S. Ganapathy; Indian Inst. of Science (Re-presented for Discussion only).

2:00 p.m.—Computers

Bagley Room, Statler-Hilton Hotel

Chairman: G. L. HOLLANDER, G. L. Hollander Associates

Computing Devices Committee

- CP.* Production of Large and Variable Size Logic Block Diagrams on a High-Speed Digital Computer. D. A. Aaronson, C. J. Kinnaman; Bell Telephone Labs., Inc.
- 61-1060. Analog Simulation of Digital Computer Programs. R. Saucedo, Westinghouse Electric Corp.; T. W. Sze, University of Pittsburgh.
- CP61-1087. Shaft Multiplication Precision Angle Encoder. D. A. Brouillette, Datex Corp.

2:00 p.m.—Communications Switching II

Gothic Room, Tuller Hotel

Chairman: H. F. MAY, Bell Telephone Labs., Inc.

Communication Switching Systems Committee

- CP61-1034. An Electronically-Controlled Crossbar Switching System. R. W. S. Kinsey (deceased), formerly with Associated Electrical Industries (Woolwich) Ltd.; J. E. Flood, Associated Electrical Industries (Woolwich) Ltd. presented by A. E. Joel, Bell Telephone Labs., Inc.

WEDNESDAY (continued)

- CP61-1109. Traffic Handling Possibilities with a Progressive Marking, Self Pathfinding Solid-State Crosspoint Network. J. Draayer, A. Wachowski; Automatic Electric Labs., Inc.
- CP.* Experience with the Morris Electronic Switching System. B. J. Yokelson, G. Haug; Bell Telephone Labs., Inc.
- CP.* Transmission Circuits for a Time Separation Electronic Switching System. H. S. Feder, Bell Telephone Labs., Inc.
- CP61-1042. Small Crossbar CDO's. J. W. Gaiser, North Electric Co.

2:00 p.m.—Neuron Physiology and Threshold Logics (SSCTLD)

Michigan Room, Statler-Hilton Hotel

Chairman: R. S. LEDLEY, National Biomedical Research Foundation
Computing Devices Committee

- CP.* The Integrative Properties of Neurons. D. Kennedy, Stanford University.
- CP.* Mathematical Models of Neurone Interaction. H. D. Landahl, The University of Chicago.
- CP.* Multivalued Logic Devices for Simulating Threshold Neurons. D. R. Boyle, R. S. Ledley; National Biomedical Research Foundation.
- CP.* Many Valued Logics and Reliable Homeostatic Processes. J. D. Cowan, Massachusetts Inst. of Technology.

2:00 p.m.—Wire Communications

Park Room, Tuller Hotel

Chairman: J. C. LEFFEL, Michigan Bell Telephone Co.
Wire Communication Systems Committee

- CP61-1086. Experience and Results Observed with DDD Transmission Design in Interconnection with the DDD Network. D. H. Potter, General Telephone Co. of California.
- CP.* A New Transmission Test Set for Exchange Type Trunks. E. H. B. Bartelink, Northeast Electronics Corp.
- 61-1072. The Level Tracer, An Instrument for Time Saving and Better I Measurement in the Speech Band. M. Niedereder, Siemens and Halske AG; B. T. Sanders Jr., Sanders and Associates, Inc.
- CP.* An Accurate Voice Frequency Level Calibrating Set for Field Use. W. I. Cochran, Bell Telephone Labs., Inc.
- CP.* A Stable 1000-Cycle Tone Generator. J. J. Kokinda, P. J. Kaltenborn; Bell Telephone Labs., Inc.

2:00 p.m.—Substations Round Table

Tuller Room, Tuller Hotel

Chairman: J. B. OLIVER, Detroit Edison Co.
Substations Committee

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

Wayne Room, Statler-Hilton Hotel

Thursday, October 19

9:00 a.m.—Feedback Control Systems

Bagley Room, Statler-Hilton Hotel

Chairman: E. C. JOHNSON, Bendix Aviation Corp.
Feedback Control Systems Committee

- 61-1081. Self-Adaptive Systems with Variable-Parameter PID Control-II. Y. Kaya, S. Yamamura; University of Tokyo.
- CP.* An Exact Analysis of Sampled-Data Systems with Finite Sampling Time. G. W. Howard, Sandia Corp.; T. J. Higgins, University of Wisconsin.

THURSDAY (continued)

- CP61-1084. A New Approach to the Evaluation and Interpretation of Describing Functions. Y. H. Ku, Univ. of Pennsylvania; C. F. Chen, Univ. of Pennsylvania and Christian Brothers College.

9:00 a.m.—Fuel Cells

Tuller Room, Tuller Hotel

Chairman: C. JOHNSON, Carrier Research and Development Co.
Electronics Committee

- CP.* Theoretical and Practical Aspects of Fuel Cells. P. Elving, C. L. Rulff; University of Michigan.
- CP.* Ion-Exchange Fuel Cell Battery. L. E. Chapman, General Electric Co.
- CP.* The Utilization of Hydrocarbons in Fuel Cells. Y. L. Sandler, Westinghouse Research Labs.

9:00 a.m.—Rotating Machinery

Gothic Room, Tuller Hotel

Chairman: W. L. RINGLAND, Allis-Chalmers Mfg. Co.
Rotating Machinery Committee

- CP61-1022. Circuit Analysis of Single-Phase Induction Motor Theories. R. E. Bedford, Indian Institute of Technology.
- 61-1028. Stability Limits of Synchronous Motors During Power III System Disturbances. L. Hannakam, Allgemeine Elektrizitaetsgesellschaft; C. Concordia, General Electric Co.
- 61-1068. Single Phase Two-Valued Capacitor Motor Relay Selection. III D. L. Trower, (Formerly with Univ. of Cincinnati), C. Evert; University of Cincinnati.
- 61-1024. Magnetic Field of a Rectangular Commutating Pole. A. I. III Dvoracek, Reliance Electric and Engineering Co.
- CP61-1110. Formette Testing of Armature Coil Insulation for Large D-C Machines. J. S. David, G. D. McClary; General Electric Co.

9:00 a.m.—Plasma Physics, Superconductivity and Space Hazards

Skyroom, Tuller Hotel

Chairman: R. S. LIVINGSTON, Oak Ridge National Laboratory
Nucleonics Committee

- CP.* Current Status of Fusion Research. R. G. Mills, Princeton University.
- CP.* Recent Developments in Superconducting Power Devices. R. McFee, Syracuse University.
- CP.* Radiation Hazards in Space. T. Foelsche, National Aeronautics and Space Administration.

9:00 a.m.—T & D Symposium—Conductors

Wayne Room, Statler-Hilton Hotel

Chairman: H. E. HOUSE, Aluminum Co. of America
Transmission and Distribution Committee

- CP.* Bibliography on Bundled Conductors. D. H. Sandell, Aluminum Co. of America, A. N. Shealy, Kaiser Aluminum & Chemical Corp.; H. B. White, Aluminum Co. of Canada.
- 61-1035. A Review of NESC Wind Load Requirements with Relation III to Conductor Diameter. R. L. Retallack, American Electric Power Service Corp.
- CP61-1085. Tower Design Loadings and Broken Wire Assumptions. N. J. McMurtrie, Hydro-Electric Power Commission of Ontario.
- CP.* Field Testing of Tower for Broken Conductor Impact Load. E. S. Zoble, J. W. Steffoff, R. L. Swart; American Electric Power Service Corp.

THURSDAY (continued)

9:00 a.m.—Safety

Ballroom, Statler-Hilton Hotel
 Chairman: H. B. WHITAKER, Underwriters' Labs., Inc.
Safety Committee

- CP.* Underwriters' Laboratories, Inc. Fact-Finding Investigation on Two vs. Three Running Overcurrent Units for the Protection of Three-Phase Motors. R. H. Yerke, Underwriters' Laboratories, Inc.

Panel Discussion on "Electrical Safety in Swimming Pools"

Moderator: H. B. Whitaker, Underwriters' Laboratories, Inc.

- CP.* The Problem as it Relates to the National Electrical Code. H. H. Watson, General Electric Co.
 CP.* The Problem from the Point of View of the Manufacturers and Installers of Swimming Pools. D. L. Doughty, Orinda Pools, Inc. and National Swimming Institute.
 CP.* The Lighting Problem. W. P. Lowell, Jr., Sylvania Electric Products, Inc.
 CP61-1088. Shock Hazard in Swimming Pools from Submerged 120 Volt Lighting. W. P. Taylor, R. J. Arthur, Sr.; Baltimore Gas & Electric Co.
 CP.* A Possible Solution. L. S. Inskip, Bell Telephone Labs., Inc.

9:00 a.m.—Transformers

Park Room, Tuller Hotel
 Chairman: C. H. BJORQUIST, Bonneville Power Administration
Transformers Committee

- 61-1073. The Leakage Reactance of a Ring-Type Transformer. P. P. III Yeh, Newark College of Engineering.
 61-1074. Reactance and Kilowatt Losses of Multi-Circuit Transformers. III M. W. Waterman; Allis-Chalmers Mfg. Co.

9:00 a.m.—Introduction to Speed—Independent Circuits (SSCTLD)

Michigan Room, Statler-Hilton Hotel
 Chairman: S. MUROGA, IBM Research Center
Computing Devices Committee

- CP.* An Introduction to Speed Independent Circuit Theory. R. E. Miller, IBM Research Center.
 CP.* One Method for Designing Speed Independent Logic for a Control. R. E. Swartwout, University of Illinois.
 CP.* Problems in the Physical Realization of Speed Independent Circuits. J. E. Robertson, University of Illinois.
 CP.* A Flow Chart Notation for the Description of a Speed Independent Control. D. B. Gillies, University of Illinois.

2:00 p.m.—Very High Temperature Sources and Converters

Tuller Room, Tuller Hotel
 Chairman: R. C. SHAIR, Culton Industries, Inc.
Electronics Committee

- CP.* The Present Feasibility Picture for Fusion Power Generation with Mirror Machines. R. Post, University of California.
 61-1078. Electrical and Pressure Losses in a Magneto-hydrodynamic Channel Due to End Current Loops. G. W. Sutton, H. Hurwitz, Jr., H. Poritsky; General Electric Co.
 CP.* Calculation of the Steady-State Performance of a Solar Powered Vacuum Thermionic Generator. D. L. Dresser, D. R. Zimmerman; General Motors Corp.

THURSDAY (continued)

2:00 p.m.—Transformers

Park Room, Tuller Hotel
 Chairman: C. H. BJORQUIST, Bonneville Power Administration
Transformers Committee

- CP.* Electrical Characteristics of Wire Enamels as Affected by Temperature and Various Environmental Conditions in Transformer Oil. M. F. Beavers, G. F. Lipsey; General Electric Co.
 CP.* A New Transformer Insulation. B. D. Brummet, F. S. Sadler; Thomas A. Edison Research Lab.—Division of McGraw-Edison Co.

2:00 p.m.—Progress in Accelerators

Wayne Room, Statler-Hilton Hotel
 Chairman: R. LIVINGSTON, Oak Ridge National Laboratory
 Co-Chairman: J. P. BLEWETT, Brookhaven National Laboratory
Nucleonics Committee

- CP.* Developments in High-Intensity Multi-Bev Accelerators. A. V. Crewe, Argonne National Laboratory.
 CP.* The New Generation of Medium Energy Cyclotrons. K. R. MacKenzie, University of California.
 CP.* Development of High-Intensity Pion-Producing Accelerators. J. A. Martin, Oak Ridge National Laboratory.
 CP.* Developments in Ultra-High Energy Accelerators. J. P. Blewett, Brookhaven National Laboratory.

2:00 p.m.—Space Communication Systems

Bagley Room, Statler-Hilton Hotel
 Chairman: J. G. BARRY, Massachusetts Inst. of Technology
Space Communication Committee

- CP.* Application of Solid State Devices to Space Telemetry. W. B. Allen, Hughes Aircraft Co.
 CP.* The Planning of Commercial Satellite Communication Systems. J. L. Glaser, Bell Telephone Labs., Inc.
 CP.* Thermoelectric Cooling of Semiconductor Components. R. Marlow, R. M. Carey; Texas Instruments, Inc.

2:00 p.m.—Excitation Systems

Ballroom, Statler-Hilton Hotel
 Chairman: L. A. KILGORE, Westinghouse Electric Corp.
Power Generation Committee

- 61-1021. Retirement Problems in Generation Expansion Planning. C. J. III Baldwin, Westinghouse Electric Corp.; C. H. Hoffman, P. H. Jaynes, Public Service Electric & Gas Co.
 61-1015. Analogue Computer Production Testing of Electric Utility Voltage Regulators. G. S. Chambers, L. J. Lane, A. S. Rubenstein; General Electric Co.
 61-1017. A Static Excitation System for Industrial and Utility Steam Turbine-Generators. L. M. Domeratzky, A. S. Rubenstein, M. Temoshok; General Electric Co.
 61-1018. Design and Tests of a Static Excitation System for Industrial and Utility Steam Turbine-Generators. L. J. Lane, D. F. Rogers, P. A. Vance; General Electric Co.

THURSDAY (continued)

- 2:00 p.m.—Samuel H. Caldwell Memorial Session:
Finite Automata (SSCTLD)**
Michigan Room, Statler-Hilton Hotel
Chairman: E. J. McCLUSKEY, JR., Princeton University
Computing Devices Committee
- CP.* S. H. Caldwell, 1904-1960. E. J. McCluskey, Jr., Princeton University.
- CP.* Transient Behavior in Iterative Combinational Switching Network. W. L. Kilmer, Montana State College.
- CP.* Operations on Finite Automata. C. C. Elgot; J. D. Rutledge. IBM Research Center.
- CP.* Delayed Logical Finite State Machines. D. Arden, Massachusetts Inst. of Technology.
- CP.* Techniques of the Diagnosis of Switching Circuit Failures. J. M. Galey, R. E. Norby, J. P. Roth; IBM Corp.

- 8:30 p.m.—Informal Evening Session:
Open Problems in Switching Theory (SSCTLD)**
Bagley Room, Statler-Hilton Hotel
Chairman: C. C. ELGOT, IBM Research Center
Computing Devices Committee

Friday, October 20

- 9:00 a.m.—Logic Network Synthesis (SSCTLD)**
Michigan Room, Statler-Hilton Hotel
Chairman: J. P. RUNYON, Bell Telephone Labs., Inc.
Computing Devices Committee
- CP.* Canonical Forms of Functions in P-Valued Logics. M. Cohn, Sperry Rand Research Center.
- CP.* Boolean 2-Terminal Synthesis Based on Incidence Matrices. S. Okada, K. P. Rajappan; Stromberg Carlson Co.
- CP.* A Computer Program for the Synthesis of Combinational Switching Circuits. R. M. Karp, F. E. McFarlin, J. P. Roth, J. R. Wilts; IBM General Products Division.
- CP.* Automatic Fault Detection in Combinational Switching Networks. W. H. Kautz, Stanford Research Inst.

- 9:00 a.m.—Second Symposium on Butyl Rubber Wire and Cable Insulations**
Ballroom, Statler-Hilton Hotel
Chairman: E. J. MERRELL, Phelps Dodge Copper Products Corp.
Insulated Conductors Committee
- CP.* Electrical Characteristics of Butyl Rubber Insulations at 125°C. N. D. Kenney, T. N. Metropolis, W. L. Seamonds; Simplex Wire and Cable Co.
- CP.* Continued Evaluation of Butyl Rubber Insulated Cables. J. R. Maher, J. C. Carroll; General Electric Co.
- CP.* Some Aspects of the Dielectric Strength of Butyl Rubber Insulated Cables. W. A. Beasley; Anaconda Wire and Cable Co.
- CP.* Butyl Rubber Network Cables for 260° C Limiter Operation. R. H. Carlson; American Steel & Wire Co.

- 9:00 a.m.—Industrial Control**
Wayne Room, Statler-Hilton Hotel
Chairman: A. H. MYLES, Square D Company
Industrial Control Committee
- 61-1082. Shading Coil Magnet of New Design. H. J. Kubiak, University of Wisconsin; L. H. Matthias, Allen-Bradley Co.

FRIDAY (continued)

- 61-650. Characteristics of A Synchronous Induction Motor. A. E. Snow-II, E. W. Madsen; Superior Electric Co.
- CP61-1058. Design Development for Safer Press Controls. E. F. Drake, The Clark Controller Co.
- CP.* The Roof Drive System for the Pittsburgh Public Auditorium. A. J. Baeslack, J. G. Peterson, Jr., Westinghouse Electric Corp.; I. Braunstein, E. Cohen, Ammann & Whitney.
- 9:00 a.m.—Power Generation**
Tuller Room, Tuller Hotel
Chairman: L. A. KILGORE, Westinghouse Electric Corp.
Power Generation Committee
- CP.* EHV System Overvoltages Following Load Rejection of Hydraulic Generators. P. L. Dandeno, K. R. McClymont; Hydro-Electric Power Commission of Ontario.
- CP.* Analogue Computer Studies of System Overvoltages Following Load Rejections. F. P. deMello, A. C. Dolbec, D. Swann, M. Temoshok; General Electric Co.
- 61-1016. Recent Developments in Amplidyne Regulator Excitation Systems for Large Generators. G. S. Chambers, A. S. Rubenstein, M. Temoshok; General Electric Co.

- 2:00 p.m.—Second Symposium on Butyl Rubber Wire & Cable Insulation**
Wayne Room, Statler-Hilton Hotel
Chairman: E. J. MERRELL
Insulated Conductors Committee
- CP.* Development of Butyl Rubber Insulated Airport Lighting Cables. R. C. Graham, S. R. Lynch; Rome Cable Co.
- CP.* Design and Manufacture of Butyl Rubber Insulated Dredge Cables. P. Gibbon, J. Campbell; Northern Electric Co.
- CP61-1098. Survey on the Use of Butyl Rubber Insulated Cable. L. D. Cronin, Ebasco Services, Inc.; R. E. Hoy, Enjay Chemical Co.; J. E. Johnson, Philadelphia Electric Co.

- 2:00 p.m.—Proposed Graphical Symbols for Digital Computers (SSCTLD)**
Michigan Room, Statler-Hilton Hotel
Chairman: R. J. PREISS, IBM Corp.
Computing Devices Committee
- CP.* History of Logic Diagramming Standardization and Status Report on ASA-Y32.14—Graphical Symbols for Logic Diagrams. T. H. Mott, Jr.; Lockheed Electronics Co.
- CP.* ASA-Y32.14 Proposals for an American Standard. A. L. Reiche, Remington Rand UNIVAC.
- CP.* Report of Symbolology Task Force of AIEE Computer Standards Subcommittee. R. C. Boden, IBM Corp.
- CP.* Report on a Symbols Usage and Preference Survey of the AIEE Computing Devices Committee. R. M. Kalb, Remington Rand UNIVAC.
- CP.* A Readability Comparison of Two Proposed Logic Symbol Types in an Equipment-Oriented Problem Solving Environment. J. D. Baker, A. J. Whitehurst; AFESD.
- CP.* A Study of Two Proposed Logic Symbol Systems for Recognition and Function-Association Characteristics. G. W. Allen, IBM Federal Systems Division.

INSPECTION TRIPS

Many varied and informative trips have been planned for the AIEE members attending this Fall General Meeting.

The Ford Motor Company, Rouge Plant—Monday, October 16, 1961, 8:30 a.m. to 12:00 noon: The Ford Motor Company's two square-mile industrial complex on the banks of the Rouge River in Dearborn, Michigan, represents the largest concentration of closely-knit integrated factories owned by one company in America.

Ford's fleet of ore boats bring in nearly 5,000,000 tons of iron ore, coal, limestone and other raw materials every year to serve blast furnaces, steel mills, foundries, pressed steel operations, engine-producing facilities, final assembly and other operations. The Rouge plant generates its own electricity, manufactures its own coke, oxygen and nitrogen for blast furnaces and steel mill operations. Approximate cost of trip—\$2.00.

General Motors Corporation Technical Center—Tuesday, October 17, 1961, 8:45 a.m. to 12:00 noon: The General Motors Technical Center located on a mile square area northeast of Detroit serves as the Corporation's center for the promotion of science, the mechanical arts and styling. The Center has often been described as the location "Where Today Meets Tomorrow."

Some 28 buildings of ultra-modern design and equipped with the latest physical facilities serve as the work location for 20,000 technical people engaged in Research, Styling, Engineering and Manufacturing Development of General Motors products. Approximate cost of trip—\$2.00.

Michigan Bell Telephone Data Processing Center—Tuesday, October 17, 1961, 1:30 p.m. to 4:30 p.m.: The Michigan Bell Telephone Company's Data Processing Center—one of the largest such centers in service—includes a solid state 7070 computer which serves as the backbone facility. 1401 "captive" systems "ready" the input and handle output of this large computer.

Processing products include everyday items such as payroll, customer billing, reports, etc. and "future" items such as the rating of 2,500,000 long distance messages per month for 700,000 customers and the machine assignment of facilities for most customers' service orders in three of Detroit's twenty wire centers. Other wire centers are being added as fast as programming permits. Cost is \$2.00.

The National Bank of Detroit—Wednesday, October 18, 1961, 9:30 a.m. to 12:00 noon: Located adjacent to Detroit's Civic Center is the glittering white marble and stainless steel 14-story structure of contemporary design which is the main office of Michigan's largest bank—the National Bank of Detroit.

Visitors will see many unique electronic features including a monitoring and control console from which one man can control most of the mechanical services of the building including 83 controls, 129 monitoring indicators and 19 alarm signals—almost everything from starting and stopping 54 different motors to air conditioning and pneumatic tube system controls and melting snow on the walks.

Other items of interest include a comprehensive data processing system which prepares statements and performs most of the other routines associated with the millions of checks written by their quarter million checking-account customers. No cost for trip.

Greenfield Village and the Henry Ford Museum—Wednesday, October 18, 1961, 9:30 a.m. to 4:30 p.m.: While no formal inspection trip to these interesting facilities have been planned, the men are invited to join the ladies in traveling to Greenfield Village. Transportation is available for a limited number who may wish to avail themselves of this opportunity to go back in electrical history. These facilities are open to the public the year round. Lunch may be purchased, by the men, on the grounds in the Garden Terrace or nearby at the Dearborn Inn.

Transportation only—Approximate cost—\$2.00.

Enrico Fermi Atomic Power Plant—Wednesday, October 18, 1961, 1:00 p.m. to 5:00 p.m.: The world's largest "breeder-type" power reactor installation, the Enrico Fermi Atomic Power Plant, located on the Lake Erie shoreline just north of Monroe, Michigan, has been under construction since August, 1956, and is scheduled for completion this year.

This atomic power plant will generate 100,000 KW of energy.

The "fast breeder" type characteristic of the atomic plant will enable the production of about 20 per cent more fuel (in the form of plutonium, Pu-239) than is consumed in the form of fissionable uranium, U-235. Approximate cost of trip—\$3.00.

International Salt Company, Detroit Mine—Wednesday, October 18, 1961, 7:00 p.m. to 10:30 p.m.: A large portion of the city of Detroit rests atop one of the greatest concentrations of rock salt anywhere. The salt bed, millions of years old, varies in thickness up to 2000 feet. The Detroit Mine of International Salt Company is located in the southwestern portion of the city extending over an area of 300 acres at a depth of 1137 feet.

The salt is mined in the "Room and Pillar" system, similar to coal mining—that is rooms of salt 50 to 60 feet wide and 22 feet in height are excavated leaving blocks of salt 50 to 60 feet wide to serve as roof supports. This method of mining leaves a checkerboard pattern like the plan of a city. A maze of electric drills, shovels, crushers and conveyors removes the salt to be cleaned, screened and stored.

We are most fortunate to be able to offer this unusual trip. This trip is also limited to men only and is available for just 80 men. Approximate cost of this trip is \$2.00.

Chrysler Corporation, Lynch Road Plymouth Plant—Thursday, October 19, 1961, 8:45 a.m. to 11:30 a.m.: Twenty-eight acres under one roof—this is the Detroit Plymouth Assembly Plant—which represents the largest volume production plant in the automobile industry.

Visitors will see Plymouth automobiles assembled from the frame with Unibody construction, which forms the foundation, through final inspection on an assembly line 18,272 feet long where 737 different operations are performed to build as many as 68 cars per hour.

This plant was modernized in 1960 to meet engineering advance requirements. Today electronics play a major role in scheduling, parts movement and production control—they insure that the right parts and the right colors are available at the right time on the assembly lines.

Approximate cost of this trip is \$2.00.

University of Michigan, Phoenix Memorial Laboratory—Thursday, October 19, 1961, 1:15 p.m. to 5:15 p.m.: Located on the North Campus of the University of Michigan at Ann Arbor, the Phoenix Memorial Laboratory—created as a living memorial to former students killed in World War II—has won international acclaim for its research studies ranging from archaeology to zoology.

Over 167 research studies of considerable scientific imagination have included such fields as physics and medicine, archaeology and engineering, chemistry and law.

The Phoenix Project's Ford Nuclear Reactor, with a power level of one megawatt, is the most powerful reactor associated with any of the nation's educational institutions. "Tracers," "activation analysis," x-rays and many other unique forms of radiation make this reactor a vital and versatile tool for pioneering research and training in the atomic energy field. Approximate cost of trip is \$2.00.

The New Detroit General Post Office—Thursday, October 19, 1961, 1:30 p.m. to 4:30 p.m.: The new Detroit General Post Office, the largest automated post office in the United States, will handle nearly two-thirds of all Michigan mail. This is the "Post Office of Tomorrow" and is of major importance to the nation as well as to Detroit and Michigan, because here are assembled the postal machines of the future. These machines will lead the way for far-reaching postal advancements and improvements which will be extended in varying degrees to virtually every other post office in the country.

Visitors will see and learn about SACK CENTRAL, POUCH CENTRAL, sack sorters handling 6000 mail sacks hourly, parcel sorters handling 20,000 or more parcels per hour, unique machines which "cull" letter mail from other mail collected from street boxes, facer-canceller machines handling over 30,000 letters hourly, memory drums discharging parcels and sacks at the proper destination, etc. Approximate cost of trip is \$1.00.

THURSDAY EVENING PARTY

Here is something different for you men, your guests and the ladies. For an evening of fun, and just for fun, on Thursday, Oct. 19, starting at 8:00 p.m., you can test your luck at our "Casino," the likes of which would make Las Vegas and Reno jealous.

In a club atmosphere you can use your skill and your luck to play like a "millionaire" with the poke you're provided.

One cost of \$4.25 each will cover the complete evening including your fun, food and beverages. Tickets will be on sale all week at the Entertainment Desk in the registration area.

LADIES' ACTIVITIES

The AIEE ladies who attend the Fall Meeting will enjoy a busy week of interesting activities planned by Mrs. R. E. Bradstrum and co-chairmen Mrs. A. P. Fugill and Mrs. H. M. Hess. A welcoming reception will be given from 4 to 6 P.M. in the Wayne Room of the Statler-Hilton Hotel on Sunday, October 15, for members, their wives and guests.

On Monday, October 16, sightseeing buses will take the ladies on a civic and cultural tour of Detroit. They will see Detroit's new **Civic Center** and tour the **Historical Museum**.

Highlights of Tuesday, October 17, will be **luncheon at The Roostertail**, popular dining spot overlooking the Detroit River, and a talk on Japanese art by Mrs. Clarence McBryde.

Wednesday, October 18, will find the ladies touring **Greenfield Museum and Village** where they will have a luncheon at Lovett Hall, with surprise gifts for them.

It will be off to **Belle Isle and Windsor**, Thursday, October 19, on a bus tour that will allow time for shopping in Canada. **NATURALIZED CITIZENS MUST HAVE THEIR CITIZENSHIP PAPERS.**

Coffee will be served each morning in the Ladies' Hospitality Center in the Ivory Room of the Statler-Hilton. This room may be used during the week for cards, tele-viewing and lounging.

Registration may be made on Sunday, October 15th, and tickets for the activities may be purchased at that time. Ladies are advised to get their luncheon tickets early, for reservations will close when the available tickets have been sold. Men are welcome to the activities which interest them.

FALL GENERAL MEETING COMMITTEES

General

W. H. Frank, *Chairman*
L. W. Clark, *Vice Chairman*
H. M. Hess, *Treasurer*
C. R. Seibert, *Assistant Treasurer*
R. E. Bradstrum, *Secretary*

Entertainment

E. R. Narum, *Chairman*
D. C. Achtenberg
R. W. Ahlquist
W. R. Carlyon
O. V. Cheney
W. R. Dinwiddie
T. R. Groff
J. A. Herrmann
F. J. Lamb

50th Anniversary (Michigan Section)

H. Tauber, *Chairman*
W. Kerwick
J. A. Marcus
H. R. Williams

Finance and Budget Committee

A. P. Fugill, *Chairman*
J. J. Fredrickson
A. R. Hellwarth
M. R. Horne
A. R. Meacham
W. C. Schmidt

General Sessions

M. C. Westrate, *Chairman*
J. R. North
H. R. Wall

Hospitality

B. H. Schneider, *Chairman*
H. L. Anderson
V. J. Herter
C. E. Fishbeck
J. G. Kamalay
R. L. MacDonald
A. J. McCallum
R. Stephens
R. L. Stoupe, Jr.
W. B. Zollars

Hotels and Equipment

H. R. Armstrong, *Chairman*
T. H. Belcher
J. S. Berka
L. W. Coombe
R. C. Engel
W. G. Huber
K. E. Jamison
W. F. Kussy
J. Levine
J. Shannon

Inspection Trips

J. C. Leffel, *Chairman*
R. A. Brauburger
A. L. Issette
F. V. Sutton
B. Toorongian

American Institute of Electrical Engineers

Trip Managers

T. F. Barnes	A. E. Price
W. E. Burrell	B. S. Quell
J. G. Champine	B. K. Reed
P. Christiansen	F. W. Shoop
P. F. Curtiss	B. White
J. G. Eckert	

Inspection Trip Ticket Sales

Cal Crimp	E. V. Lefler
Mrs. Cal Crimp	Mrs. E. V. Lefler
Mrs. A. L. Issette	Mrs. R. J. Randall
Mrs. E. K. Forster	

Ladies' Activities

Mrs. R. E. Bradstrum, <i>General Chairman</i>	
Mrs. A. P. Fugill, <i>Co-Chairman</i>	
Mrs. H. M. Hess, <i>Co-Chairman</i>	
Mrs. W. G. Meese, <i>Publicity Chairman</i>	
Mrs. J. W. Eakins, <i>Co-Chairman</i>	
Mrs. A. R. Meacham, <i>Reservation Chairman</i>	
Mrs. O. E. Bowlus, <i>Co-Chairman</i>	
Mrs. H. F. Wall, <i>Hospitality Chairman (Coffee Hours)</i>	
Mrs. M. F. Knaus, <i>Co-Chairman</i>	
Mrs. W. H. Frank, <i>Reception and Tea Chairman</i>	
Mrs. L. W. Clark, <i>Co-Chairman</i>	
Mrs. A. H. Baylis, <i>Monday—Civic & Cultural Tour Chairman</i>	
Mrs. H. L. Anderson, <i>Co-Chairman</i>	
Mrs. M. R. Horne, <i>Tuesday—Luncheon Program Chairman</i>	
Mrs. R. T. Fleming, <i>Co-Chairman</i>	
Mrs. Fred Bauer, <i>Wednesday—</i>	
<i>Greenfield Village Tour & Luncheon Chairman</i>	
Mrs. B. H. Schneider, <i>Co-Chairman</i>	
Mrs. S. I. Whittlesey, <i>Thursday—</i>	
<i>Tour Bell Isle and Windsor Canada Chairman</i>	
Mrs. H. C. Reasoner, <i>Co-Chairman</i>	
Mrs. John F. Anderson	Mrs. W. G. Huber
Mrs. H. R. Armstrong	Mrs. Ken Jamison
Mrs. Howard Boltz	Mrs. J. Stuart Johnson
Mrs. R. C. Bouse	Mrs. John C. Leffel
Mrs. R. A. Brauburger	Mrs. W. E. Losie
Mrs. Wendell Campbell	Mrs. M. B. Lucas
Mrs. J. J. Carey	Mrs. N. E. Marsh
Mrs. Wm. R. Carlyon	Mrs. H. S. Mika
Mrs. O. V. Cheney	Mrs. E. R. Moore
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Fall General Meeting

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COMMITTEE MEETINGS

Monday, October 16, 1961

Room

9:00 A.M.—12:00 Noon
Programming Subcommittee, Computing Devices.....1315
Semiconductor Rectifier Committee.....1306

9:00 A.M.—5:00 P.M.
Working Group on Red Book Revision
Ind. & Comm. Power Systems.....1311

9:30 A.M.—12:00 Noon
Professional Conduct Committee.....1304

2:00 P.M.—5:00 P.M.
Communication Theory Committee.....1315

4:00 P.M.—6:00 P.M.
Basic Sciences Committee.....1304
Telegraph Systems Committee.....1319
ITG Coordinating Committee.....1305

4:00 P.M.—7:00 P.M.
Public Relations Committee.....1303

7:00 P.M.—11:00 P.M.
Automation and Business Processes Subcommittee,
Computing Devices.....1515

8:00 P.M.—12:00 Midnight
Task Group on 1963 Workshop Subcommittee,
Computing Devices.....1317

Tuesday, October 17, 1961

9:00 A.M.—12:00 Noon
Administrative Committee—Divisions.....1306
Executive Subcommittee, Ind. & Comm. Power Systems.....1311
Prize Awards Committee.....1304
Research Committee.....1334
Radio Communication Systems Committee.....1372
Executive Subcommittee, Pwr. Systems Comm.....1315
Carrier Bibliograph Subcommittee, Pwr. Systems Comm.....1317
Equipment Standards Subcommittee, Pwr. Systems Comm.....1319
Method of Measurements Subcommittee, Pwr. Systems Comm.....1303
Microwave Subcommittee, Pwr. Systems Comm.....1305
Research Subcommittee, Pwr. Systems Comm.....1325
Wire Line Protection Subcommittee, Pwr. Systems Comm.....1327
District 11 Executive Committee.....Italian Room*

9:00 A.M.—2:00 P.M.
Computing Devices AdHoc Executive Committee.....Parlor D*

9:00 A.M.—5:00 P.M.
Frequency Range Transformers Subcom., Electronic Trans...1330
Computer Application Subcommittee, Systems Eng.....1336
Student Branches Committee.....Parlor B*

12:00 Noon—2:00 P.M.
Luncheon, System Co-ordination & Protection
Subcommittee, Ind. & Comm. Pwr. Systems.....1374
Luncheon, District 11 Executive Committee.....Italian Room*

12:00 Noon—5:30 P.M.
Luncheon, Communication Division.....1310

*Located in the Tuller Hotel.

American Institute of Electrical Engineers

TUESDAY (continued)

	Room
2:00 P.M.—4:00 P.M.	
System Economics Subcommittee, System Eng. Com.....	1325
2:00 P.M.—4:30 P.M.	
Power Systems Communications Committee.....	1306
2:00 P.M.—5:00 P.M.	
Committee on Cooperation With E. J. C.....	1305
Use of Aluminum Substation Buses W. G. 57.1.....	1303
District 11 Executive Committee.....	Italian Room*
Industrial & Commercial Power Systems Committee.....	1304
Computing Devices Committee.....	Parlor D*
Membership Committee.....	1372
System Planning Subcommittee, System Engineering.....	1334
4:30 P.M.—6:00 P.M.	
Special Conferences Subcommittee, TOD.....	1315
7:30 P.M.—10:00 P.M.	
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8:00 P.M.—12:00 Midnight	
Task Group on Artificial Intelligence Subcommittee, Computing Devices.....	1319

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9:00 A.M.—12:00 Noon	
High Energy Plasma and Particles Subcom., Nucleonics....	1305
NEMA-AIEE Liaison Committee on Industrial Control.....	1306
Professional Development and Recognition Department.....	1334
Intersociety Relations.....	1315
TOD District Representatives Committee.....	1317
Definition Subcommittee, Electronic Transf.....	1303
9:00 A.M.—5:00 P.M.	
General Administration Dept.....	Italian Room*
10:00 A.M.—2:00 P.M.	
Luncheon, Administration Subcommittee, Rotating Mach....	1304
11:00 A.M.—12 Noon	
Publicity & Public Relations Subcommittee, Comp. Dev.....	1311
12:00 Noon—5:00 P.M.	
Luncheon, General Application Division.....	1374
Luncheon, Nuclear Instrumentation Committee.....	1319
1:00 P.M.—4:00 P.M.	
Performance Measurements Subcom., Feedback Contr. Sys....	1315
1:30 P.M.—5:00 P.M.	
Industry Division Committee.....	1336
2:00 P.M.—5:00 P.M.	
Power Division Committee.....	1330
Edison Medal Committee.....	1310
Design Automation Subcommittee, Comp. Dev.....	1303
Solid State Devices Committee.....	1334
Nuclear Power Subcommittee, Pwr. Gen.....	1305
Advancement of Power Engineering Subcom., Pwr. Gen.....	1325
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*Located in the Tuller Hotel.

Fall General Meeting

WEDNESDAY (continued)

	Room
4:00 P.M.—6:00 P.M.	
Data Communication Committee.....	1315
4:00 P.M.—6:30 P.M.	
Wire Communication Systems Committee.....	1372
Ad Hoc Processing, Quality and Distribution of Papers Com....	1311
7:30 P.M.—10:00 P.M.	
Forum of Technical Committee Chairmen.....	Wayne Room
7:30 P.M.—11:30 P.M.	
Logic & Switching Circuit Theory Subcommittee, Comp. Dev.....	Italian Room*
9:00 P.M.—12:00 Midnight	
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Thursday, October 19, 1961	
9:00 A.M.—12:00 Noon	
Power Generation Committee.....	Conference Room**
Space Communication Committee.....	1311
System Engineering Committee.....	Auditorium**
Technical Operations Department.....	Italian Room*
Feedback Control Systems Committee.....	1319
Data Acquisition & Transformation Subcom., Comp. Dev.....	1315
Domestic Appliance Subcom., Dom. & Comm. App.....	1317
9:00 A.M.—5:00 P.M.	
Joint W. G. on Power Plant Response to Load Changes.....	1325
W. G. on Magnetic Ampl. Materials under Extreme Envir., Magnetic Ampl.....	1327
10:00 A.M.—12:00 Noon	
Publications Dept.....	1305
12:00 Noon—2:00 P.M.	
Luncheon—Technical Operations Dept.....	Italian Room*
12:00 Noon—5:00 P.M.	
Luncheon—D-C Machinery Subcommittee, Rotating Mach....	1303
2:00 P.M.—5:00 P.M.	
Application of Probability Methods Subcom., System Eng. Com.	1317
Controls Subcommittee, System Eng. Com.....	1315
Industrial Control Committee.....	1334
Planning & Coordination Committee.....	Italian Room*
Safety Committee.....	1311
Nonlinear Control Theory Subcom., Feedback Control Sys....	1319
4:00 P.M.—6:00 P.M.	
Induction Machinery Subcommittee, Rotating Machinery....	1304
8:00 P.M.—12:00 Midnight	
Computer Standards Subcommittee, Comp. Dev.....	1306

Friday, October 20, 1961

9:00 A.M.—12:00 Noon	
Board of Directors.....	Bagley Room
Executive Subcommittee, Substations.....	1311
12:00 Noon—2:00 P.M.	
Luncheon, Board of Directors.....	Bagley Room
2:00 P.M.—5:00 P.M.	
Board of Directors.....	Bagley Room

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Fall General Meeting

DAILY CALENDAR

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Sunday						
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Tuesday						
Wednesday						
Thursday						
Friday						

Detroit's Skyline at Night

