

AMERICAN
INSTITUTE
of
ELECTRICAL
ENGINEERS



Summer
and
Pacific
General
Meeting



JUNE 21-25
1954

● *at the*

BILTMORE HOTEL

Los Angeles, California

GENERAL INFORMATION

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

At our Annual Meeting, Monday morning June 21, Dr. R. W. Sorenson will be presented with a diploma as an Honorary Member of the Institute. The Lamme Medal Presentation to F. A. Cowan will also take place at the Annual Meeting.

On the social side there will be an informal Sunday tea, a box supper in connection with the trip to Mount Wilson, a family style dinner at Knott's Berry Farm and the President's Reception and Banquet.

REGISTRATION FEES REQUIRED. In accordance with the policy as set up by the Board of Directors, a registration fee of \$3.00 has been established for members and a fee of \$5.00 for nonmembers. This is to help make the meeting self-supporting and obviate the need for raising the annual dues. Student members and the immediate families of members will not be required to pay any fee.

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

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, discussions in duplicate must be left with the chairman and/or sent to Edward C. Day, Assistant Secretary, Committee on Technical Operations, AIEE, 33 W. 39th Street, New York 18, N. Y. before July 9, 1954. 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 registration desk at the uniform price of \$.30 each (\$.60 each to nonmembers). Only numbered papers are available. Mail orders, particularly from out-of-town members, are advisable inasmuch as an adequate supply of each paper at the meeting cannot be assured. Coupon books in \$9.00 denominations are available for those who wish to avoid remittance by check or otherwise. Mail orders should be addressed to the AIEE Order Department, 33 West 39th Street, New York 18, N. Y. All of the numbered papers will ultimately be published in the Bimonthly Publications and in the TRANSACTIONS. Conference papers denoted by CP.** are intended for presentation only and are not available.

SCHEDULE OF EVENTS

For more detailed information, see separate "Convention Diversions" and "Ladies Events" folders.

Sunday, June 20

- 2:30 p.m. Registration
- 4:00 p.m. Informal Tea

Monday, June 21

- 8:30 a.m. Registration
- 10:00 a.m. Annual Meeting
- 12:00 noon Luncheon — George C. Tenney
- 1:30 p.m. Trip to Kaiser Steel and Exchange Orange Products
Trip to Pacific Telephone TV Facilities
Ladies Trip to Bullock's Wilshire Tea and Fashion Show
- 2:00 p.m. Color Television Session
Management Session
Chemical Session
Medical Radiation Instrument Session
Transmission and Distribution Session
Magnetic Amplifiers Session
District #8 Branch Prize Paper Competition
- 3:00 p.m. Trip to Pacific Telephone 4A Crossbar Switching Machine
- 7:00 p.m. Trip to CBS and NBC TV Studios

Tuesday, June 22

- 8:30 a.m. Trip to Etiwanda and Highgrove Steam Plants
- 9:00 a.m. Trip to Pacific Telephone TV Facilities
Section Delegates Conference
Radio Communications Session
Mining and Metal Industry Session
Nuclear Reactors Session
Transmission and Distribution Session
Magnetic Amplifiers Session
Light Traction Session
- 10:00 a.m. Ladies Trip to Padua Hills Luncheon
- 10:30 a.m. Trip to Pacific Telephone 4A Crossbar Switching Machine
- 12:00 noon Luncheon — Walker L. Cisler
- 1:30 p.m. Trip to Richfield Oil Refinery
Trip to Pacific Telephone TV Facilities
- 2:00 p.m. Section Delegates Conference
Radio Communications Session
Nuclear Measurements and Accelerators Session
Transmission and Distribution Session
Magnetic Amplifiers Session
Relays Session
Feedback Control Systems Session

American Institute of Electrical Engineers

- 3:00 p.m. Trip to Pacific Telephone 4A Crossbar Switching Machine
4:30 p.m. Trip to Mount Wilson Observatory and Television Stations

Wednesday, June 23

- 9:00 a.m. Trip to Laguna Bell Substation
Trip to Lever Bros. Company
Trip to Pacific Telephone TV Facilities
Wire Communications Session
Feedback Control Systems Session
Instruments and Measurements Session
Power Generation Session
Insulated Conductors Session
Basic Sciences Session
Semi-Conductors Session
Magnetic Amplifiers Session
- 9:15 a.m. Ladies Trip to Forest Lawn Memorial Park
- 10:30 a.m. Trip to Pacific Telephone 4A Crossbar Switching Machine
- 12:00 noon Luncheon — Dr. Lee A. DuBridge
- 1:30 p.m. Trip to Hoffman TV Plant
Trip to Valley Stream Plant and Station "G"
Trip to Pacific Telephone TV Facilities
Ladies Tour of Huntington Library and Art Gallery
- 2:00 p.m. Wire Communications Session
Feedback Control Systems Session
Synchronous Machinery Session
Insulated Conductors Session
Industrial Power Systems Session
Power System Measurements Session
Semi-Conductors Session
- 3:00 p.m. Trip to Pacific Telephone 4A Crossbar Switching Machine
- 4:30 p.m. Dinner at Knott's Berry Farm

Thursday, June 24

- 8:30 a.m. Trip to Lockheed Aircraft Plant
- 9:00 a.m. Trip to Pacific Telephone TV Facilities
Communication Switching Systems Session
Instrumentation Session
Power Generation Session
Electric Space Heating Session
Safety Session
Protective Devices Session
Theory of Economical Loading of Power Systems Session
- 10:00 a.m. Ladies Wilshire Country Club Luncheon and Tour
- 10:30 a.m. Trip to Pacific Telephone 4A Crossbar Switching Machine

Summer and Pacific General Meeting

- 12:00 noon Luncheon — Eta Kappa Nu — Dr. Lee DeForest
- 1:30 p.m. Trip to Lockheed Aircraft Plant
Trip to North American Aviation Plant
Trip to Pacific Telephone TV Facilities
- 2:00 p.m. Application of Computers to Power System Operating Problems Session
Carrier Current Session
Rotating Machinery Session
Transformers Session
Electronic Circuitry Session
Heat Pumps Session
- 3:00 p.m. Trip to Pacific Telephone 4A Crossbar Switching Machine
- 6:00 p.m. President's Reception and Banquet

Friday, June 25

- 9:00 a.m. Trip to California Institute of Technology
Computing Devices Session
System Engineering Session
Switchgear Session
Air Transportation Session
General Industry Applications Session
- 2:00 p.m. Computing Devices Session
System Engineering Session
Switchgear Session
Air Transportation Session
Special Communication Applications Session

Monday, June 21

10:00 a.m.—Opening Ceremony

Ballroom
BRADLEY COZZENS, General Chairman, Presiding
 Opening of Session, Bradley Cozzens, General Chairman.
 Address of Welcome, Mayor Norris A. Poulson.

10:30 a.m.—Annual Meeting

- Ballroom
PRESIDENT ELGIN B. ROBERTSON, Presiding
1. Report of the President, Elgin B. Robertson.
 2. Report of the Board of Directors, N. S. Hibshman, Secretary.
 3. Report of the Treasurer, W. J. Barrett.
 4. Report of Committee of Tellers on vote for nominees for AIEE offices.
 5. (a) Introduction of, and presentation of President's badge to A. C. Monteith.
 (b) Response by Mr. Monteith.
 6. Presentation of Lamme Medal to F. A. Cowan, American Tel. & Tel. Co., New York, New York.
 (a) The Establishment of the Medal. A. C. Monteith, Chairman, Lamme Medal Committee.
 (b) The Career of the Medalist. J. J. Pilliod, American Tel. & Tel. Co., New York, New York.
 (c) Presentation of the Medal and Certificate by President Elgin B. Robertson.
 (d) Response by Mr. Cowan.
 7. Presentation of Honorary Membership Certificate to Dr. R. W. Sorensen.
 8. Any other business that may be presented.

2:00 p.m.—Color Television

- Conference Room One
C. F. HANSON, Presiding
Committee on Television and Aural Broadcasting Systems
- CP.** Color Television Today. D. E. Foster, Hazeltine Research, Inc. of California.
- CP.** A Single-Tube Color Camera System for the NTSC Standards: The Chromacoder. P. C. Goldmark, CBS Laboratories.
- CP.** NTSC Color Television Transmission Via Local Wire and Microwave Facilities. E. R. Conly, R. W. Bixler and J. H. Clark, Pacific Tel. & Tel. Co.

2:00 p.m.—Management

- Bowl Foyer
F. K. McCUNE, Presiding
Committee on Management
- CP.** Organization Planning—the Hard Work and Common Sense Approach. L. L. Perkey, Standard Oil Co. of California.
- CP.** Improving Employee Relations. F. B. Whitman, Western Pacific Railroad Co.

2:00 p.m.—Chemical, Electrochemical and Electrothermal

- Conference Room Two
F. S. GLAZA, Presiding
Committee on Chemical, Electrochemical and Electrothermal Applications
- CP.** Installing, Jointing and Terminating 15 KV Polyethylene Insulated Power Cable. H. W. Farenthold, Brown & Root, Inc.
- CP.** Economics of Hazardous Area Designations, Harold Soliday, The Fluor Corp. Ltd.
- CP.** Germanium Rectifiers. R. M. Crenshaw, General Electric Co.

2:00 p.m.—Medical Radiation Instruments

- Ballroom Foyer
A. M. ZAREM, Presiding
Committees on Nucleonics and Electrical Techniques in Medicine and Biology
- CP.** Hanford Radiological Instrumentation. P. L. Eisenacher and W. A. McAdams, General Electric Co.

- CP.** Electrophoretic Techniques; Some Applications and Problems. C. A. Dubbs, Veterans Administration Center.
- CP.** Localizer for Foreign Bodies and Urinary Calculi. R. S. Mackay, University of California Medical School.
- CP.** A Liquid Scintillation Detector. J. H. Knapton, Tracerlab, Inc.
- CP.** Scintillation Spectrometer Measurement of Gamma Ray Energy. C. S. Cook, U. S. Naval Radiological Defense Laboratory.

2:00 p.m.—Transmission and Distribution

- Ballroom
J. T. LUSIGNAN, Presiding
Committee on Transmission and Distribution
- 54-213. Evaluation of the Integration Method for Analysis of Non-Standard Surge Voltages. A. R. Jones, Westinghouse Electric Corp.
- 54-203. Electrical Clearances for Transmission Line Design at the Higher Voltages. P. L. Bellaschi, Consulting Engineer.
- CP.** Thirty Years Experience with Wood Pole Transmission Line Construction. H. V. Strandberg, City of Seattle.
- CP.** Report of Full Size Struction Tests on 230-330 Kv Structures. R. G. Yerck, Hughes Brothers.
- CP.** Empirical Data Obtained from Tests on Round and Dimensional Wood Members. O. W. Sutro, Malleable Iron Fittings Co.

2:00 p.m.—Magnetic Amplifiers

- Renaissance Room
E. V. WEIR, Presiding
Committee on Magnetic Amplifiers
- CP.** Domain Theory and the Magnetic Amplifier. H. J. Hamilton, Librascope, Inc.
- CP.** Production Testing of Tape Core Materials for Magnetic Amplifiers. J. E. Mitch, H. A. Lewis and R. A. Parnell, The Arnold Engineering Co.
- 54-249. Magnetic Amplifier Circuits with Full-Wave Output and Half-Wave Control Signals. H. W. Lord, General Electric Co.
- 54-260. The Cyclic-Integrator—A Device for Measuring the Frequency Response of Magnetic Amplifiers. T. Dunnegan, Jr., Chance Vought Aircraft, Inc. and J. D. Harnden, Jr., General Electric Co.
- CP.** Theory of Magnetic Cross Valves. W. H. Higa, North American Aviation, Inc.

2:00 p.m.—District #8 Branch Paper Competition

Conference Room Eight
H. P. NETTESHEIM, Presiding

Tuesday, June 22

9:00 a.m.—Section Delegates Conference

Bowl Foyer
W. R. HOUGH, Presiding

9:00 a.m.—Radio Communications

- Conference Room One
R. S. CARUTHERS, Presiding
Committee on Radio Communication Systems
- 54-214. Type N1 Carrier on Radio and Coaxial Cable. W. S. Ames and W. H. Wedel, Pacific Tel. & Tel. Co.
- 54-239. One Approach to a Video SHF Relay System. R. H. Coe and F. F. McClatchie, Pacific Tel. & Tel. Co.
- CP.** Subcarrier Transmission Through Television Relay Links. S. Topol, W. J. Bickford, W. E. Marceley and W. T. Beers, Raytheon Corp.
- CP.** A 72-Channel Radio System for Telephone Toll Service. M. C. Harp, M. H. Kebby and J. W. Halina, Lenkurt Electric Co., Inc.

TUES. (contd)

9:00 a.m.—Mining and Metal Industry

Conference Room Two
G. B. SCHEER, Presiding
Committee on Mining and Metal Industry

- CP.** Ore Conveyors at Pend O'Reille Mines and Metals Corporation. R. M. Gilbert and A. A. Bulen, Westinghouse Electric Corp.
- CP.** Factors Affecting Choice of Mine Hoist Drives. R. B. Moore, General Electric Co.
- CP.** Reactor Control of Industrial Electrostatic Precipitators. W. H. Strate, Westinghouse Electric Corp.
- CP.** Waste Heat Power Generation in Western Cement Plant. J. D. Rosenblatt, Bechtel Corp.; R. L. Boulden, Riverside Cement Co. and D. B. Carson, General Electric Co.

9:00 a.m.—Nuclear Reactors

Edison Auditorium
A. TILLES, Presiding
Committee on Nucleonics

- CP.** Propulsion Reactors. P. N. Ross, Westinghouse Electric Corp.
- CP.** Effect of Reactivity Transients on Reactor Design. E. F. Weisner, North American Aviation.
- 54-199. Electric-Circuit Models of the Nuclear Reactor. Gabriel Kron, General Electric Co.
- CP.** Hanford Reactor Instrumentation. E. S. Day, Jr., General Electric Co.
- CP.** The Economic Outlook for Nuclear Power. W. H. Nutting, Pacific Gas & Electric Co.

9:00 a.m.—Transmission and Distribution

Ballroom
R. L. WITZKE, Presiding
Committee on Transmission and Distribution

- 54-215. Lightning Protection in a 120-KV Station—Field and Laboratory Studies. J. K. Dillard, A. R. Hileman, Westinghouse Electric Corp. and H. R. Armstrong, Detroit Edison Co.
- 54-220. Transient Stability Limits and Their Effects on the Choice of Conductor Size. R. M. Butler and D. L. Hopkins, General Electric Co.
- 54-200. Power System Fault Current Analysis Including Study of Transient Offset. M. J. Lantz, Bonneville Power Administration.
- 54-212. Radio Transmission on 230 and 400 kv Lines in Sweden. B. G. Rathsmann, S. Parding and C. A. Enstrom, Swedish State Power Board.
- CP.** Traveling Wave Protection Problems II. E. W. Boehne, Massachusetts Institute of Technology.

9:00 a.m.—Magnetic Amplifiers

Renaissance Room
W. J. DORNHOEFER, Presiding
Committee on Magnetic Amplifiers

- CP.** Magnetic Low Level D-C Signal Converters. H. H. Woerdemann, Magnetic Research Corp.
- CP.** A Precision Magnet Power Supply Using a Cut Core Magnetic Amplifier. R. Morrison and G. W. Downs, Wm. Miller Instruments, Inc.
- CP.** Current and Voltage Wave Forms of Magnetic Amplifiers Operating into Inductive and Capacitive A-C Loads. B. M. Wolfram, North American Aviation, Inc.
- 54-237. The Operation of Magnetic Amplifiers with Various Types of Loads—Part I—Load Currents for Given Angle of Firing. L. A. Finzi and R. R. Jackson, Carnegie Institute of Technology.

TUES. (contd)

9:00 a.m.—Light Traction

Ballroom Foyer
JACOB STAIR, JR., Presiding
Committee on Land Transportation

- 54-251. An Electrical System for Monorail Rapid Transit. E. H. Anson and R. L. Kimball, Gibbs and Hill, Inc.
- 54-252. High-Speed Rapid Transit Equipment. S. J. Vouch, General Electric Co.
- 54-253. Rebuilding San Francisco's Transit System. F. L. ReQua, Public Utilities Commission, City and County of San Francisco.
- CP.** The Swiss Gyrobus. J. T. Turner, Jr., British Columbia Electric Co., Ltd.

2:00 p.m.—Section Delegates Conference

Bowl Foyer
W. R. HOUGH, Presiding

2:00 p.m.—Radio Communications

Conference Room One
C. T. KOERNER, Presiding
Committee on Radio Communication Systems

- 54-240. Radio Transmission of Narrow-Band Mobile Radio Systems at 40 MC. C. R. Kraus, W. G. Chaney and A. T. Steelman, Bell Telephone Co. of Penn.
- 54-241. Comparative Propagation Studies on 250 and 450 Megacycles. E. Hopner, Lenkurt Electric Co., Inc. and T. D. Cushing, Northwest Telephone Co.
- 54-242. Technical Considerations Relating to Marine Radiotelephone Communication for Safety. O. T. Laube, American Tel. & Tel. Co.
- CP.** The Seattle-Victoria Radio System. R. E. Kistler, Pacific Tel. & Tel. Co.

2:00 p.m.—Nuclear Measurements and Accelerators

Conference Room Two
J. V. KRESSER, Presiding
Committee on Nucleonics

- CP.** Recent Developments in Transuranium Element Research. S. G. Thompson, University of California Radiation Laboratory.
- CP.** Radio Activity Measurements in Transuranium Element Research. Albert Giorso, University of California Radiation Laboratory.
- CP.** The Stanford Linear Electron Accelerators. R. B. Neal, Stanford University Microwave Laboratory.
- CP.** Current Accelerator Developments at the University of California. G. M. Farly, University of California Radiation Laboratory.
- CP.** The Cal Tech Synchrotron. R. V. Langmuir, California Institute of Technology.

2:00 p.m.—Transmission and Distribution

Ballroom
E. R. HENDRICKSON, Presiding
Committee on Transmission and Distribution

- 54-267. An Analysis of 14.4/24.9 KV Grounded Wye Distribution System Over-Voltages. G. G. Auer and A. J. Schultz, General Electric Co.
- 54-236. Over-Voltages on 14.4/24.9 KV Rural Distribution Systems. L. B. Crann and R. B. Flickinger, U. S. Dept. of Agriculture.
- 54-278. Effect of Load Growth on Economic Conductor Size. H. H. Hunt, Sacramento Municipal Utility District.
- 54-279. Some Aspects of Distribution Load Area Geometry. F. C. Van Wormer, General Electric Co.
- CP.** Simplified Capacitive Reactance Calculations. C. B. Grund, Jr., Alabama Power Co.

2:00 p.m.—Magnetic Amplifiers

Renaissance Room
ALFRED KRAUSZ, Presiding
Committee on Magnetic Amplifiers

- 54-238. The Operation of Magnetic Amplifiers with Various Types of Loads—Part II—Controlling the Angle of Firing—The Transfer Characteristics of Amplifiers with Low Control Impedance. L. A. Finzi and R. R. Jackson, Carnegie Institute of Technology.
- 54-316. Magnetic Amplifiers with Inductive D-C Load. H. F. Storm, General Electric Co.
- 54-247. An Operational Type Magnetic Amplifier for Airborne Servo Control Systems. R. M. Hubbard, Boeing Airplane Co.
- CP.** An Analog Computer Technique Using Magnetic Amplifiers. B. E. Davis and I. H. Swift, U. S. Naval Ordnance Test Station.

2:00 p.m.—Relays

Ballroom Foyer
CORT LOWERISON, Presiding
Committee on Relays

- 54-314. Simplification of A-C Voltage Vector Systems. W. K. Sonnemann, Westinghouse Electric Corp.
- CP.** Operating Experience with 230 kv Automatic Reclosing on B.P.A. System. D. A. Gillies, Bonneville Power Administration.
- 54-250. An Electronic Distance Relay Using a Phase-Discrimination Principle. F. R. Bergseth, University of Washington.
- 54-315. Distribution Feeder Ground Fault Protection Improved by Use of Zero Sequence Operator in Three Phase Sectionalizer. M. A. Bostwick, Portland General Electric Co.
- CP.** A Report on Protective Relaying and its Future Trends. R. E. Cordray, General Electric Co.

2:00 p.m.—Feedback Control Systems

Edison Auditorium
W. R. EVANS, Presiding
Committee on Feedback Control Systems

- CP.** Frequency Response from Transient Response. H. Thal-Larsen, Berkeley, California.
- 54-280. A Generalized Method for Determining the Closed-Loop Frequency Response of Nonlinear Systems. L. T. Prince, Jr., Minneapolis-Honeywell Regulator Co.
- CP.** A Method for the Preliminary Synthesis of a Complex Multi-Loop Control System. D. J. Povejsil and A. M. Fuchs, Westinghouse Electric Corp.
- 54-281. An Extension of the Root Locus Method to Obtain Closed Loop Frequency Response of Feedback Control Systems. A. S. Jackson, Cornell University.

Wednesday, June 23

9:00 a.m.—Wire Communications

Conference Room Eight
L. R. MONTFORT, Presiding
Committee on Wire Communications Systems

- 54-286. Theory of E-Type Repeaters. J. L. Merrill, Jr., Bell Telephone Labs., Inc.
- 54-287. E Type Telephone Repeaters, Description Equipment and Testing. J. O. Smethurst, Bell Telephone Labs., Inc.
- 54-222. Negative Impedance Telephone Repeaters—Application in the Bell System. A. F. Rose, American Tel. & Tel. Co.
- 54-288. Servicing Center for Short-Haul Carrier Telephone Systems. A. L. Bonner, Bell Telephone Labs., Inc.

9:00 a.m.—Feedback Control Systems

Bowl Foyer
C. H. WILTS, Presiding
Committee on Feedback Control Systems

- 54-282. Sampled-Data Processing Techniques for Feedback Control Systems. A. R. Bergen and J. R. Ragazzini, Columbia University.
- CP.** A General Theory for Determining the Change in the Stability of a Feedback Control System with Variation of its Parameters. T. J. Higgins, University of Wisconsin and T. A. Wetzel, Kearney & Trecker Corp.
- 54-283. The Design of Sampled-Data Feedback Systems. G. V. Lago, University of Missouri and J. G. Truxal, Purdue University.
- CP.** Analysis of Errors in Sampled-Data Feedback Systems. J. Sklansky and J. R. Ragazzini, Columbia University.

9:00 a.m.—Instruments and Measurements

Conference Room Two
E. WEBER, Presiding
Committee on Instruments and Measurements

- 54-290. Accurate Tachometry Methods with Electronic Counters. J. M. Shulman, Westinghouse Electric Corp.
- 54-291. Measurement of the Quality Factor of Inductor Cores. Chandler Stewart, Fort Belvoir.
- 54-208. A Simplified Standard Cell Comparator. J. H. Miller, Weston Electrical Instrument Corp.
- 54-204. The Quasi-Peak Voltmeter. C. W. Frick, General Electric Co.
- 54-292. Precision Measurement of Complex Quantities in Electrical Networks as a Function of Frequency. A. J. Hermont, Shell Development Co.

9:00 a.m.—Power Generation

Renaissance Room
V. F. ESTCOURT, Presiding
Committee on Power Generation

- 54-301. Application of Equipment in Outdoor Steam Electric Generating Stations. W. D. Marsh and A. G. Mellor, General Electric Co.
- CP.** Design Features of Etiwanda Steam Station of the Southern California Edison Company. H. C. Austin, Southern California Edison Co.
- CP.** Operating Experience with an Outdoor Steam Electric Generating Plant. A. E. Capon, City of Burbank.
- CP.** Electric Design Features of the Hawaiian Electric Company, Limited, Steam Electric Plant—Honolulu Unit No. 8. G. R. Dunbar, Westinghouse Electric Corp.; W. J. Froome, Hawaiian Electric Co., Ltd., and W. C. Stivers, Bechtel Corp.

9:00 a.m.—Insulated Conductors

Ballroom
M. H. McGRATH, Presiding
Committee on Insulated Conductors

- 54-232. 300 KV Oil-Filled Cables for Aluminium Company of Canada. A. N. Arman, Pirelli-General Cable Works, Ltd.
- 54-233. The 301 kv All-Aluminium Oil-Filled Cables at Kemano, British Columbia. H. D. Short, Canada Wire and Cable Co. and J. T. Madill, Aluminium Co. of Canada, Ltd.
- CP.** Pipe Type Cables for Power Transmission at 230 KV and Higher Voltages. G. N. Everest and P. V. White, The Okonite Co.

9:00 a.m.—Basic Sciences

Edison Auditorium
R. KAHAL, Presiding
Committee on Basic Sciences

- 54-297. Forced Oscillations of Nonlinear Circuits. L. A. Pipes, University of California.

American Institute of Electrical Engineers

WED. (contd)

CP.** Extension of the Operational Calculus to Time-Varying Networks. J. A. Aseltine, Hughes Aircraft Co.; H. Davis, E. C. Ho and D. L. Trautman, University of California.

54-298. Analysis and Synthesis of Sampled-Data Control Systems. E. I. Jury, Columbia University.

9:00 a.m.—Semi-Conductors

California Room, Clark Hotel
S. J. ANGELLO, Presiding
Committee on Basic Sciences

CP.** Properties of Silicon Power Diodes. E. F. Losco, Westinghouse Electric Corp.

CP.** The Use of Junction Transistors as Switches to Obtain Reliability, Interchangeability, and the Satisfaction of Military Environmental Conditions. R. L. Bright, Westinghouse Electric Corp.

CP.** Switching Transistors Used as a Substitute for Mechanical Low-Level Choppers. A. P. Kruper, Westinghouse Electric Corp.

9:00 a.m.—Magnetic Amplifiers

Crystal Room, Clark Hotel
E. V. WEIR, Presiding
Committee on Magnetic Amplifiers

CP.** A Magnetic Reference Unit. William Woodworth, U. S. Naval Ordnance Test Station.

CP.** A Magnetic Integrator. J. A. Crawford, U. S. Naval Ordnance Test Station.

54-248. Magnetic Frequency Multipliers. L. J. Johnson, Hufford Machine Works and S. E. Rauch, University of California.

CP.** Self Bias in Balanced Magnetic Amplifiers. G. C. Glover, D. H. Mooney and F. G. Timmel, Westinghouse Electric Corp.

CP.** Self-Saturating Circuits with Microwatt Input. F. M. Arnold, Lear, Inc.

2:00 p.m.—Wire Communications

Conference Room Eight
E. D. BARCUS, Presiding
Committee on Wire Communication Systems

54-289. Electrical Protection of Telephone Systems. W. R. Bullard, Ebasco Services, Inc.; J. B. Hays, Bell Telephone Labs., Inc. and H. O. Saunders, American Tel. & Tel. Co.

54-218. Varistor Modulators for Carrier Systems. R. S. Caruthers, Lenkurt Electric Co., Inc.

CP.** Combined Operation of 24 Channel Cable Carrier and 12 Channel Open Wire Systems. G. W. Searle, Wisconsin Telephone Co.

2:00 p.m.—Feedback Control Systems

Bowl Foyer
R. M. SAUNDERS, Presiding
Committee on Feedback Control Systems

54-284. Self Oscillation Method for Measuring Transfer Functions. J. C. Clegg and L. D. Harris, University of Utah.

CP.** Graphic Construction of Numeric Feedback System Closed-Loop Function Locus. T. A. Wetzel, Kearney & Trecker Corp.

CP.** Error Coefficients in the Design of Feedback Control Systems. T. A. Savo and J. G. Truxal, Purdue University.

54-285. Measurement of Some Non-Linearities in Servomechanisms. D. K. Gehmlich and M. E. Van Valkenburg, University of Utah.

CP.** Design and Application of a Peak Voltage Detector to Industrial Control Systems. L. W. Allen, International Business Machines Corp.

Summer and Pacific General Meeting

WED. (contd)

2:00 p.m.—Synchronous Machinery

Renaissance Room
C. L. SIDWAY, Presiding
Committee on Rotating Machinery

54-261. Synchronous Machine Analogues for Use with the Network Analyzer. J. E. Van Ness, Northwestern University.

54-262. The Resistance of Twisted Segmental Amortisseur Bars. J. C. White, General Electric Co.

54-263. Improvements in Predicting Telephone Interference Factor of Salient Pole Machines. J. F. H. Douglas, Marquette University.

54-264. Saturation Effects in Synchronous Machines. Djibir Hamdi-Sepen, Technical University of Istanbul.

2:00 p.m.—Insulated Conductors

Ballroom
M. H. McGRATH, Presiding
Committee on Insulated Conductors

54-219. High Pressure Pipe Type Cable Systems—The Pipe as a Structure. R. W. Gillette, Consolidated Edison Co. of N. Y., Inc. and J. E. Johnson, Philadelphia Electric Co.

54-210. Physical Characteristics of Pipe-Type Cable Faults. R. J. Mather and J. A. Purviance, Bonneville Power Administration.

54-223. Studies Relating to the Use of Aluminum Conductors for Pipe-Type Cable. J. Sticher, R. H. Hiestler, The Detroit Edison Co., L. Meyerhoff and M. H. McGrath, General Cable Corp.

54-234. Compression Wye Splicing to Insulated Aluminum. Fred Heller, Burndy Engineering Co., Inc.

2:00 p.m.—Industrial Power Systems

Edison Auditorium
F. M. DOREY, Presiding
Committee on Industrial Power Systems

54-243. Problems Relating to Interconnections of Large Pulp and Paper Mills with Large Utility Power Systems. H. A. Rose, Westinghouse Electric Corp. and H. E. Springer, Rayonier, Inc.

54-244. Some Fundamentals of Equipment Grounding Circuit Design. R. H. Kaufmann, General Electric Co.

CP.** Electrical System at Ford's New Assembly Plant at San Jose, California. E. Eriksrud, Ford Motor Co., and N. A. Kieb, Albert Kahn Associated Architects and Engineers, Inc.

CP.** Installation of Interlocked Armor Cable and Racks for Industrial Power Distribution. F. V. Calvert, Husky Products, Inc. and L. F. Cudlin, General Electric Co.

CP.** Here Is Proof You Can Save On 277/480 Volt Lighting. W. W. Henderson, Bernard Johnson and Associates and H. N. Hickok, General Electric Co.

2:00 p.m.—Power System Measurements

Conference Room Two
W. S. PRITCHETT, Presiding
Committee on Instruments and Measurements

54-293. A New 12-Element Automatic Oscillograph and Applications on the Bonneville Power System. C. M. Hathaway, W. L. Davis, Hathaway Instrument Co. and J. R. Curtin, Bonneville Power Administration.

CP.** Recent Experience with Electronic Pulse-Type Fault Locators. R. L. Brinton, Pacific Gas & Electric Co.

CP.** Development of Standard Burden Sets for Testing Instrument Potential Transformers. F. H. Krauss, Electrical Facilities, Inc. and W. Pritchett, University of California.

CP.** A New Electrical Device to Detect Leaks of Inflammable Gases. W. C. White, General Electric Co.

54-294. The Use of Sphere Gaps at Radio Frequencies. C. B. Oler, U. S. Naval Postgraduate School.

2:00 p.m.—Semi-Conductors and Magnetic Amplifiers

California Room, Clark Hotel
S. J. ANGELLO, Presiding

Committees on Basic Sciences and Magnetic Amplifiers

- CP.** The Use of Transistors to Improve the Stability and Sensitivity of Magnetic Amplifiers. R. A. Ramey, Westinghouse Electric Corp.
- CP.** Transistor Demodulator for High Performance Magnetic Amplifiers in A-C Servo Applications. R. O. Decker, Westinghouse Electric Corp.
- CP.** A Switching Transistor D.C. to A.C. Converter Having an Output Frequency Proportional to the D.C. Input Voltage. G. H. Royer, Westinghouse Electric Corp.
- CP.** A High-Accuracy Static Time Delay Device Utilizing Transistors. G. F. Pittman, Jr., Westinghouse Electric Corp.

Thursday, June 24

9:00 a.m.—Communication Switching Systems

Conference Room Eight
A. E. FROST, Presiding

Committee on Communication Switching Systems

- 54-273. Application of Toll Dialing in Pennsylvania. A. L. Charny, Bell Telephone Co. of Pennsylvania.
- CP.** A PBX Telephone Switchboard for Dispatching Service. F. W. Treptow, Bell Telephone Labs., Inc.
- CP.** Concentrator-Identifier as Applied to Telephone Answering Service. D. H. MacPherson, Bell Telephone Labs., Inc.
- CP.** Dial Concentrator Switching. E. J. Ward, Interstate Engineering Corp.
- 54-207. Switching Functions on an n-Dimensional Cube. C. Y. Lee, Bell Telephone Labs., Inc.

9:00 a.m.—Instrumentation

Bowl Foyer
J. G. REID, JR., Presiding
Committee on Instruments and Measurements

- CP.** An Airborne Temperature Indicator. W. R. Clark, W. G. Amey and G. C. Mergner, Leeds & Northrup Co.
- 54-295. Stabilized Power Supplies for Instrument Applications. W. G. Amey, F. H. Krantz, W. R. Clark and A. J. Williams, Jr., Leeds & Northrup Co.
- 54-296. Thickness Gage for Dielectric Materials. W. W. Woods, Boeing Airplane Co.
- CP.** A Survey of Non-Contacting Vibration Pickups Using Electric Fields. H. F. Clarke, Boeing Airplane Co.
- CP.** A New System for Monitoring the Over-all Transduction Ratio for Analog Recording Channels Employing Bridge Type Transducers. A. T. Snyder, Boeing Airplane Co.

9:00 a.m.—Power Generation

Ballroom
E. P. BRYANT, Presiding
Committee on Power Generation

- 54-299. Non-Destructive Testing of Waterwheel Generating Unit Mechanical Components. T. C. Stavert, Southern California Edison Co.
- 54-300. Maximizing Income from Waterwheel Generators. K. R. Knights, Hydro-Electric Power Commission of Ontario and V. W. Ruskin, Canadian Brazilian Services.
- CP.** Development of Small Hydro Electric Sites in Western North Carolina. H. H. Gnuse, Jr., Kantahala Power & Light Co.
- CP.** TVA Experiences with Vertical Hydro-Generator Thrust Bearings. C. L. Norris, L. R. Sellers and A. P. Maness, Tennessee Valley Authority.

9:00 a.m.—Electric Space Heating

Edison Auditorium
L. N. ROBERSON, Presiding

Committee on Domestic and Commercial Applications

- CP.** Design and Operation of Electric Radiant Heating Systems. G. K. Brokaw, Consulting Engineer.
- CP.** Electric Heat Utility Problems. J. R. Bonnin and Lacey Peoples, Cowlitz County Public Utility District No. 1.
- CP.** Cost of Serving Residential Customers and Design of Electric Rate Schedules. H. B. Cockerline, Oregon State College and Jim Howell, Eugene Water and Power Board.

9:00 a.m.—Safety

Ballroom Foyer
F. L. GOSS, Presiding
Committee on Safety

- 54-206. Placement of Protective Grounds for Linemen Safety. E. J. Harrington and T. M. C. Martin, Bonneville Power Administration.
- CP.** Grounding of Portable Electrical Equipment. H. H. Watson, General Electric Co. and L. S. Inskip, Bell Telephone Labs., Inc.
- CP.** Effect of Grounding on Accident Experience in California Industry. E. E. Carlton, State of California.
- 54-209. The Threshold of Perception Currents. C. F. Dalziel, University of California. Re-presented for discussion.

9:00 a.m.—Protective Devices

Renaissance Room
A. A. JOHNSON, Presiding
Committee on Protective Devices

- 54-201. Analytical Expressions for the Resistance of Grounding Systems. S. J. Schwarz, Sverdrup & Parcel, Inc.
- 54-302. Surge Protection of Transformers Based on New Lightning Arrester Characteristics. J. K. Dillard and T. J. Bliss, Westinghouse Electric Corp.
- 54-303. A Semi-Empirical Formula for Calculating Distribution-Transformer Fuse Ratings with Respect to Lightning Surges. John Zaborsky, Missouri School of Mines and Metallurgy.

9:00 a.m.—Theory of Economical Loading of Power Systems

California Room, Clark Hotel
E. W. BOEHNE, Presiding

Committees on Computing Devices and System Engineering

- CP.** Water Regulation and Load Allocation in the Pacific Northwest. Carl Blake and Lyle Dunstan, Bonneville Power Administration.
- 54-259. Analysis of Methods of Storage-Use to Obtain Maximum Incremental Energy from Two Hydro Storage Plants. B. V. Hoard, Bonneville Power Administration.
- 54-277. Computer Search for Economical Operation of a Hydro Thermal Electric System. R. J. Cypser, International Business Machines Corp.
- CP.** Use of Storage Water in Hydro Electric Systems. John Little, Massachusetts Institute of Technology.
- CP.** A Critique of Optimization Methods for Hydro-Thermal Systems. E. W. Boehne and P. Schweitzer, Massachusetts Institute of Technology.

2:00 p.m.—Applications of Computers to Power System Operating Problems

Bowl Foyer
P. L. MORTON, Presiding
Committees on Computing Devices and System Engineering

- 54-274. Short Range Load Allocation on a Hydro Thermal Electric System. J. J. Carey, University of Michigan.
- CP.** A Practical Low Cost Digital Computer. G. G. Hoberg, E. W. Veitch and R. C. Weise, Burroughs Corp.

- 54-276. Automatic Digital Computer Applied to Generation Scheduling. A. F. Glimm, L. K. Kirchmayer, R. Habermann, Jr., General Electric Co. and R. W. Thomas, Southwestern Public Service Co.
- 54-224. Loss Evaluation—III Economic Dispatch Studies. R. H. Travers, Ohio Edison Co.; D. C. Harker, Commonwealth Associates, Inc.; R. W. Long and E. L. Harder, Westinghouse Electric Corp.
- 54-275. An Analogue Computer for Automatic Determination of System Swing Curves. D. W. C. Shen, University of Adelaide and S. Lissner, Electricity Trust of South Australia.

2:00 p.m.—Carrier Current

Conference Room Eight
L. E. LUDEKENS, Presiding
Committee on Carrier Current

- 54-228. Analysis of Losses in Power-Line Carrier Coupling Circuits. F. C. Krings and J. L. Woodworth, General Electric Co.
- 54-227. An Objective Study of Power Line Carrier Coupling Methods. D. O. Herbert and J. C. G. Carter, Westinghouse Electric Corp.
- 54-226. Practical Use of Selectivity Data in Spacing Power-Line Carrier-Current Control Channels. D. C. Pinkerton, General Electric Co.
- 54-230. Time-Division Microwave Communications for an Electric Power System. H. D. Ashlock, Public Service Co. of Indiana and I. T. Corbell, General Electric Co.

2:00 p.m.—Rotating Machinery

Music Room
C. L. SIDWAY, Presiding
Committee on Rotating Machinery

- 54-265. Destructive A-C and D-C Tests on Two Large Turbine Generators of the Southern California Edison Company. K. M. Stevens, Southern California Edison Co. and J. S. Johnson, Westinghouse Electric Corp.
- CP.** Impedance Testing of Synchronous Machine Rotor Windings. William Schneider, Westinghouse Electric Corp.
- 54-266. Thermal Endurance of Silicone Magnet Wire Evaluated by Motor Test. W. J. Bush and J. F. Dexter, Dow Corning Corp. Re-presented for discussion.
- 54-202. Quantitative Analysis of Carbon Brush Treatments Using X-Ray Photometer Absorption Method. A. C. Titus, General Electric Co. Re-presented for discussion.

2:00 p.m.—Transformers

Renaissance Room
J. A. ADAMS, Presiding
Committee on Transformers

- 54-245. Leakage Reactance of Irregular Distributions of Transformer Windings by the Method of Double Fourier Series. A. Boyajian, Consulting Engineer.
- 54-205. Parallel Operation of Load Ratio Control Transformers Using Reverse Reactance Compensation. W. C. Sealey, Allis-Chalmers Mfg. Co.
- 54-211. 25,500 KVAR Coreless Reactor for Canada—U. S. Link, A. B. Trench and L. J. MacKinnon, Canadian General Electric Co., Ltd.
- 54-246. Mechanical Forces in Interleaved Rectangular Pancake Transformer Coils. R. L. Bean and E. C. Wentz, Westinghouse Electric Corp.
- CP.** Cell Construction for Current Limiting Reactors. L. E. Sauer, Westinghouse Electric Corp.

2:00 p.m.—Electronic Circuitry

Conference Room Two
H. L. FLOWERS, Presiding
Committee on Electronics

- CP.** Notes on the Use of Screen-to-Plate Transconductance in Multigrid Circuit Design. K. A. Pullen, Jr., Aberdeen Proving Grounds.
- 54-268. Closed Loop Automatic Phase Control. P. F. Ordnung, J. G. Gibson and B. J. Shinn, Yale University.
- 54-269. Shaping of the Characteristics of the Temperature-Sensitive Elements. E. Koenjian and J. S. Schaffner, General Electric Co.
- CP.** Application of Transistors to Telemetering Systems. C. M. Kortman, Bendix Aircraft Corp.
- CP.** Plug-In Units for Digital Computing Systems. J. N. Harris, Massachusetts Institute of Technology.

2:00 p.m.—Heat Pumps

Edison Auditorium
L. N. ROBERSON, Presiding
Committee on Domestic and Commercial Applications

- 54-225. Air Ionization as an Environment Factor. J. C. Beckett, Wesix Electric Heater Co.
- CP.** Heat Pump Experience in the Sacramento California Area. M. N. Davis, Sacramento Municipal Utility District.
- CP.** Use of the Heat Pump for Digester Heating. G. S. Smith, University of Washington.

Friday, June 25

9:00 a.m.—Computing Devices

Bowl Foyer
G. D. McCANN, Presiding
Committee on Computing Devices

- 54-270. Transistor Building Blocks for Analogue Computers. H. Hellerman, Syracuse University. Re-presented for discussion.
- 54-271. Magnetic Drum Storage of Digital Data. A. S. Hoagland, University of California.
- CP.** Voltage Coders and Decoders. Bernard Lippel, Evans Signal Laboratory.
- 54-272. Networks for Digital-to-Analog Shaft-Position Transducers. S. J. O'Neil, Air Force Cambridge Research Center.
- 54-313. Precision High Current Computer Power Supplies. Allen Rosenstein, University of California.

9:00 a.m.—System Engineering

Renaissance Room
R. G. HOOKE, Presiding
Committee on System Engineering

- 54-216. The Planning of the Swedish Extra High Voltage System. B. G. Rathsman, G. Jancke and S. Lalander, Swedish State Power Board.
- 54-254. Integration of High Voltage Systems in Britain. D. P. Sayers and F. J. Lane, British Electricity Authority.
- 54-255. Integration of High Voltage Transmission Lines within BPA 230 KV Grid. G. C. Conner and R. S. Seymour, Bonneville Power Administration.
- CP.** A Look into the Future of Power Transmission in the West. H. D. Hunkins, Bureau of Reclamation.

9:00 a.m.—Switchgear

Ballroom
J. D. WOOD, Presiding
Committee on Switchgear

- 54-256. Capacitor Switching Phenomena with Resistors. R. C. Van Sickle, Westinghouse Electric Corp. and J. Zaborsky, University of Missouri.

American Institute of Electrical Engineers

FRI. (contd)

- 54-231. High-Voltage Oil Circuit Breakers with Resistance-Equipped Interrupters for Capacitor Switching. W. M. Leeds and G. B. Cushing, Westinghouse Electric Corp.
- 54-229. Switches for 300 to 500 KV—Some New Design Concepts. A. Foti and E. A. Williams, R & I E Equipment Division.

9:00 a.m.—Air Transportation

Ballroom Foyer
C. R. MOORE, Presiding
Committee on Air Transportation

- CP.** High Frequency Alternators. S. E. Rauch, University of California and L. J. Johnson, D. & R. Ltd.
- CP** Coordinated Aircraft A-C Electrical Systems. P. F. Boggess and C. L. Mershon, Westinghouse Electric Corp.
- CP.** Magnetic-Amplifier Type Voltage Regulator for Aircraft A-C Generators. W. G. Evans and G. H. Stearley, Westinghouse Electric Corp.
- 54-305. Transient Characteristics of Aircraft Alternating-Current Generators. V. C. Holloway, U. S. Naval Research Lab.
- 54-306. Economic Factors for Aircraft Electric Power Systems. R. M. Bergslien, L. J. Stratton and H. J. Finison, Armour Research Foundation of Illinois Institute of Technology. Re-presented for discussion.
- 54-307. A Method of Calculating Current Limiter and Fuse Clearing Times in A-C Systems. S. C. Caldwell and L. E. Jensen, General Electric Co. Re-presented for discussion.
- 54-308. Evaluation of Designs for Intermittently Heated Surfaces. T. M. Dahm and R. A. Holloway, Lockheed Aircraft Corp. Re-presented for discussion.
- 54-217. Performance of a Constant Speed Drive. E. W. Giloy, The Glenn L. Martin Co. Re-presented for discussion.

9:00 a.m.—General Industry Applications

Conference Room One
H. A. ROSE, Presiding
Committee on General Industry Application

- 54-221. Remote Operation of Pipeline Pumping Stations. W. A. Derr and M. A. Hyde, Westinghouse Electric Corp.
- CP.** New Packaged Amplidyne Controlled Log Carriage Drive for the Small Sawmill. D. C. Burke, General Electric Co.
- CP.** Basic Advantages of the New Mechanical MagAmp Speed-matching System for Sectional Paper Machine Drives. W. Schaelchlin and M. H. Fisher, Westinghouse Electric Corp.
- CP.** Control Circuit Design and Application for Automatic Sulphite Pulp Bleaching. K. D. Watt and J. P. Doyle, Alaska Pine and Cellulose Ltd.

2:00 p.m.—Computing Devices

Bowl Foyer
STANLEY ROGERS, Presiding
Committee on Computing Devices

- CP.** Survey of High-Speed Analog Voltage Conversion Devices. D. W. Slaughter, California Institute of Technology.
- CP.** Two Versatile Digitizing Circuits. M. L. Kuder, National Bureau of Standards.
- CP.** A High-Speed Analog-to-Digital Converter. James Mitchell, J. B. Rea Co., Inc.
- CP.** Punched Card Potentiometer-Setting Device. Eric Weiss, Dynalysis, Inc.

2:00 p.m.—System Engineering

Renaissance Room
H. L. HARRINGTON, Presiding
Committee on System Engineering

- CP.** Observations on Transmission System Expansion. D. K. Blake, R. M. Butler and R. A. Schmidt, General Electric Co.

Summer and Pacific General Meeting

FRI. (contd)

- 54-235. Extra-High Voltage Transmission and System Planning. C. F. Wagner, J. E. Barkle and T. J. Bliss, Westinghouse Electric Corp.
- 54-257. Design and Operation of System Wide Automatic Load-Frequency Control. H. A. Bauman, C. N. Metcalf, J. G. Noest, Consolidated Edison Co. of N. Y., Inc. and J. B. Carolus, Leeds & Northrup Co.
- 54-258. Characteristics of Impulse Communications and Control Systems. R. L. Mayer, Pacific Gas & Electric Co.

2:00 p.m.—Switchgear

Ballroom
J. D. WOOD, Presiding
Committee on Switchgear

- CP.** Metalclad Switchgear Adds Further Safety with Flame Retardant Insulation. C. P. West, Westinghouse Electric Corp.
- CP.** Part Testing of High-Voltage Circuit Breakers. D. C. Prince, Pacific Oerlikon Co.
- 54-304. Field Tests on 138 KV Swedish Low-Oil Content Circuit Breakers. L. R. Bergstrom, ASEA; G. A. Stockwell, City of Los Angeles; and H. H. Mitchell, Kelman Electric & Mfg. Co.

2:00 p.m.—Air Transportation

Ballroom Foyer
W. C. BRYANT, Presiding
Committee on Air Transportation

- CP.** Generator Developments for High Performance Aircraft. R. J. Eschborn, Jack & Heintz, Inc.
- CP.** Developments Leading to Improved Ratings of Aircraft D-C Generators. C. D. Fearnot and H. L. Shambach, General Electric Co.
- CP.** Recent Developments in the Testing of Aircraft Generating Equipment. R. S. Thacker, R. S. Thacker Co.
- 54-317. A Self-Excited Induction Generator with Regulated Voltage. H. M. McConnell, Carnegie Institute of Technology.
- 54-309. Study of a Transformerless Rectified Higher Voltage D. C. Aircraft Electric System. J. P. Dallas and C. A. Reising, Jr., Hughes Aircraft Co. Re-presented for discussion.
- 54-310. Development of an Airborne Stabilized Camera. J. H. Miller and A. J. Alexander, Goodyear Aircraft Corp. Re-presented for discussion.
- 54-311. Sensitivity Requirements of Reactive Load Division Circuits in Aircraft Electrical Systems. E. S. Sherrard, U. S. Naval Research Lab. Re-presented for discussion.
- 52-319. Characteristics of Aircraft A-C Generators. L. J. Stratton and L. W. Matsch, Armour Research Foundation of Illinois Institute of Technology. Re-presented for discussion.
- 54-312. Considerations Applicable to Automatic Paralleling of Aircraft A-C Generators. M. J. Powell and E. W. Giloy, The Glenn L. Martin Co. Re-presented for discussion.

2:00 p.m.—Special Communications Applications

Conference Room One
E. C. CHAMBERLIN, JR., Presiding
Committee on Special Communication Applications

- CP.** The Electrical Flare of the 1740's: A Forgotten Wave of Spectacular Discovery Which Marked the Beginning of the Electrical Age. Lloyd Espenschied, Bell Telephone Labs., Inc.
- CP.** Magnetic Tape Data Recording Systems. L. L. Fisher, J. B. Rea Co., Inc.
- CP.** Plan 6 Receiving Teleprinted Concentrator. R. D. Swanson, Western Union Telegraph Co.

- CP.** Conference paper; no advance copies are available, not intended for publication in Transactions.

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Mrs. G. M. Babcock Mrs. Harold H. Mitchell
Mrs. Earl A. Finley Mrs. O. L. Sidenfaden
Mrs. Cyrus L. Foote Mrs. Eric E. Tugby
Mrs. J. E. Mariscal Mrs. L. C. Witt

Tour and Padua Hills Luncheon

Mrs. Fred Garrison, *Chairman*
Mrs. Joseph H. Vivian, *Vice-Chairman*

Mrs. G. L. Barcus Mrs. R. K. Klumb
Mrs. Charles C. Blecksmith Mrs. W. O. Kyte
Mrs. George T. Harness Mrs. Henry G. Wheeler
Mrs. R. E. Johnson Mrs. G. R. Woodman

Forest Lawn Art Exhibits

Mrs. Clarence M. Caver, *Chairman*
Mrs. Paul E. Brackett, *Vice-Chairman*

Mrs. William M. Moats Mrs. Charles Morris

Huntington Library Art Exhibits

Mrs. Paul L. Johnson, *Chairman*
Mrs. Clarence A. Wells, *Vice-Chairman*

Mrs. E. Dale Barcus Mrs. Conrad Reibold
Mrs. Elmer Niemoeller Mrs. Robert P. Thompson

Tour and Wilshire Country Club Luncheon

Mrs. Theodore M. Blakeslee, *Chairman*
Mrs. Harry Wittenburg, *Vice-Chairman*

Mrs. Edward Danielson Mrs. Charles Malloy
Mrs. Merlyn Herman Mrs. William McKenney
Mrs. Ralph Hopkins Mrs. Wm. S. Peterson
Mrs. Thomas B. Jones Mrs. Thomas C. Stavert
Mrs. Harry Lott Mrs. Arthur Williams

COMMITTEE MEETINGS

Monday, June 21

2:00 p.m.—Planning and Coordination Conf. Room #4
Counselor Delegates and Vice Presidents..Conf. Room #5

Tuesday, June 22

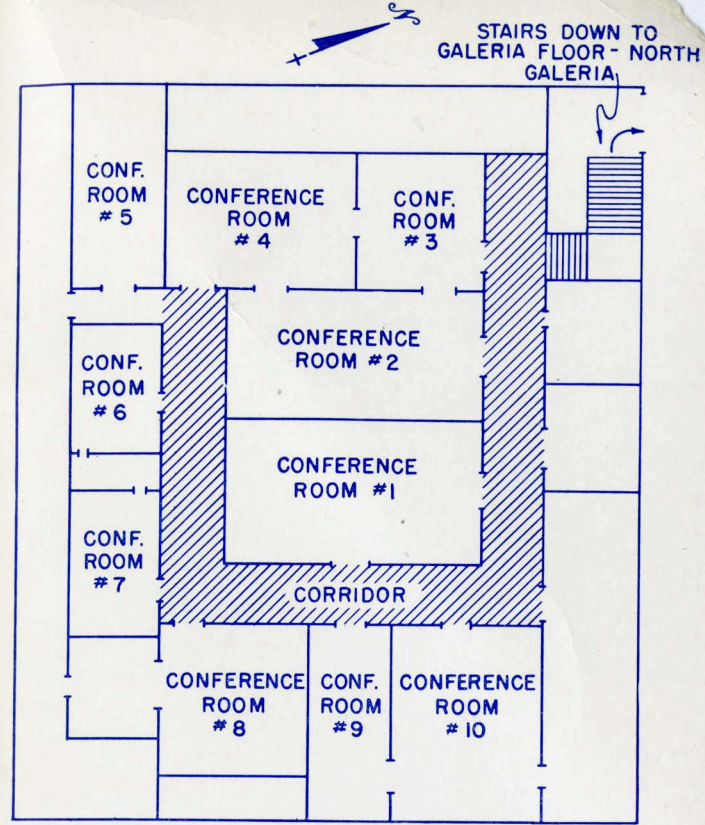
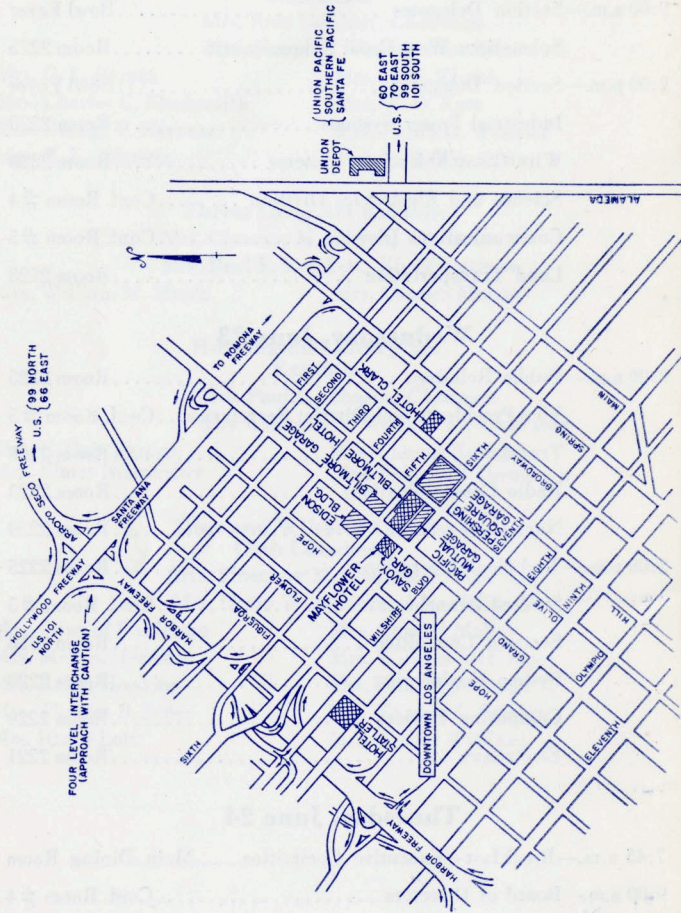
9:00 a.m.—Section Delegates Bowl Foyer
Substations West Coast Subcommittee Room 2225
2:00 p.m.—Section Delegates Bowl Foyer
Industrial Power Systems Room 2225
Wire Communications Systems Room 2228
Science and Electronics Division Conf. Room #4
Communications Division Conf. Room #5
Land Transportation Room 2223

Wednesday, June 23

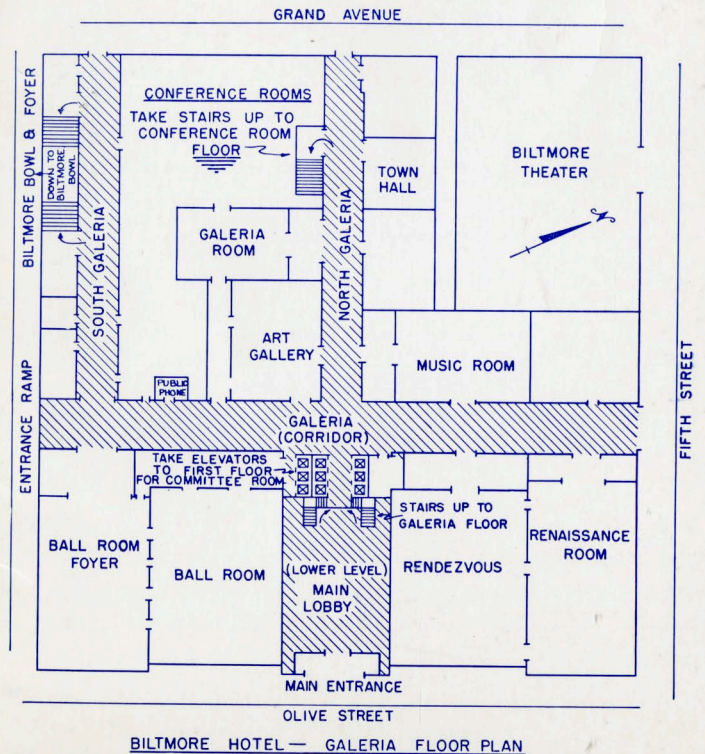
9:00 a.m.—Public Relations Room 2225
Vice-Presidents and District Secretaries... Conf. Room #5
Transfers Room 2228
Radio Communications Room 2223
Nucleonics Room 2229
2:00 p.m.—Technical Operations Room 2225
Student Branches Conf. Room #5
Sections Committee Room 2228
System Engineering Room 2223
Computing Devices Room 2229
Electronics Room 2221

Thursday, June 24

7:45 a.m.—Breakfast—Executive Committee.....Main Dining Room
9:00 a.m.—Board of Directors Conf. Room #4
Magnetic Amplifiers Room 2225
Carrier Current Room 2228
Transformers West Coast Subcommittee Room 2223
12:00 noon—Luncheon—Instruments and Measurements ... Room 2228
Luncheon—Board of Directors.....Conf. Room #5
2:00 p.m.—Board of Directors Conf. Room #4
Communication Switching Systems Room 2225
Power Generation Room 2223



BILTMORE HOTEL - CONFERENCE ROOM FLOOR



BILTMORE HOTEL - GALERIA FLOOR PLAN

