

Summer and Pacific General Meeting

June 21-25, 1954

Los Angeles, Calif.



Headquarters
Biltmore Hotel

Monday, June 21

10:00 a.m.—Opening Ceremony

Introduction of Pacific Coast Institute officers, Bradley Cozens, General Chairman.
Address of Welcome, Mayor Norris A. Poulson.

10:30 a.m.—Annual Meeting

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 Certificates.
8. Any other business that may be presented.

2:00 p.m.—Color Television

- 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

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

- CP.** Installing, Jointing and Terminating 15 KV Polyethylene Insulated Power Cable. H. W. Fahrenthold, Brown & Root, Inc.
- CP.** Economies 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

- 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.

ADVANCE COPIES OF PAPERS

Members may obtain preprints of numbered papers at the uniform price of 30c each (60c each to nonmembers), by sending enclosed order form and remittance to the AIEE Order Department, 33 West 39th Street, New York 18, N. Y. 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 denominations are available for those who wish to avoid remittance by check or otherwise. Numbered papers will be published in the Bimonthlies and in the Transactions. *Conference Papers* denoted by CP.** are intended for presentation only, and are not available.

- CP.** Measurements of Materials with High Dielectric Constant and Conductivity at Ultra High Frequencies. H. P. Schwan and Kam Li, University of Pennsylvania.
- 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

- 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

- 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

Tuesday, June 22

9:00 a.m.—Section Delegates Conference

9:00 a.m.—Radio Communications

- 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. Marcey 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.

9:00 a.m.—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

- 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

- 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.
 54-212. Radio Transmission on 230 and 400 kv Lines in Sweden. B. G. Rathman, 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

- 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.

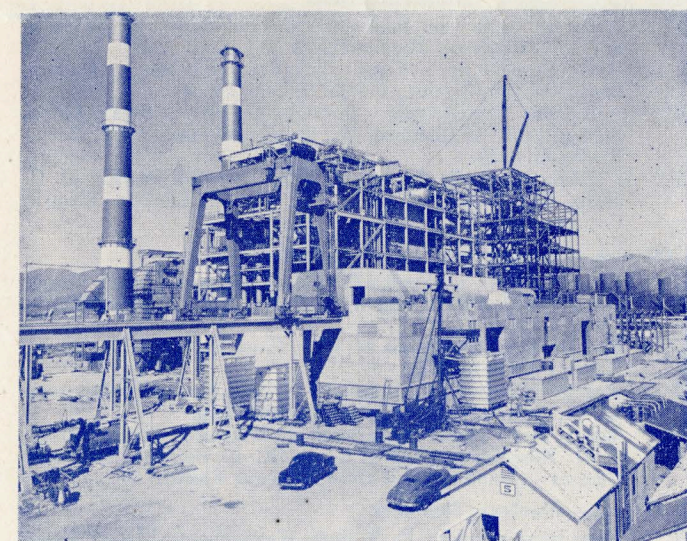
9:00 a.m.—Light Traction

- 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

2:00 p.m.—Radio Communications

- 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.



Valley Stream Plant, Department of Water and Power, Los Angeles

- CP.** The Seattle-Victoria Radio System. R. E. Kistler, Pacific Tel. & Tel. Co.

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

- CP.** Recent Developments in Transuranium Element Research. S. G. Thompson, University of California Radiation Laboratory.
 CP.** Radio Activity Measurements in Transuranium Element Research. Albert Ghiorso, 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

- 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

- 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

- 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.

2:00 p.m.—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

- 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

- 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

- 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

- 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

- 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-Aluminum 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

- 54-297. Forced Oscillations of Nonlinear Circuits. L. A. Pipes, University of California.
 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.
 CP.** Equations for Determining Current Distribution Among the Conductors of Busses Comprised of Double-Channel Conductors. C. M. Siegel, University of Virginia and T. J. Higgins, University of Wisconsin.

9:00 a.m.—Semi-Conductors

- 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.
 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.

9:00 a.m.—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. R. C. McMasters, Westinghouse Electric Corp.
 CP.** Self-Saturating Circuits with Microwatt Input. F. M. Arnold, Lear, Inc.

2:00 p.m.—Wire Communications

- 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

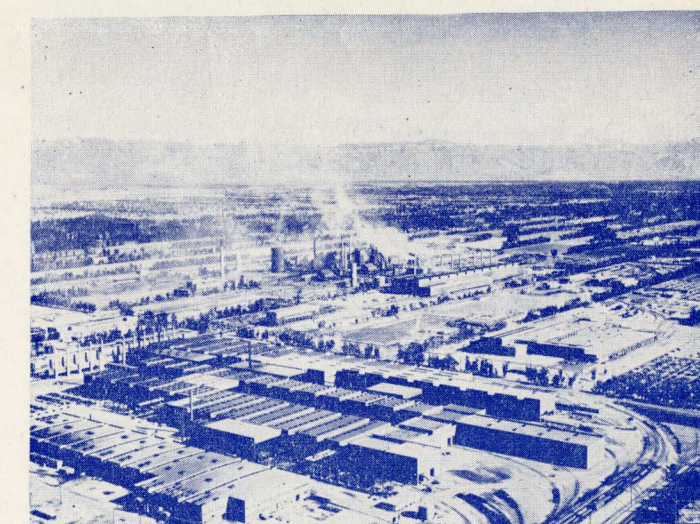
- 54-284. Self Oscillation Method for Measuring Transfer Functions. J. C. Clegg and L. D. Harris, University of Utah.
 CP.** Graphic Construction of Numeric Feedback System Closed-Loop Function Locus. T. A. Wetzel, Kearney & Trecker Corp.
 CP.** Error Coefficients in the Design of Feedback Control Systems. 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.

2:00 p.m.—Synchronous 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

- 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. Hiester, 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.



Kaiser Steel Corporation, Fontana, California
 Frashers Fotos

2:00 p.m.—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

- 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

- CP.** Properties of Silicon Power Diodes. E. F. Losco, 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

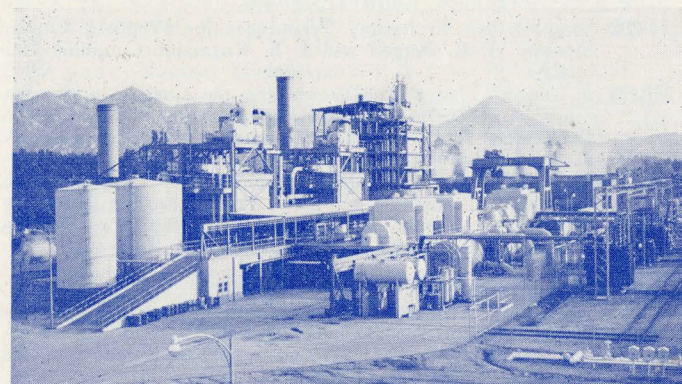
- 54-273. Application of Toll Dialing in Pennsylvania. A. L. Charny, Bell Telephone Co. of Pennsylvania.
- CP.** A PBX Telephone Switchboard for Dispatching Service. F. W. Treptow, Bell Telephone Labs., Inc.
- CP.** Concentrator-Identifier as Applied to Telephone Answering Service. D. H. MacPherson, 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

- 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

- 54-299. Non-Destructive Testing of Waterwheel Generating Unit Mechanical Components. T. C. Stavert, Southern California Edison Co.



Highgrove Steam Plant, California Electric Power Company

- 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

- 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

- 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

- 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

- CP.** Use of Storage Water in Hydro Electric Systems. John Little, Massachusetts Institute of Technology.
- 54-259. Analysis of Methods of Storage-Use to Obtain Maximum Incremental Energy from Two Hydro Storage Plants. B. V. Hoard, Bonneville Power Administration.
- 54-274. Short Range Load Allocation on a Hydro Thermal Electric System. J. J. Carey, University of Michigan.
- CP.** A Critique of Optimization Methods for Hydro-Thermal Systems. E. W. Boehne and P. Schweitzer, Massachusetts Institute of Technology.

- CP.** Water Regulation and Load Allocation in the Pacific Northwest. Carl Blake and Lyle Dunstan, Bonneville Power Administration.

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

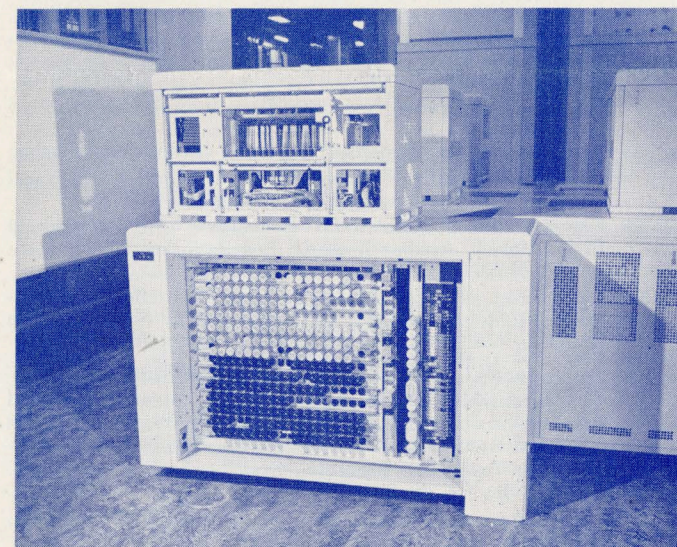
- 54-275. An Analogue Computer for Automatic Determination of System Swing Curves. D. W. C. Shen, University of Adelaide and S. Lisser, Electricity Trust of South Australia.
- 54-276. Automatic Digital Computer Applied to Generation Scheduling. A. F. Glimm, L. K. Kirchmayer, R. Habermann, Jr., General 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.
- 54-277. Computer Search for Economical Operation of a Hydro Thermal Electric System. R. J. Cypser, International Business Machines Corp.

2:00 p.m.—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

- 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.



Card Translator, 4A Toll Switching Machine, Grand Toll Office, Los Angeles

2:00 p.m.—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

- 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 Telemetry 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

- 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

- 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

- 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

- 54-256. Capacitor Switching Phenomena with Resistors. R. C. Van Sickle, Westinghouse Electric Corp. and J. Zaborsky, University of Missouri.
- 54-231. High-Voltage Oil Circuit Breakers with Resistance-Equipped Interrupters for Capacitor Switching. W. M. Leeds and G. B. Cushing, Westinghouse Electric Corp.

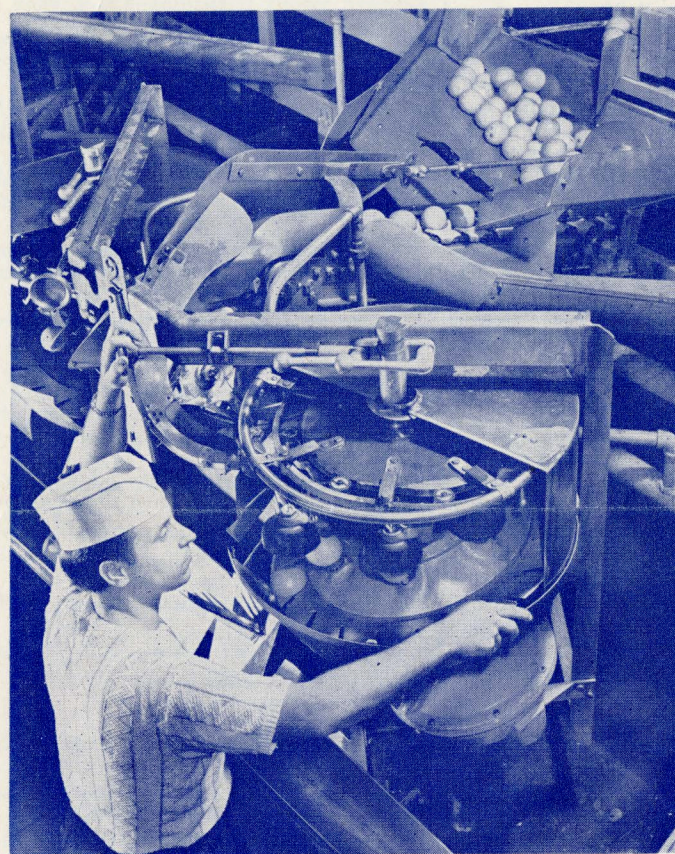


Photo by Larry Harmon

Juice Extractor at Exchange Orange Products Plant, Ontario, Calif.

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

- 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

- 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, Portland General Electric Co.
- CP.** Basic Advantages of the New Mechanical MagAmp Speed-matching System for Sectional Paper Machine Drives. W. Schaelechlin 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

- 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

- CP.** Observations on Transmission System Expansion. D. K. Blake, R. M. Butler and R. A. Schmidt, General Electric Co.
- 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.
- 54-200. Power System Fault Current Analysis Including Study of Transient Offset. M. J. Lantz, Bonneville Power Administration.
- 54-258. Characteristics of Impulse Communications and Control Systems. R. L. Mayer, Pacific Gas & Electric Co.

2:00 p.m.—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

- 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. Farnot 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

- 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.

Etiwanda and Highgrove Steam Plants—Etiwanda Steam Plant, placed in service in 1953 with two 125,000 kw generators, is the first inland steam station on the Southern California Edison Company's system, and delivers energy over two 220,000 volt lines into the transmission network at Highgrove and Barre Substations. The station is outdoor type of unit design with a centralized control room. Steam conditions at the turbines are 1800 psi, 1000°F with reheat to 1000°F. Cooling water is supplied from induced draft towers which are among the largest in the world. Auxiliary power is furnished by auxiliary generators driven from the main turbine shafts. Closed circuit television is used in the control room to monitor boiler drum levels and furnace fires.

After this trip there will be luncheon at the famous Mission Inn in Riverside, which in turn will be followed by a visit to the Highgrove Steam-Electric Generating Plant of the California Electric Power Company.

Highgrove Steam Plant with a nominal rating of 100,000 kw, located at Highgrove between San Bernardino and Riverside, California is one of the most completely outdoor steam-electric generating plants on the West Coast. All components with the exception of the operator's control and switchgear rooms are located in the open. The plant incorporates a number of unique design features. There are only two operating levels: at grade and at fourteen feet. The result is easier and more economical operation and maintenance. The unusual construction increases earthquake resistance and enhances the appearance of the installation. When the fourth unit of this project is completed production will be increased to 140,000 kilowatts. Because of unit, streamlined design the plant is run with minimum operating personnel.

The combined trip to Etiwanda and Highgrove Steam Plants, including luncheon at Mission Inn, Riverside, will be on Tuesday, June 22nd, 8:30 A.M.—\$5.00.

Richfield Oil Company: This plant, covering 560 acres, exemplifies the electrical development of a small into a large refinery, processing 115,000 barrels per day of crude oil into 50,000 barrels per day of gasoline plus other products. The growth represents an increase in load from about 1500 KVA to the present expected demand of 22,000 KVA. It also represents a transition from a radial load to primary and secondary selective substations. The electrical system also shows a transition from the open-type switchboard housed in a substation building to the outdoor, double bus, drawout-type switchgear. The entirely underground distribution system encompasses 30 substations, 10 switchrooms, 130 manholes and uses lead cable or lead with neoprene covering. Connecting horsepower is 36,000, distribution voltages are 12 KV, 2.4 KV and 460 volts. Richfield Oil Company trip, Tuesday, June 22nd, 1:30 P.M.—\$1.00.

Mount Wilson—Located on famous Mount Wilson are seven VHF and two UHF television broadcast stations and the world renowned Astronomical Observatory. Mount Wilson is over a mile high and visibility on clear days exceeds 150 miles. Inspection will be made of television transmitters, radio relay links and The Pacific Telephone and Telegraph Company's terminal station for the Hollywood Mount Wilson Microwave Radio Relay System which transmits television programs from Hollywood studios to Mount Wilson for distribution to broadcast transmitters. A visit to the 100-inch telescope to the Astrophysics Museum and other observatory facilities will be included. Work carried on at this observatory and some separate and inter-related activities at Palomar Observatory will be described.

The trip to Mount Wilson, including Box Supper, Tuesday, June 22nd, 4:30 P.M.—\$4.00.

Laguna Bell Substation—The world's first 220,000 volt installation was placed in service by the Southern California Edison Company, July 31, 1923 with two 60,000 KVA 220/66 KV transformer banks and two 30,000 KVA synchronous condensers. Two banks and two condensers have been added and 16 KV distribution capacity installed. Tremendous industrial load growth in the area served necessitated additional capacity. Existing transformers were replaced by four 220/66 KV transformer banks with modern load ratio control units having forced cooled rating of 480,000 KVA, new 66 KV suspension busses providing greater damage resistance to seismic forces, new disconnecting switches, 66 KV oil circuit breakers and a switchboard in an air conditioned control house. The station is completely double bus on 220 KV, 66 KV and 16 KV, providing maximum operating flexibility.

Laguna Bell Substation trip, Wednesday, June 23rd, 9:00 A.M.—\$1.00

Lever Brothers Company—Opened in June, 1951, the new Lever Brothers plant in Los Angeles is among the most modern plants of

its type in the world. This \$25,000,000 processing plant produces soap, detergent and shortening for distribution over the entire western part of the country. The impressive group of reinforced concrete and steel buildings occupies approximately one third of a 30-acre tract adjoining the Santa Anna Freeway.

The center of the plant consists of a four-story office and laboratory building flanked by a soap finishing and packing plant on the east and a shortening products finishing building on the west. Directly behind the main buildings are the processing facilities for the soap and edible oils.

Unique features of the plant include its 4160 volt network distribution system and its outdoor construction. Taking advantage of the warm, dry California climate, much of the process equipment is located out-of-doors with shelters over the operating levels only.

Lever Brothers trip, Wednesday, June 23rd, 9:00 A.M.—\$1.00.

Hoffman TV Corporation—More than 1000 persons are regularly employed in this television receiver manufacturing plant. Production entails arrival of components at the rear door and emergence of finished, packaged product at the front door. Production steps include riveting, sub-assembly of components, production line assembly and wiring, testing and final assembly. A total of 92 tests are given each TV set before completion and there are extreme "drop tests" after completion. A "life test" tests picture and sound up to 500 hour periods. Cabinets for the receivers are manufactured at another Hoffman Los Angeles factory.

This trip, Wednesday, June 23rd, 1:30 P.M.—\$1.00.

Valley Steam Plant and Station "G"—The 512,500 kw inland Valley Steam Plant of the Los Angeles Department of Water and Power will be seen in all stages of construction on a 150-acre site in the San Fernando Valley. When completed it will consist of four generating units: No's. 1 and 2 rated 100,000 kw each, No's. 3 and 4 rated 156,250 kw each. It is expected that Unit 1 will be in operation during the inspection trip, Unit 2 in process of assembly and construction work well under way on Units 3 and 4. Application of centralized control, unit auxiliary power supply system, control of stack discharge, are among features of interest.

During this trip a stop over will be made at Department of Water and Power Receiving Station "G". This is one of ten similar stations within the Los Angeles load area receiving bulk power at transmission voltages from the generating sources and distributing this power at 34.5 kv to substations and industrial customers. The ultimate design for each station provides for a capacity of 240,000 kw with each station supplied directly from a source of generation. The stations are interconnected with two 138 kv Belt Line Circuits to provide for interchange of power between stations to best utilize generating facilities. Rack structures at Receiving Station "G" are of modular design using standardized rolled shapes. This design minimizes engineering, fabrication and maintenance costs and presents an improved appearance for stations located in developed areas. Control room lighting is an original design of luminous ceiling.

Valley Steam Plant and Station "G" trip, Wednesday, June 23rd, 1:30 P.M.—\$1.00.

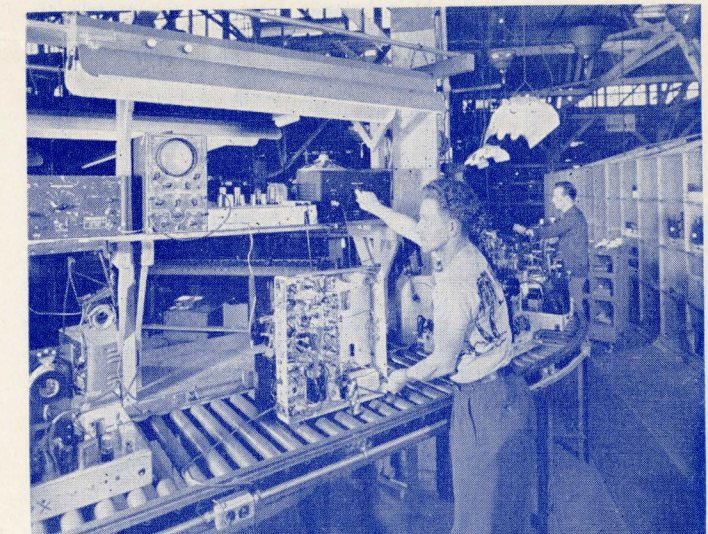


Photo by Dick Whittington

Television Receiver Testing, Hoffman Radio Corporation

AIEE Summer and Pacific General Meeting

Lockheed Aircraft Corporation—Design of modern aircraft poses mathematical problems which can only be solved by computers of many types. Lockheed Aircraft Corporation maintains a mathematical analysis section in their Engineering Headquarters Building. A general purpose analogue computer, differential analyzers amplifier and digital types and an IBM Selective Sequence Computer are available to aid in the solution of problems in flow, vibration, stress analysis and control, among others. Attendance will be limited to U.S. citizens and due to restricted space will not include wives or children. The first eighty reservations received will be permitted to make the trip. While part of the group inspects the computers the others will tour a portion of the factory.

Lockheed Aircraft trip, Thursday, June 24th, 8:30 A.M. and 1:30 P.M.—\$1.00.

North American Aviation, Inc.—North American Aviation, Inc.'s main plant at the Los Angeles International Airport houses the assembly line for three of the Company's most widely known airplanes: the Korea-famed F-86-F Sabre Jet, which fought as both a day fighter and as a fighter bomber; the F-86-D Sabre Jet, the nation's first one-man interceptor for all-weather defense of the nation, and the new F-100 Sabre—holder of the world's speed record of 755.149 miles per hour and the first Air Force production airplane to operate faster than the speed of sound in level flight.

Other facilities at the plant include a supersonic wind tunnel, an altitude test chamber which duplicates temperature and pressures found at altitudes up to 85,000 feet, a structural testing laboratory and a thermodynamics laboratory for research in temperature, flow and pressure phenomena.

North American trip, Thursday, June 24th, 1:30 P.M.—\$1.00.

California Institute of Technology—When seeking the latest advances in technical endeavor and scientific research in Southern California, do as the Southern Californians do—consult the California Institute of Technology. Located in Pasadena, Cal-Tech is a mere twenty-minute ride from Convention Headquarters along the pioneer of all California Freeways, the Arroyo-Secco. Principal points of interest for this inspection trip will be:

1. The High Voltage Laboratory, which was the first of its type in the country to produce one million volts at power frequency. Available for research as well as industrial tests, the laboratory has made an outstanding contribution to the Industrial growth of Southern California.
2. The Synchrotron, which accelerates electrons over a distance of forty-five thousand miles, approaching the speed of light and attaining the energy of a billion electron volts. The Synchrotron is playing an important role in nuclear investigation.
3. The Analysis Laboratory houses the electric analog computer, a general purpose device having a very wide field of application. It is particularly useful in solving problems of aircraft design and is used extensively by most of Southern California's aircraft companies.
4. The Hydrodynamics Laboratory contains extensive equipment for the study of the hydrodynamic forces on the models of bodies moving on the surface of the water, or with shallow submergence as well as for other hydrodynamic problems.
5. The Guggenheim Aeronautical Laboratory contains several wind tunnels capable of operating up to speeds as high as eleven times that of sound. The tunnels are being used in fundamental research for the U. S. Army and Air Force.

Cal-Tech trip, Friday, June 25th, 9:00 A.M.—\$1.00.

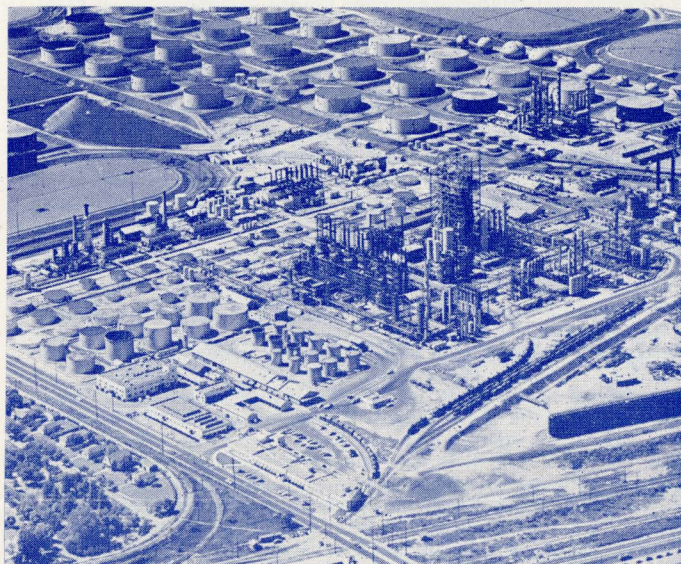
TRANSPORTATION: Special flights to the convention are being organized and members are urged to check with local air lines offices to secure space. Similarly, sections on trains are being made available and your local railroad office can advise you about such accommodations.

The airport buses from both International and Lockheed airports terminate at the Biltmore Hotel, meeting all planes. For those who travel by automobile, there is garage parking space for 4000 cars within one block of the Biltmore.

The Transportation Committee is answering all inquiries regarding points of interest which may be seen enroute whether traveling by air, train or auto. Such inquiries should be addressed to:

Robert A. Young, Chairman, 3905½ San Fernando Road, Glendale 4, California.

ADVANCE REGISTRATION: The Registration Desk will be open in the Biltmore Galeria from 2:30 p.m. to 5:00 p.m., Sunday, June 20th and daily from 8:30 a.m. to 4:30 p.m. thereafter for the duration of the meeting. The registration fee is \$3.00 for members



The Richfield Oil Refinery

Spence Air Photo

and \$5.00 for non-members. No fees will be required from students or families of members. *Do not enclose remittance. Fees will be collected when registering. You will materially aid the committees if you indicate on your advance registration card the number of people and trips and activities in which you are interested in participating.*

SPORTS: Golf has been arranged for the registered AIEE members and their guests. On Tuesday, June 22nd golf players will tee off starting at 11:00 A.M. at the beautiful and close-in Wilshire Country Club. Golfers should register at the Sports Information Desk for starting time and transportation, if desired. All registered members and guests are invited to participate in the golf tournament. Registered male members of Districts 8 and 9 (Pacific Coast Members) are eligible to compete for the J. B. Fiske cup, a perpetual trophy. The Fiske cup is awarded for low net score—18 holes Medal play. Player's handicaps to be registered with the Golf Committee based on his club handicap and course par, or an average of his last three scores on his regular course. Independent of the award of the John B. Fiske cup will be prizes for low gross, low net and blind bogey scores, open to all players. Any golfers desiring noncompetitive golf on days other than June 22nd should consult with the Sports Desk for arrangements. Full use of all Club facilities by the players has been arranged. Locker space and rental clubs for members will be available. The green fee is \$5.00 per player. The caddy fee is \$4.00 per player. Caddy carts are not in use at Wilshire Country Club.

Tennis, swimming and horseback riding will be available to those wishing their daily exercise. If advance notice indicates sufficient players are interested, a tennis tournament can be arranged to be played on June 22nd. Deep sea fishing has attractions for some and if enough interest is indicated a party will be scheduled.

The Golf prizes will be awarded at the Banquet on Thursday.

Members of the 1954 Summer and Pacific General Meeting Committee are: Bradley Cozzens, General Chairman; E. K. Sadler, Vice-Chairman; Clarence Wells, Secretary; E. W. Rockwell, Treasurer; C. M. Allen, Entertainment; Charles Croft, Hotels; R. L. Engel, Inspection Trips; L. L. Grandi, Students; G. B. Kirkwood, Sports; H. A. Lott, Finances; Robert Milmoie, Arrangements; E. W. Morris, Technical Program; Elmer Niemoeller, Publicity; H. E. Wheeler, Registration; R. A. Young, Transportation; Mrs. E. K. Sadler, Ladies Events; D. I. Cone, Thomas Ingledow, F. O. McMillan, R. W. Sorensen, and G. C. Tenney, Members-at-Large.

Issued by

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

33 West 39th Street, New York 18, N. Y.

PRINTED IN U.S.A.