



AMERICAN INSTITUTE
of
ELECTRICAL ENGINEERS

Pacific
General
Meeting

Hotel Senator
SACRAMENTO, CALIF.
August 19-22, 1958

GENERAL INFORMATION

For those who attend this Pacific General Meeting in Sacramento, California there awaits an interesting program of stimulating technical sessions and social entertainment. With members of the Sacramento Section as hosts, we can assure our guests a most enjoyable and well-spent visit. Headquarters for the meeting is the Hotel Senator.

The General Session at 10:00 a.m. on Tuesday morning, August 19, will include an address by President L. F. Hickernell. Mr. C. C. Whelchel, a featured speaker, will discuss "Future Thermo-Electric Power Plants on the System of the Pacific Gas and Electric Company." Mr. Harvey O. Banks, Director, California Department of Water Resources, will discuss "Power In the California Water Plan."

On the social side there will be a "Get-Acquainted" gathering, an exciting Wine Tasting Festival, and a stage production of "The Most Happy Fella". Climaxing the social activities will be an authentic Hawaiian Luau to be held Thursday evening.

Registration Fees Required. In accordance with the policy set up by the Board of Directors, a registration fee of \$5.00 has been established for members and a fee of \$8.00 for nonmembers. This is to help make the meeting self-supporting. Student members and the immediate families of members will not be 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, discussion on TRANSACTIONS Papers in duplicate must be left with the Chairman and/or sent to Edward C. Day, Assistant Secretary, Technical Operations Department, AIEE, 33 West 39th Street, New York 18, New York, before Sept. 5, 1958. 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 inked tracings should be submitted.

Advance Copies of Papers may be purchased by members at the Technical Papers Desk at the uniform price of \$.40 each (\$.80 each for nonmembers). Only numbered papers are available. Mail orders, particularly from out-of-town members, are advisable inasmuch as an adequate supply of each paper at the meeting cannot be assured. Coupon Books in \$10.00 denominations are available for those who wish to avoid remittance by check or otherwise. Mail orders should be addressed to the AIEE Order Department, 33 West 39th Street, New York 18, New York. The TRANSACTIONS Papers will also be published in the Bimonthly Publications. Note: Unnumbered Conference Papers (CP.*) may be available for sale at or after the meeting if copies are provided by the author. They are not intended for publication in the TRANSACTIONS and are not presently scheduled for reproduction in any form by the Institute.

Pacific General Meeting

SCHEDULE OF EVENTS

MONDAY, AUGUST 18

- 7:00 p.m. Registration
Get Acquainted Gathering

TUESDAY, AUGUST 19

- 8:00 a.m. Registration
- 8:30 a.m. Coffee Hour
- 10:00 a.m. General Session
- 1:00 p.m. Trip to California Governor's Mansion
- 1:30 p.m. Trip to Aerojet-General Corp.
- 2:00 p.m. Relays & Rotating Machinery
Computing Devices
Power Generation
- 6:00 p.m. Wine Tasting Festival

WEDNESDAY, AUGUST 20

- 8:30 a.m. Trip to McClellan Air Force Base
- 9:00 a.m. Industrial Power Systems
Nucleonic & Radiation Instrumentation
Domestic & Commercial Applications
Coffee Hour
- 12:00 noon Students' Luncheon
- 12:30 p.m. Ladies' Luncheon
- 1:30 p.m. Trip to Elverta & Hedge Substations
- 2:00 p.m. Industrial Power Systems
Insulated Conductors
Space Heating

Evening: Music Circus

THURSDAY, AUGUST 21

- 8:30 a.m. U. S. Army Signal Depot Tour
- 9:00 a.m. Feedback Control Systems
Management, Research & System Engineering
Radio Communication Systems
Coffee Hour
- 12:15 p.m. General Luncheon
- 1:00 p.m. Golf Tournament
- 2:00 p.m. Feedback Control Systems
Wire Communication Systems
Trip to Procter & Gamble Plant
- 7:00 p.m. Cocktail Hour
- 8:00 p.m. Hawaiian Luau

FRIDAY, AUGUST 22

- 8:30 a.m. Folsom Dam & Powerhouse Tour
- 9:00 a.m. Substations
Transmission & Distribution
- 10:00 a.m. Brunch

Tuesday, August 19

10:00 a.m.—General Session

2:00 p.m.—Relays and Rotating Machinery

Relays and Rotating Machinery Committees
Room 166, Education Building
M. A. BOSTWICK, *Presiding*

- 58-1018. Protection of Three Phase Motors Against Single Phase III. Operation. L. L. Gleason, City of Seattle Lighting Dept. and W. A. Elmore, Westinghouse Electric Corp.
- 58-1019. Drainage Reactor Protection of Pilot Wire Circuits. J. G. III. Hendrickson and A. R. Caprez, City of Tacoma Dept. of Public Utilities.
- 58-1020. Contribution to the Theory of Commutation on D-C Machines. R. Holm, Stackpole Carbon Co.
- CP.* A New Brushless Alternator with Electromagnetic Excitation. H. M. Robinson and F. B. McCarthy, Aerojet-General Corp.

2:00 p.m.—Computing Devices

Computing Devices Committee
Room 150, Personnel Building
R. E. WALL, *Presiding*

- 58-1003. Direct System Synthesis by Means of Computers. A. B. Clymer, North American Aviation, Inc.
- CP.* Servo Controlled Magnetic Tape Delay Line. L. J. Kamm, Convair.
- CP.* Logic for Magnetic Tape Delay Line. D. N. Hale, Convair.
- CP.* The Logical Design of a Serial General Purpose Computer with Micro-Programming Capabilities. R. I. Tanaka, Lockheed Aircraft Corp.
- CP58-1025. Matrix Synthesis of High Speed Logic. E. J. Schubert, Burroughs Corp.

2:00 p.m.—Power Generation

Power Generation Committee
Room 107, Veterans Affairs Building
R. L. EARNHEART, *Presiding*

- 58-769. Performance of Generator Thrust Bearings at Hoover Power III. Plant. F. B. Looper, City of Los Angeles Dept. of Water and Power.
- 58-1024. Electrical Requirements of Reversible Pumped-Storage Units. III. H. H. Roth, Allis-Chalmers Mfg. Co.
- CP.* The Impact of Atomic Energy on Water Resources Development. F. J. Groat, California Department of Water Resources.
- CP.* Motor-Driven vs. Shaft-Driven Exciter Tests. S. H. Gold, C. K. Grant, and J. H. Zornes, California Electric Power Co.

Wednesday, August 20

9:00 a.m.—Industrial Power Systems

Industrial Power Systems Committee
Room 166, Education Building
E. P. PEABODY, *Presiding*

- CP.* Power Distribution in Agglomerating Plants. J. E. Barkle and T. W. Soden, Bechtel Corp.
- CP.* Industrial Power System Design at 480 Volts. C. L. Phillips, General Electric Co.
- CP.* Performance Testing of Emergency Power Supplies for a Nuclear Reactor. W. R. Moon, General Electric Co.
- CP.* Application of Low Voltage Air Circuit Breakers to Modern Industrial Plants. R. I. Carlson and I. C. Fisk, Allis-Chalmers Mfg. Co.

9:00 a.m.—Nucleonic and Radiation Instrumentation

Nucleonic and Radiation Instrumentation Committee
Room 150, Personnel Building
J. G. LUNDHOLM, JR., *Presiding*

- CP.* The Sodium Reactor Experiment. J. E. Owens, Atomics International.
- CP58-706. Instrumentation for a Boiling Water Reactor. L. Kornblith, Jr., General Electric Co.
- CP.* Analytical Methods for Determining Control Requirements for Nuclear Power Plants. E. B. Ash and J. G. Lundholm, Jr., Atomics International.
- CP.* Data Handling Systems for Nuclear Power Plant. T. R. Hudson, Daystrom Systems.

9:00 a.m.—Domestic and Commercial Applications

Domestic and Commercial Applications Committee
Room 107, Veterans Affairs Building
J. C. BECKETT, *Presiding*

- 58-1006. Tramp-Iron Remover for a Field Forage Harvester. F. C. II. Jacob and J. B. Dobie, Univ. of Calif.
- CP.* Electrical Design for Fire Safety in Hospital Operating Rooms. R. E. Carlson, State Fire Marshall Office.
- 58-1007. Artificial Cooling of Livestock in Hot Climates. C. F. Kelly, II. Univ. of Calif., T. E. Bond, U.S. Dept of Agriculture, and N. R. Ittner, (Deceased).
- CP58-1000. Reversible Electrical Distillation by Use of Transthermer. R. C. Schlichtig, Seattle, Wash.
- 58-1010. Earth Source Heat Pumps, Characteristics, Design and Operation. E. A. Freund and G. S. Whitlow, Union Electric Co. of Missouri. (Re-presented for Discussion only.)

2:00 p.m.—Industrial Power Systems

Industrial Power Systems Committee
Room 166, Education Building
R. A. ERWIN, *Presiding*

- CP58-1015. An Experience Report on the Use of Aluminum Wire and Cable in Industrial Plants. H. Esch, Kaiser Aluminum & Chemical Corp.
- CP.* Portable Power Supply for Movie Studio Service. P. Belsky, Westinghouse Electric Corp. and G. Feldecamp, Walt Disney Productions.
- CP.* Power Systems for Emergency Lighting. A. B. Smedley, Pasadena, Calif.

2:00 p.m.—Insulated Conductors

Insulated Conductors Committee
Room 150, Personnel Building
C. E. BAUGH, *Presiding*

- CP58-1016. History and Development of Residential Underground Distribution in Southern California. R. C. Blankenburg, Southern California Edison Co.
- CP58-1017. Heat Run Testing of Pipe-Type Cable. C. M. Buck and F. B. Schullerts, Pacific Gas & Electric Co.

2:00 p.m.—Space Heating

Domestic and Commercial Applications Committee
Room 107, Veterans Affairs Building
L. N. ROBERSON, *Presiding*

- CP58-1001. Solar House Heating. W. A. Danielson, Brig. Gen. U.S.A., Ret., Memphis, Tenn.
- CP58-1011. Boolean Algebra Applied to Heat Pump Design. H. P. Gluckman, Los Angeles Dept. of Water and Power, and G. J. Friedman, Servomechanisms, Inc.
- 58-1012. Residential Heating—Electric vs. Gas or Oil. G. S. Smith, II. Univ. of Wash.

- CP58-1013. Centrifugal Heat Pump System for Service Center. J. A. Wright, The Washington Water Power Co.
 58-1014. Motor-operated Switch for Space Heating Control. J. C. II. Beckett, Wesix Elec. Heater Co. (Re-presented for Discussion only.)

Thursday, August 21

9:00 a.m.—Feedback Control Systems

Feedback Control Systems Committee
 Room 166, Education Building
 G. FRANKLIN, Presiding

- 58-1002. A Phase Plane Approach To Relay Sampled-Data Feedback II. Systems. F. J. Mullin & E. I. Jury, Univ. of Calif.
 CP.* Applications of Continuous System Design Concepts to Sampled Data Systems. Stanley F. Schmidt, Ames Aeronautical Laboratory.
 CP58-1026. Relay Type Feedback Control Systems With Dead Time And Sampling. K. Izawa, Purdue Univ. & L. E. Weaver, Univ. of Arizona.
 CP.* Least Squares Design of Multi Variable Control Systems. R. C. Amara, Stanford Univ.

9:00 a.m.—Management, Research and System Engineering

Management, Research and System Engineering Committees
 Room 107, Veterans Affairs Building
 F. I. LAWSON, Presiding

- 58-1030. Economic Selection of Generating Capacity Additions. T. W. III. Schroeder and G. P. Wilson, Illinois Power Co.
 CP58-1031. Managing Research Laboratories, T. M. Linville, General Electric Co.

9:00 a.m.—Radio Communication Systems

Radio Communication Systems Committee
 Room 150, Personnel Building
 C. A. WELLS, Presiding

- 58-181. A 6000-MC Radio System for Toll Telephone Service. M. H. I. Kebby & A. F. Culbertson. Lenkurt Electric Co. (Re-presented for Discussion Only.)
 CP.* Expansion of Pacific Coast Microwave Network. R. G. Kuck, Pacific Tel. & Tel. Co.
 CP.* A New Flexible Radio System For Traffic Light Control. C. Willyard, Motorola, Inc.
 CP.* Put the Tip of Your Finger To Work. H. H. Davids, General Electric Co.
 CP.* Atmospheric Influences on 36 Kilomegacycle Propagation. W. Flock, National Bureau of Standards & Univ. of California.

2:00 p.m.—Feedback Control Systems

Feedback Control Systems Committee
 Room 166, Education Building
 T. STOUT, Presiding

- 58-1027. Complex-Zero Signal Generator For Rapid System Testing, II. G. C. Lendaris & O. J. M. Smith, Univ. of Calif.
 58-1028. Servo Motor Theory: Effect of Planning Source Impedance II. On Motor Performance. A. Diamond, Kety Dept. of United Aircraft Corp., formerly of Helipot Corp.
 CP58-89. Application of Switching Transistors and Saturable Reactors In A High-Performance Servo. F. B. Cox, Jr. & P. R. Johannessen, Massachusetts Inst. of Technology.

2:00 p.m.—Wire Communication Systems

Wire Communication Systems Committee
 Room 150, Personnel Building
 R. L. BRINTON, Presiding

- CP.* The Underwater Voiceway to Hawaii. J. W. Dunbar, American Telephone and Telegraph Co.
 CP.* Field Experience with the B-510 Type Carrier System. W. E. Noller, Lynch Carrier Systems, Inc.

- 58-1004. Type OJ Carrier Telephone System. J. A. Coy, ret. Bell I. Telephone Laboratories, Inc., E. S. Kelsey and B. T. Nicholls, Northern Electric Co. Ltd.
 58-1005. The "ON/K" Carrier System. G. T. Masters, Pacific Telephone and Telegraph Co.

Friday, August 22

9:00 a.m.—Substations

Substations Committee
 Room 166, Education Building
 A. A. STRAUB, Presiding

- 58-1008. Zig-Zag Configuration in High Voltage Ring-Bus Substation. III. R. N. Connelly, Sacramento Municipal Utility District and R. F. Gibbons, Federal Pacific Electric Co.
 58-1021. Requirements for, and Operating Experience with, Supervisory Control on the Bonneville Power Administration System. J. R. Boston and K. E. Shank, Bonneville Power Administration.
 CP58-1022. Report on West Coast Practices for Transil Oil Handling in Substations. AIEE Working Group on Project 56.2, J. L. Buckley, Chairman.
 58-22. The Insulator Contamination Problem as Influenced by Silicone Surface Coatings. J. E. Conner, Southern California Edison Co., and A. D. Lantz, Jr., The Ohio Brass Co. (Represented for Discussion only.)

9:00 a.m.—Transmission and Distribution

Transmission and Distribution Committee
 Room 107, Veterans Affairs Building
 C. E. BAUGH, Presiding

- 58-1023. Nodal Representation of Large Complex-Element Networks III. Including Mutual Reactances. J. C. Siegel and G. W. Bills, North American Aviation, Inc.
 58-360. The Magnetic Properties of ACSR Core Wire. L. W. Matsch, III. Univ. of Arizona, and W. A. Lewis, Illinois Institute of Technology.
 CP58-1009. Graphical Analysis of Aerial Cable Current Characteristics. E. Hazan, Kaiser Aluminum & Chemical Corp.
 58-1029. The Resistance and Reactance of Aluminum Conductors, III. Steel Reinforced. W. A. Lewis, Illinois Inst. of Technology & P. D. Tuttle, Alcoa Research Laboratories.
 CP.* Rapid Determination of Corona Loss From Voltage—Charge Diagrams. H. S. Dixon, Berkeley, Calif.

NOTE: Unnumbered Conference Papers (CP.*) may be available at or after the meeting, if copies are provided by the author. They are not intended for publication in the TRANSACTIONS and are not presently scheduled for reproduction in any form by the Institute.

NOTE: The TRANSACTIONS papers will be printed in the bimonthly publications as follows:

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

INSPECTION TRIPS

An outstanding program of inspection trips of both technical and general interest has been arranged. Interested persons are urged to make arrangements at the inspection-trips desk immediately after registration. All trips are scheduled for half day only and the return to headquarters will be in time for succeeding events. Men will be more comfortable on the trips if they plan on wearing sport shirts. Special chartered buses have been secured for the trips. Those attending must ride these busses to gain admission to the facilities to be inspected.

Aerojet-General Corporation (Bus leaves Hotel Senator, Tuesday, 1:30 p.m., August 19). Located just a few miles from Sacramento, this company is believed to be the largest rocket production facility in the world. Producers of equipment for the VANGUARD, POLARIS, BOMARC, and REGULUS missiles, this plant covering 20,000 acres and employing 7,000 people will provide a most unusual tour. Ticket—\$2.00.

McClellan Air Force Base (Bus leaves Hotel Senator, Wednesday, 8:30 a.m., August 20). Largest of the West Coast Air Material centers, this Air Base warehouses, maintains, and supplies Air Force equipment for the Western Continental and Pacific areas. Vital in time of war, McClellan serves now as a major bulwark of our nation's West Coast defenses.

Seen on this trip will be the Air Force's world-wide communications center and the jet overhaul, maintenance, and modification shops. Planes that normally can be seen on the flight line will include the F86, F100, F104, B47, and the large RC121. Ticket—\$1.50.

Elverta and Hedge Substations (Bus leaves Hotel Senator Wednesday, 1:30 p.m., August 20). Elverta Substation is a principal receiving substation of the Sacramento Municipal Utility District at which power is taken from the U.S. Bureau of Reclamation at 230 kv. Two 185,000 kva 3-phase 4-winding double autotransformers supply both 115 kv and 69 kv station buses. Four 12.5 mvar switched capacitor banks are connected to the 69 kv station buses. These banks are owned and operated by the USBR for transmission voltage control.

Hedge Substation is now under construction and most of the physical plant will be in place by the time of this trip. This station will receive power from the Pacific Gas & Electric Company and SMUD's Upper American River Hydro Project at 230 kv. Both the 230 kv and 115 kv buses are of the ring type. The initial installation includes one 230/120 kv, 120,000 kva 3-phase and one 230/76 kv, 160,000 kva 3-phase transformer. The approach used in the design of the steel structures is quite unique and interesting because it forms a zigzag pattern. Ticket—\$2.00.

United States Army Signal Depot (Bus leaves Hotel Senator, Thursday, 8:30 a.m., August 21). The mission of the Sacramento Signal Depot is to acquire, store, repair, and issue the many thousands of pieces of equipment used in communications by the U.S. Army. Equipment seen during the tour may range in size from a huge mobile radar set weighing many tons to a small transistor, only fractions of an inch in length.

The Sacramento Signal Depot acts as a distributor, stocking items for Alaskan ports, the Far East Command, and may ship to any part of the world.

The Maintenance Division repairs all types of Signal equipment and maintains special shops for Radar, Electronics, Avionics, Nuclear, Communication, Television, Teletype, Meteorological and Radiological equipments.

An unusually interesting feature seen on the trip will be the modern crystal grinding and fabrication shops. In this operation crystals used in various communication equipments are shaped and ground with great precision. Ticket—\$1.00.

Procter and Gamble Plant (Bus leaves Elks Club, Thursday, 2 p.m., August 21). This newest Procter & Gamble plant manufacturing synthetic detergents and processing the raw materials used in them is located a short 20-minute bus ride from Meeting headquarters. In the process area tank car quantities of coconut oil are daily processed for shipment to all P&G plants in the United States making detergent granules, bars, and liquids. The synthetic detergent plant is an integrated operation continuously converting liquid and solid chemicals into the familiar granules for home use.

Numerous automatic controls, both pneumatic and electronic, are used to control the chemical processes. The packing unit which will be seen on the tour has the latest in automatic packaging machinery and materials handling equipment. The 106,000-square-foot warehouse has the most modern pallet-less unit-load equipment for handling local production plus the full line of company products which are distributed to Northern California, the Pacific Northwest, and overseas. Steam for process use is supplied by two 60,000 lbs. per hour boilers in a modern outdoor installation. The 12 kv distribution system to unit substations will be shown as part of the tour. Ticket—\$1.00.

Folsom Dam and Powerhouse—Old and New (Bus leaves Hotel Senator Friday, 8:30 a.m., August 22). Visited during this tour will be the recently constructed Folsom Dam and generating facilities. The dam completed in 1956 by the U. S. Corps of Engineers impounds 1,000,000 acre-feet of water. The power plant at the foot of the dam which houses three generators of 54,000 kw each, was installed and is operated by the U.S. Bureau of Reclamation.

These generators supply electricity to the Central Valley Project whose 230 kv transmission lines traverse Northern and Central California. The generators, the step-up substation and switchyards, and a water pumping plant will be included as part of the trip.

A significant highlight of the tour will be attendance at a brief ceremony dedicating the original Folsom Powerhouse as a California Historical Landmark. Originally set in operation in 1895, Folsom was one of the first commercial hydro powerhouses to deliver power at a high voltage to a distant city. In its heyday 3,000 kw. generated at 800 volts, was transmitted at 11 kv for the unheard of distance of 22 miles to Sacramento. The plant was operated continuously until 1952 when construction of the new dam forced it to shutdown. The old plant will be open for a brief inspection after the dedication ceremony. Ticket—\$2.50.

SOCIAL ACTIVITIES

Relaxed informality and fun are featured in the entertainment program. Early arrivals and their wives are being welcomed at an informal "Get-Acquainted" gathering in the Gold Room of Hotel Senator, on Monday evening, from 7 to 10 p.m. The Gold Room is conveniently close to the registration center, and all are invited to drop in to "get acquainted" and enjoy some informal entertainment and light refreshments.

Tuesday morning a Coffee Hour from 8:30 to 9:45 a.m. in the Gold Room of Hotel Senator precedes the opening general session. Men, women, and students are invited. Tuesday evening, an exciting Wine Tasting Festival is planned from 6 to 8 p.m. in the Empire Room of Hotel Senator. There is no charge for this event which offers generous samples of a wide variety of world-famous California wines.

A limited number of Wednesday night tickets, are being sold at \$2.40 on a first-come, first-served basis, have been reserved at the Music Circus for the smash stage production, "The Most Happy Fella." Produced by the outstanding Lewis and Young Theatrical Company and held outdoors under a gala circus tent, this novel theatre-in-the-round musical will fascinate both men and ladies.

A Thursday luncheon featuring an outstanding speaker is being held for men and their ladies at 12:15 p.m. in the Mirror Room of the Elks Club. William H. Pickering, director of the Jet Propulsion Laboratory, California Institute of Technology, will speak on the

subject "An Electrical Engineer Looks at the Space Age." Tickets are priced at \$2.00 each. Climaxing the entertainment program an authentic Hawaiian Luau will take place at the Newman Club, Thursday evening. A complimentary cocktail hour will be from 7 to 8 p.m. The luau will be served by "Hula Girls and Beach Boys" from 8 to 9 p.m. to the accompaniment of native Hawaiian music and entertainment. Dancing to the American music of Clyde Mitchell will follow until midnight. Charge for the evening will be \$6.00 per person.

LADIES' ACTIVITIES

The ladies attending the Meeting are sure to enjoy the interesting and fun-packed program planned for them. In addition to the social activities for both men and women, the following events have been especially prepared for the ladies. A "Coffee Hour" is being held Wednesday and Thursday mornings at 9 a.m. in Room 240 of Hotel Senator. Room 340 serves as "Hospitality Headquarters" each morning and other posted times for those who wish to play cards or relax and chat with others.

Tuesday offers a tour of the California Governor's Mansion, followed by an afternoon "Tea" at the famous Crocker Art Gallery. Buses leave at 1 p.m. from Hotel Senator. Cost—\$1.00 per ticket.

A 12:30 p.m. Wednesday luncheon is being held at the fashionable Sacramento Inn. Featured is a fascinating talk by Mrs. Joyce Peters, an unusually competent and charming lady engineer. An interesting discussion of the aims and objectives of the Sacramento AIEE Wives' Club will follow. Tickets are priced at \$2.00.

On Thursday the ladies are invited to join the men for a trip to the Tide and Oxydol Plant of the Procter and Gamble Company. Women are to be escorted on an especially arranged visit of the plant. Transportation cost for the bus which leaves Hotel Senator at 2 p.m. is \$1.00 per person.

Friday features a Brunch with swimming and bridge. A nominal charge of \$2.00 is being made for this event which begins at 10 a.m. at the El Mirador Hotel.

HAWAII POST-MEETING TOUR

An especially planned eight-day Post-Meeting Tour to fabulous Hawaii has been arranged. Honolulu-bound members will fly from Sacramento at 9 a.m., August 23 and arrive in the Islands at 4:30 p.m.—with plenty of time for an evening swim at beautiful Waikiki.

On Monday, August 25, the Hawaii Section of AIEE will sponsor a one-day program consisting of a general get-together session followed by luncheon, inspection trips and an evening social event for both ladies and gentlemen.

STUDENT ACTIVITIES

In addition to other Meeting activities a special students' and counselors' luncheon is planned for Wednesday noon in Room 240 of Hotel Senator. Dr. R. D. Bennett, Manager of General Electric's Vallecitos Atomic Laboratory, will address the group. A short period will be allowed after the meeting for discussions of mutual interest. There is no charge to students or counselors for the luncheon.

Inspection Trip tickets may be purchased by students in attendance at the Meeting for the low price of 50 cents for each trip.

SPORTS

A Golf Tournament is scheduled for Thursday afternoon at the Haggin Oaks Golf Course. This is truly one of the most beautiful courses in Northern California. Trophies will be awarded for low gross and low net scores, and there will be special prizes for the "Duffer" class. Lunch will be served at the Club House as the first foursome will tee off promptly at 1 p.m. Green fees are \$3.50 per person.

OFFICERS OF AIEE 1958-59

President

L. F. HICKERNELL

Past Presidents

W. J. BARRETT

M. S. COOVER

Vice Presidents

W. H. CHASE

I. T. MONSETH

R. B. GEAR

J. M. NELSON

O. A. GUSTAFSON

H. W. OETINGER

L. C. HOLMES

S. M. OSTHAGEN

A. G. JOHNSON

B. R. TEARE, JR.

J. R. KERNER

G. F. TRACY

C. P. KNOT

Directors

W. R. BROWNLEE

N. F. RODE

W. R. CLARK

E. C. STARR

A. A. JOHNSON

J. C. STRASBOURGER

W. A. LEWIS, JR.

J. D. TEBO

E. W. MORRIS

P. G. WALLACE

L. M. ROBERTSON

J. C. WOODS

Treasurer

C. H. LINDER

Secretary

N. S. HIBSHMAN

TECHNICAL OPERATIONS DEPARTMENT

HENDLEY BLACKMON, *Chairman*

C. T. Hatcher

I. S. Coggeshall

Vice-Chairman

Secretary

E. C. Day

R. S. Gardner

Assistant Secretary

Assistant Secretary

Technical Papers

Technical Activities

M. M. Brandon

E. W. Morris

W. R. Clark

A. C. Muir

L. R. Gaty

E. I. Pollard

G. W. Heumann

C. F. Savage, Jr.

H. F. Hoebel

B. G. A. Skrotzki

E. U. Lassen

J. D. Tebo

W. M. Leeds

D. E. Trucksess

W. A. Lewis, Jr.

S. R. Warren, Jr.

W. H. MacWilliams, Jr.

H. H. Watson

P. K. McElroy

R. H. Whaley

John Meszar

PACIFIC GENERAL MEETING COMMITTEE

GENERAL

C. R. Day, *Chairman* W. L. Hill, *Secretary*
F. J. Groat, *Vice Chairman* W. G. Felt, *Treasurer*

FINANCE

P. E. Shaad, *Chairman*
W. F. Poynter

HOTEL ARRANGEMENTS

E. P. Price, *Chairman*
E. J. Terhaar J. Chum
R. V. Knierim G. Estes
P. E. White

PUBLICITY

M. N. Davis, *Chairman*
M. M. Sperry H. R. Fitch
R. J. Koetting

PRINTING AND TICKETS

A. O. Clark, *Chairman*
F. L. Nettell

INSPECTION TRIPS AND TRANSPORTATION

L. O. Haupt, Jr., *Chairman*
C. A. Bairos H. H. Hunt
G. A. Fleming

ENTERTAINMENT

I. E. Ball, *Chairman*
S. C. Rice R. N. Keen
D. A. Rice H. I. Blinder
J. T. Hobrecht

REGISTRATION

E. C. Sparrow, *Chairman*
R. N. Connelly A. E. Pellinen
A. R. Whittemore

SPORTS & RECREATION

E. J. Keogh, *Chairman*
D. Browning

STUDENTS

R. W. Armstrong, *Chairman*
W. B. Roos G. N. Kapandritis

LADIES PROGRAM

Mrs. F. J. Groat, *Chairman*

Mrs. F. E. Anderson	Mrs. C. R. Koch
Mrs. I. E. Ball	Mrs. T. N. Kreiberg
Mrs. M. V. Beretta	Mrs. R. Leggett
Mrs. R. F. Carter	Mrs. T. C. Mitchell
Mrs. M. N. Davis	Mrs. D. J. Morken
Mrs. C. R. Day	Mrs. A. Norberg
Mrs. G. A. Fleming	Mrs. W. L. Omer
Mrs. E. D. Ford	Mrs. E. P. Price
Mrs. H. Grondorf	Mrs. H. C. Purcell
Mrs. C. L. Hair	Mrs. P. E. Shaad
Mrs. L. O. Haupt	Mrs. R. L. Shoemaker
Mrs. W. L. Hill	Mrs. H. R. Smith
Mrs. J. P. Hobrecht	Mrs. E. C. Sparrow
Mrs. W. H. Jones	Mrs. E. J. Terhaar
Mrs. R. N. Keen	Mrs. J. R. Thomas
Mrs. E. J. Keogh	Mrs. H. W. Warmoth

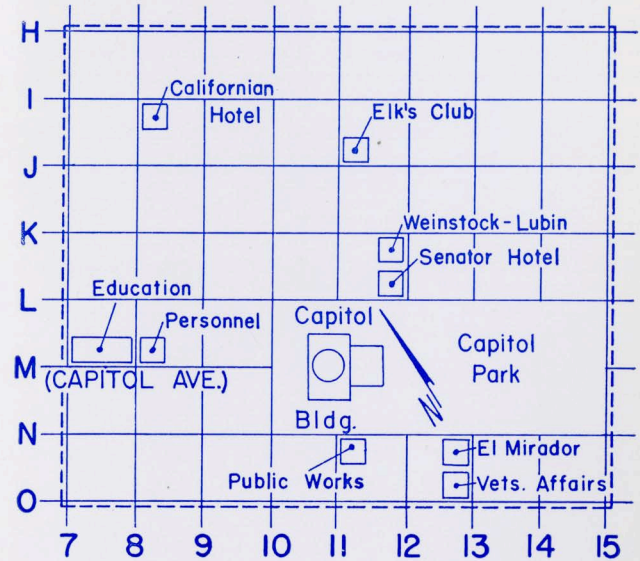
MEETINGS

J. E. Chester, *Chairman*

M. Limerick	H. Jones
C. Hair	G. Reynolds
D. Tribble	D. Morken
W. Omer	R. W. Wesley
D. Clukey	J. J. Tesik
G. Anderson	T. C. Robb
O. Levis	G. R. Deppe
M. Prewett	D. Gerven
M. Kibbey	T. Mackey

LIST OF AUTHORS

<i>Author</i>	<i>Page</i>	<i>Author</i>	<i>Page</i>
AIEE W. G. 56.2	5	Jacob, F. C.	3
Amara, R. C.	4	Johannessen, P. R.	4
Ash, E. B.	3	Jury, E. I.	4
Barkle, J. E.	2	Kamm, L. J.	2
Beckett, J. C.	4	Kebby, M. H.	4
Belsky, P.	3	Kelly, C. F.	3
Bills, G. W.	5	Kelsey, E. S.	5
Blankenburg, R. C.	3	Kornblith Jr., L.	3
Bond, T. E.	3	Kuck, R. G.	4
Boston, J. R.	5	Lantz Jr., A. D.	5
Buck, C. M.	3	Lendarias, G. G.	4
Caprez, A. R.	2	Lewis, W. A.	5
Carlson, R. E.	3	Linville, T. M.	4
Carlson, R. I.	2	Looper, F. B.	2
Clymer, A. B.	2	Lundholm Jr., J. G.	3
Conelly, R. N.	5	Masters, G. T.	5
Conner, J. E.	5	Matsch, L. W.	5
Cox, F. B.	4	McCarthy, F. B.	2
Coy, J. H.	5	Moon, W. R.	2
Culbertson, A. F.	4	Mullin, F. J.	4
Danelson, W. A.	3	Nicholls, B. T.	5
Davids, H. H.	4	Noller, W. E.	4
Diamond, A.	4	Owens, J. E.	3
Dixon, H. S.	5	Phillips, C. L.	2
Dobie, J. B.	3	Robinson, H. M.	2
Dunbar, J. W.	4	Roth, H. H.	2
Elmore, W. A.	2	Schlichtig, R. C.	3
Esch, H.	3	Schmidt, S. F.	4
Feldcamp, G.	3	Schroeder, T. W.	4
Fisk, I. C.	2	Schubert, E. J.	2
Friedman, G. J.	3	Schullerts, F. B.	3
Freund, E. A.	3	Shank, K. E.	5
Flock, W.	4	Siegel, J. C.	5
Gibbons, R. F.	5	Smedley, A. B.	3
Gleason, L. L.	2	Smith, G. S.	3
Gluckman, H. P.	3	Smith, O. J. M.	4
Gold, S. H.	2	Soden, T. W.	2
Grant, C. K.	2	Tanaka, R. I.	2
Groat, F. J.	2	Tuttle, P. D.	5
Hale, D. N.	2	Weaver, L. E.	4
Hazan, E.	5	Whitlow, G. S.	3
Hendrickson, J. G.	2	Willyard, C.	4
Holm, R.	2	Wilson, G. P.	4
Hudson, T. R.	3	Wright, J. A.	4
Ittner, N. R.	3	Zornes, J. H.	2
Izawa, K.	4		



DOWNTOWN SACRAMENTO

