



AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS



# PACIFIC GENERAL MEETING

AND

AERO-SPACE TRANSPORTATION CONFERENCE

SAN DIEGO, CALIFORNIA

AUGUST 8-12, 1960

•  
EL CORTEZ HOTEL

## GENERAL INFORMATION

For those who attend the Pacific General Meeting and Aero Space Transportation Conference this year there awaits a full week of stimulating technical sessions and social entertainment. San Diego, one of the nation's most popular playground resorts, assures a delightful climate and an enjoyable week of vacation diversions in addition to the technical activities. Headquarters for the meeting is the El Cortez Hotel at 7th Avenue and Ash Street, San Diego.

The Men's Luncheon on Tuesday, August 9, will feature Mr. K. J. Bossart, Tech. Dir., Convair-Astronautics, speaking on "Space World of Tomorrow." Dr. Kenneth McFarland, "America's Number 1 Spokesman" will address us at luncheon Friday, August 12 on "Who Will Succeed in the Sixties?" The ladies are invited to hear Dr. McFarland.

On the social side there will be a dinner and theater party, harbor cruise and Hawaiian luau luncheon, and a banquet and dinner dance featuring outstanding entertainment by The Sportsmen, the internationally famous male quartet, Libonati & Ricky, comedy marimba stars, and West & Maza who will present an unique audience participation act. Special events have been arranged for the ladies.

**Information** on all features may be obtained at the Information Desk located in the lobby of the El Cortez Hotel. Efforts will be made to deliver telegrams and messages promptly. Members who expect to receive mail are requested to inquire frequently at the Information Desk.

**Telephone Message Center.** Through the courtesy of the Pacific Telephone and Telegraph Co., a telephone message center has been installed on the mezzanine floor overlooking the pool in the El Cortez Hotel. Incoming calls for convention delegates should be directed to this number (BE 2-6838). Operators will take messages and write the name of the delegates called on a large blackboard. Outgoing calls cannot be made from the message center.

**Tickets** for social functions, transportation and inspection trips will be on sale at the Ticket Desk, located in the lobby of the El Cortez Hotel. Please purchase your tickets early to avoid disappointment. Space is limited.

**Transportation, Hotel and Inspection Trip** information can be obtained at the desk provided for this service in the lobby of the El Cortez Hotel.

**Registration Fees Required.** The Board of Directors has arranged for a ladies' registration fee of \$2.00 to help defray the cost of the ladies' functions. Registration fees for members and non-members have been set at \$6.00 and \$10.00 respectively. Student members and the immediate families of members are not required to pay any fee.

**Technical Sessions and Discussions** are covered by the "Technical Sessions Guide" at the discretion of the presiding officers. Sufficient time will be allowed for the presentation of each paper and five minutes for each discussion. To receive consideration for publication, discussions on transactions papers, in duplicate, must be sent to Edward C. Day, Assistant Secretary, Technical Operations Department, A.I.E.E., 33 West 39th Street, New York 18, New York, before August 26, 1960. Discussions received later may not be included, depending upon the printing schedule of the paper to which the discussion is directed. The original typewritten double-spaced copy, together with original illustrations as photographs or inked tracings, should be submitted.

**Advance copies of papers** may be purchased by members at the Technical Papers Desk, Room 203, El Cortez Hotel, at the uniform price \$0.50 each (\$1.00 to non-members). Only numbered papers are available. Mail orders should be addressed to the A.I.E.E. Order Department, 33 West 39th Street, New York 18, New York. The TRANSACTIONS papers will also be published in the bi-monthly publications.

TRANSACTIONS papers will also be published in the bi-monthly publications. **Note:** Conference papers identified by CP\* may be available for sale at or after the meeting, if copies are provided by the author. They are not intended for publication in the TRANSACTIONS and are not presently scheduled for reproduction in any form by the Institute.

## SCHEDULE OF EVENTS

	Program	Trips	Sports	Entertainment	Ladies Entertainment
<b>Monday August 8</b>	Registration 10:00 AM- 7:30 P.M.		Golf by Arrange- ment	Stores Open Tonight	
<b>Tuesday August 9</b>	9:00 A.M. Technical Sessions  12:15 P. M. Men's Luncheon Speaker: K. J. Bossart "Space World of Tomorrow"  2:00 P.M. Technical Sessions	2:00 P.M.  Convair- Astronautics	Golf by Arrange- ment	Dinner and Theater Party  Dinner 7:00 P.M.  Theater 8:30 P.M.	9:00-11:00 A.M. Coffee Hour  12:30 P.M. Ladies Luncheon and Fashion Show  3:00-4:30 P.M. Coffee Hour
<b>Wednesday August 10</b>	9:00 A.M. Technical Sessions  2:00 P.M. Technical Sessions	9:00 A.M. Pacific Telephone  7:30 P.M. Stromberg- Carlson	Golf by Arrange- ment	12:00 P. M. Buses leave Harbor Cruise and Luau Luncheon	9:00-11:00 A.M. Coffee Hour
<b>Thursday August 11</b>	9:00 A.M. Technical Sessions  2:00 P.M. Technical Sessions	9:00 A.M. Naval Elec- tronics Lab.  2:00 P.M. Sycamore Canyon	1:00 P.M. Golf Tour- nament	7:30 P.M. Banquet and Dance	9:00-11:00 A.M. Coffee Hour  11:00 A.M. La Jolla Shop- ping Trip and Luncheon  3:00-4:30 P.M. Coffee Hour
<b>Friday August 12</b>	9:00 A.M. Technical Sessions  12:15 P. M. Luncheon Speaker: Dr. Kenneth McFarland "Who Will Succeed in the Sixties?"	9:00 A.M. South Bay Power Plant  2:00 P.M. General Atomic	Golf by Arrange- ment	Stores Open Tonight	9:00-11:00 A.M. Coffee Hour  12:15 P.M. Luncheon Speaker: Dr. Kenneth McFarland "Who Will Succeed in the Sixties?"

See page 20 for Schedule of Committee Meetings

# SCHEDULE OF TECHNICAL SESSIONS

## TUES.—AUG. 9

9:00 A.M.

Power System Analysis I  
System Analysis  
Heat Pumps and Space Heating  
Transmission and Distribution  
Transformers  
Computing Device Technology

2:00 P.M.

Power System Analysis II  
Thermo Electric Power Generation  
Wire Communication Systems  
Transmission and Distribution  
Computing Design Automation

## WED.—AUG. 10

9:00 A.M.

Design Problems (Environmental)  
Constant Frequency Variable Speed Generation  
Radiation Effects Symposium I  
Radio Communication Systems  
Electro-Chemical Technology  
Substations

2:00 P.M.

Design Problems  
Radiation Effects Symposium II  
Radio Communication Systems  
Solid State Devices  
Substations  
Support Power Parameters and Testing

## THURS.—AUG. 11

9:00 A.M.

Solar Power in Space  
Reliability  
Radiation Technology  
Industrial and Commercial Power Systems

2:00 P.M.

Power Sources  
Support Checkout Equipment  
Radiation Effects Round Table  
Nuclear Instrumentation  
Solid State Devices  
Feedback Control Systems I

## FRIDAY—AUG. 12

9:00 A.M.

Power System Controls  
Applications  
Feedback Control Systems II  
Radiation Effects  
Direct Conversion Techniques  
Nuclear Instrumentation

## TECHNICAL PROGRAM

### TUES.—AUGUST 9

9:00 A.M.

PACIFICO ROOM

#### Chairman:

J. P. Dallas  
Hughes Aircraft Co.

#### Sponsor:

Aero-Space Transportation Committee

9:00 A.M.

MARINE ROOM

#### Chairman:

T. B. Owen, Douglas  
Aircraft Co.

#### Sponsor:

Aero-Space Transportation Committee

9:00 A.M.

SKY ROOM

#### Chairman:

J. C. Hoey, General  
Electric Co.

#### Sponsor:

Domestic and Commercial Applications Committee

### POWER SYSTEM ANALYSIS I

60-987. Analogue Computer Representation of an Aircraft Electrical Power Generating System. J. L. Klingenberg, R. W. Briggs; Westinghouse Electric Corp.

CP60-1026. Development of a Method to Define Limits for Voltage Transients in Aircraft Electric Power Systems. O. Markowitz, U.S. Naval Air Development Center.

60-1027. Exciter Armature Reaction and Excitation Requirements in a Brushless Rotating-Rectifier Aircraft Alternator. W. J. Shilling, Westinghouse Electric Corp.

CP\*60-1092. Voltage Modulation on Aircraft Electric Power Systems as a Function of the Alternator Flexible-Shaft System. M. Flugstad, Boeing Airplane Co.

### SYSTEM ANALYSIS

CP\*60-1108. On the Predication of Transient Thermal Environments in Space Vehicles. T. Ishimoto, B. W. Randolph; Hughes Aircraft Corp.

CP\*60-1087. Magnetohydrodynamic Orbit Control for Satellites. S. T. Demetriades, Northrop Corp.

CP\*60-1098. Human Maintenance Functions in Space. H. A. Grodsky, G. W. Levy, R. D. Sorkin; The Martin Co.

CP60-1028. The Effect of Variable Plasma Conductivity on MHD Energy Converter Performance. W. B. Coe, C. L. Eisen; Republic Aviation Corp.

CP\*60-1134. Environmental Consideration as a Prime Factor in Missile Development. P. G. Perry, General Motors Corp.

### HEAT PUMPS AND SPACE HEATING

CP\*60-1091. Thermo-electric Heating and Cooling. R. L. Eichorn, Whirlpool Labs.

CP\*60-1137. Baseboard Heating. D. Quirk, Hotpoint, Inc.

CP\*60-1144. New Applications in Heat Pumps. D. Slack, General Electric Co.

CP\*60-1097. Computation and Measurement of Leakage Currents in Floor Heating Grids. H. P. Gluckman, City of Los Angeles Dept. of Water and Power.

CP\*60-1093. Principles of Electric Heating for Schools. S. L. Forsyth, Montgomery Bros.

### TUES. (Continued)

9:00 A.M.

COTILLION ROOM  
No. 1

#### Chairman:

E. L. Kanouse, City of  
L.A., Dept. of Water  
and Power

#### Sponsor:

Transmission and  
Distribution

9:00 A.M.

BOARD ROOM

#### Chairman:

C. H. Bjorquist  
Bonneville Pwr. Adm.

#### Sponsor:

Transformers  
Committee

9:00 A.M.

ROOM 205

#### Chairman:

J. F. Kalbach  
Burroughs Corp.

#### Sponsor:

Computing Devices  
Committee

### TRANSMISSION AND DISTRIBUTION

CP60-1025. Abnormal Voltages on Control Circuits of Pole Top Switched Capacitor Banks. D. C. Keezer, A. E. Henderson, Pacific Gas & Electric Co.

60-1001. Effect of Metal-Dielectric Junction Phenomena on High-Voltage Breakdown Over Insulators in Vacuum. M. J. Kofoed, Boeing Airplane Co.

CP\*60-1130. Influence of Fault Resistance on Magnitude of 34.5-KV Feeder Faults. P. A. Oakes, Idaho Power Co.

### TRANSFORMERS

CP\*60-1122. The Insulation Systems Approach to Oil-Filled Power Transformers. J. R. Meador, General Electric Co.

CP\*60-1135. Auto Transformer and Resistance Methods of Load Tap Changing. H. L. Prescott, Westinghouse Electric Corp.

60-1003. Theory & Design of Premagnetized Current Transformer. III T. K. Bose, Heavy Electricals Limited.

CP\*60-1072. A Self-Resetting Pressure Relief Device for Transformers. M. Aronson, McGraw-Edison Co.

### COMPUTING DEVICE TECHNOLOGY

CP60-1061. TACDEN, A Message Composer. S. Young, J. F. Donan; Aeronutronic.

CP60-1005. Rotating Raster Character Recognition System. R. W. Weeks, International Business Machines Corp.

CP\*60-1080. Airbourne Digital Computer Reliability. J. F. Cherneny, North American Aviation, Inc.

60-1004. The Principle of Equivalent Areas. R. E. Andeen, Sperry  
II Rand Corp.

60-1006. Amplidyne Circuit Analysis. G. W. Bills, North American Aviation, Inc.  
I

**TUES. (Continued)**

2:00 P.M.

PACIFICO ROOM

**Chairman:**W. V. Boughton  
T.K.M. Electric**Sponsor:**

Aero-Space Transportation Committee

2:00 P.M.

MARINE ROOM

**Chairman:**J. Maxian, North  
American Aviation**Sponsor:**

Aero-Space Transportation Committee

2:00 P.M.

SKY ROOM

**Chairman:**L. W. Bolles, Pacific  
Tel. & Tel.**Sponsor:**

Wire Communication Committee

**POWER SYSTEM ANALYSIS II**60-1029. Electrical System Transients and Sensitive Circuit Control for Missiles and Space Vehicles. T. B. Owen, Douglas Aircraft Co.  
II60-1030. The Effect of Speed Variation on Aircraft Electric Power Systems Speed Modulation and Voltage Modulation. H. A. Kahle, Jack & Heintz, Inc.  
II

CP\*60-1155. High Frequency Alternator for Variable-Speed Constant-Frequency System. D. A. Wilhelmson, General Electric Co.

60-1031. A Controlled Rectifier Regulator for Aircraft DC Generators 120°C Applications. A. L. Wellford, General Electric Co.  
II

CP\*60-1116. Systems Approach to Aero-Space Secondary Electrical Power Systems. E. Little, Douglas Aircraft Co.

**THERMO ELECTRIC POWER GENERATION**

CP60-1066. Thermoelectricity Application Considerations. A. A. Sorenson, The Martin Co.

CP60-1032. Closed Spaced Thermionic Converter Patch Effects. B. J. Weigman, Jr., J. L. Gunnick, Loyola College.

CP\*60-1147. Generalized Theory of the Thermionic Plasma Converter. M. E. Talaat, The Martin Co.

CP\*60-1157. Solar Cell Characteristics Related to Satellite Vehicle Requirements. J. F. Wise, U.S.A.F.

CP60-1033. Magneto-Thermionic Power Generation. A. Schock, Republic Aviation Corp.

**WIRE COMMUNICATION SYSTEMS**60-998. Two-Wire Operation of "N" Carrier Systems. R. W. Dean, Pacific Telephone & Telegraph Co.; E. M. Karkar, Lynch Communications Systems, Inc.  
I

CP60-999. Impulse Noise on "N" Carrier. S. D. Overby, Pacific Telephone &amp; Telegraph Co.

CP\*60-1083. Transmission Problems Involved in Using Normal Telephone Facilities at Frequencies up to 400 Kilocycles. E. E. Combs, Lynch Carrier Systems, Inc.

CP\*60-1151. Interconnection Circuits for Carrier Networks. D. Welling, R. C. Herrick, A. M. Seymour; Lenkurt Electric Co.

**TUES. (Continued)**

2:00 P.M.

COTILLION ROOM  
No. I**Chairman:**A. N. Shealy, Kaiser  
Alum. & Chemical  
Co.**Sponsor:**

Transmission and Distribution Committee

2:00 P.M.

BOARD ROOM

**Chairman:**W. A. Hannig, General  
Electric Co.**Sponsor:**

Computing Devices Committee

**WED.—AUGUST 10**

9:00 A.M.

PACIFICO ROOM

**Chairman:**C. G. Martin, Thompson  
Ramo Wooldridge**Sponsor:**

Aero-Space Transportation Committee

**TRANSMISSION AND DISTRIBUTION**59-884. An Aviation Hazard Light for Mid-Span Operation on  
III Power Transmission Lines. H. J. Dana, Washington State  
Institute of Technology.60-1000. Some Chemical Treatments to Reduce the Resistance  
III of Ground Connections. R. J. Clark, B. O. Watkins; Utah  
State University.CP\*60-1114. Computer Application to Determination of Power  
System Circuit Breaker Duties. M. J. Lantz, Bonneville  
Power Administration.60-1065. The Analysis of Hydro-Power Peaking and Pondage by  
Computer. C. E. Hildebrand, Corps of Engineers.**COMPUTING DESIGN AUTOMATION**

CP60-1063. The R-W Logic Simulation Program. H. Adler, Computer Applications, Inc.; H. Jacobs, J. Katz, Thompson Ramo-Wooldridge, Inc.

CP60-1007. A Computer Program for Preparing Wiring Diagrams. Mrs. D. B. Kirby, C. W. Rosenthal; Bell Telephone Labs., Inc.

CP\*60-1136. Variable Block Logic Diagram Program. O. S. Sle-maker, Burroughs Corp.

CP\*60-1090. An Interpretive Simulation Program for Estimating Occupancy and Delay in Traffic Handling Systems Which Are Incompletely Detailed. D. L. Dietmeyer, University of Wisconsin; G. Gordon, J. P. Runyon, B. A. Tague; Bell Telephone Labs., Inc.

**DESIGN PROBLEMS (ENVIRONMENTAL)**

CP60-1034. Metal Film Resistive Elements for Use in Space Under Varying Radiation Intensities. R. C. Langford, Daystrom, Inc.

60-986. Design and Development Problems of Radiation-Resistant High-Temperature-Tolerant Electronic Equipment Components. J. Gray Stuart, General Electric Co.  
II60-1068. Design and Development of a 600°F Pulse Preamplifier for Nuclear Instrumentation. W. L. Frisby and E. M. Palmer, General Electric Co.  
II

CP\*60-1118. Radiation-Resistant Electronics. R. A. Magee, D. A. Renken; Bendix Corp.

60-1035. Application of Cryogenics to Electrical-Electronic Design. R. J. Allen, The Martin Co.  
II

**WED. (Continued)**

9:00 A.M.

FRANCISCAN ROOM

**Chairman:**

D. W. Exner, Boeing  
Airplane Co.

**Sponsor:**

Aero-Space Transportation Committee

9:00 A.M.

COTILLION ROOM  
No. 2

**Chairman:**

M. C. Halleck  
General Electric Co.

**Sponsor:**

Elec. Insulation & Nuclear  
Electronics Committee

9:00 A.M.

BOARD ROOM

**Chairman:**

E. Dale Barcus, Pacific  
Tel. & Tel. Co.

**Sponsor:**

Radio Communication  
Systems Committee

**CONSTANT FREQUENCY VARIABLE SPEED GENERATION**

60-989. Precise Frequency Power Generation From an Unregulated Shaft. K. M. Chirgwin, L. J. Stratton, J. R. Toth; Jack & Heintz, Inc.

CP\*60-1107. Design Considerations for Static Inverters. W. E. Hyvarinen, T. M. Heinrich, R. E. Hulsey; Westinghouse Electric Corp.

CP\*60-1076. The Frequency Converter Approach to a Variable Speed, Constant Frequency System. S. C. Caldwell, L. R. Peaslee, D. L. Plette; General Electric Co.

CP60-1053. Variable Speed Constant Frequency Generator Circuit Using a Controlled Rectifier Power Demodulator. T. Bernstein, Space Technology Lab.; N. L. Schmitz, University of Wisconsin.

**RADIATION EFFECTS SYMPOSIUM—I**

CP\*60-1143. The Black Science of Nuclear Measurements. J. D. Simpson, General Electric Co.

CP\*60-1158. Techniques of Counting Foils and the Interpretation of Useful Information from the Counts. R. E. Wood, J. F. Kunze; General Electric Co.

CP\*60-1105. Neutron Flux Measurements in Test Reactor. C. H. Hogg, Phillips Petroleum Co.

CP\*60-1149. Recent Development in Radiation Instrumentation. H. A. Thomas, General Atomic, Division of General Dynamics Corp.

**RADIO COMMUNICATION SYSTEMS**

60-995. Establishment of a 450-MC Vehicular Radio System in the Los Angeles Basin. G. Applegarth, The Pacific Telephone and Telegraph Co.

60-996. Centralized Testing of a V.H.F. Mobile Radio System. D. L. MacDonald, The Pacific Telephone & Telegraph Co.

CP60-997. A Problem of TV Interference to VHF Maritime Services. A. C. Cline, Pacific Telephone-Northwest.

CP\*60-1073. Establishing a Unique Microwave System to John Day, Oregon. P. Austin, The Pacific Telephone and Telegraph Co.

**WED. (Continued)**

9:00 A.M.

COTILLION ROOM  
No. 3

**Chairman:**

A. L. Betts, Washington  
State University

**Sponsor:**

Chemical Industry  
Committee

9:00 A.M.

COTILLION ROOM  
No. 1

**Chairman:**

H. Fossum, Pioneer  
Service & Engrg. Co.

**Sponsor:**

Substations Committee

2:00 P.M.

PACIFICO ROOM

**Chairman:**

D. H. Stephens  
Norair Div.  
Northrop Corp.

**Sponsor:**

Aero-Space Transportation Committee

**ELECTRO-CHEMICAL TECHNOLOGY**

CP\*60-1103. Operating Record of Sealed Tank Mercury Arc Rectifiers. L. J. Harris, Aluminum Co. of America.

CP\*60-1146. Mechanism of Electrode Reactions in Fused Salt Electrolytes. H. Stern, J. G. Surendranath; Washington State University.

CP\*60-1140. Some Technical Aspects of Electrical Safety in Aluminum Potlines. G. B. S. Rickettes, Kaiser Aluminum & Chemical Corp.

CP\*60-1070. Liquid Metal Switching. K. A. Ahmad, International Business Machines Corp.

CP\*60-1142. Trends and Practices for Terminating Large Aluminum Conductors. William Sanders, Kaiser Aluminum and Chemical Corp.

**SUBSTATIONS**

CP60-1008. Phasing Conventions for the Designation of Busses and Conductors in Outdoor Switchracks. O. R. Bulkley, Southern California Edison Co.

CP60-1009. Substation Design Practices Utilizing 115-13.8 KV Single Circuit Integral Units. W. L. Kelly, General Electric Co.; P. W. Kiesling, Public Service Co. of Colorado.

CP\*60-1110. Adaptation of Single Feeder Unit Substation to the Wichita Metropolitan Area. E. J. Karsten, Kansas Gas & Electric Co.

**DESIGN PROBLEMS**

CP60-1036. Radar Echo Augmentation Device (Read) As An Aid to Air. A. W. McMurtrey, Temco Aircraft Corp.

CP60-1037. Component Parts Status for 600°F Aircraft Generator Control (Part 2). P. M. Tabor, J. F. Scoville; General Electric Co.

CP60-1038. Evolution and Testing of a Navigational Satellite. M. A. Schreiber, T. Wyatt; The Johns Hopkins University.

60-1039. Development of a Flight Controller for the Delta Space II Research Vehicle. R. F. Donovan, Douglas Aircraft.

**WED. (Continued)**

2:00 P.M.

COTILLION ROOM  
No. 2**Chairman:**W. E. Price  
Lockheed Aircraft**Sponsor:**Elec. Insulation & Nu-  
cleonics Committee

2:00 P.M.

BOARD ROOM

**Chairman:**W. H. Wedel, Pacific  
Tel. & Tel. Co.**Sponsor:**Radio Communication  
Systems Committee

2:00 P.M.

FRANCISCAN ROOM

**Chairman:**T. E. Firle  
General Atomic**Sponsor:**Solid State Devices  
Committee**RADIATION EFFECTS SYMPOSIUM—II**CP\*60-1109. Radiation Environment in Space. F. S. Johnson,  
Lockheed Aircraft Corp.CP\*60-1120. A Review of Pulse Nuclear Radiation Effects. J.  
Maxey, Space Technology Labs., Inc.**RADIO COMMUNICATION SYSTEMS**CP\*60-1084. Off-the-Air TV Problems in the Northwest. E. R.  
Conly, Bell Telephone Co. of Nevada.CP60-992. Automatic Precipitation and Temperature Reporting  
Over a VHF Radio System. E. J. Warchol, M. S. Sachs,  
H. S. Lorentson; Bonneville Power Administration.CP60-993. Design of a Dispatch Mobile Radio System Using Mul-  
tiple Base Stations. J. H. Gibbs, L. W. Parsons; Pacific  
Telephone-Northwest.60-994. Proposed Monocycle-Pulse, VHF Radar for Airborne  
Ice and Snow Measurement. J. C. Cook, Southwest  
Research Institute.60-1064. Use of Moon or Satellite Relays for Global Communica-  
tions. L. P. Yeh, Page Communications Engineers, Inc.**SOLID STATE DEVICES**CP\*60-1127. Compound Two-Ports Systematized. T. R. Nisbet,  
W. W. Happ; Lockheed Aircraft Corp.CP\*60-1128. Jacobians of Frequency-Selective Networks. T. R.  
Nisbet, W. W. Happ; Lockheed Aircraft Corp.CP\*60-1101. Systematic Formulation of the Sequal Flow Graph  
of a Complex Servo System. W. W. Happ, J. L. Bur-  
roughs; Lockheed Aircraft Corp.CP\*60-1102. A Numerical Routine Suitable for Computer Evalua-  
tion of Complex Flow Graphs. W. W. Happ, J. L. Bur-  
roughs; Lockheed Aircraft Corp.CP\*60-1097. Distributed Parameter Networks for Microminiaturiza-  
tion. P. S. Castro, W. D. Fuller; Lockheed Aircraft  
Corp.CP\*60-1095. Circuit Fabrication from Refractory Materials. W.  
D. Fuller, Lockheed Aircraft Corp.**WED. (Continued)**

2:00 P.M.

COTILLION ROOM  
No. 1**Chairman:**T. A. Phillips, Arizona  
Public Service Co.**Sponsor:**

Substations Committee

2:00 P.M.

COTILLION ROOM  
No. 3**Chairman:**J. I. Elliott  
The Martin Co.**Sponsor:**Aero-Space Transpor-  
tation Committee**THURS.—AUGUST 11**

9:00 A.M.

PACIFICO ROOM

**Chairman:**L. R. Larson  
The Martin Co.**Sponsor:**Aero-Space Transpor-  
tation Committee

9:00 A.M.

FRANCISCAN ROOM

**Chairman:**D. Friedman  
U.S. Naval Res. Lab.**Sponsor:**Aero-Space Transpor-  
tation Committee**SUBSTATIONS**CP\*60-1062. Design and Construction of an All-Aluminum Sub-  
station. O. R. Bulkley, R. S. Melville, N. E. Weber;  
Southern California Edison Co.CP60-1011. Ground Grids for High Voltage Stations IV—Resist-  
ance of Small and Large Sub-Stations. E. T. B. Gross,  
Illinois Inst. of Tech.; E. J. Wallman, General Electric  
Co.CP60-1012. Optimum Diameter, Spacing and Burial Depth of  
Ground Grid Conductor. R. F. Stevens, Bonneville  
Power Administration.**SUPPORT POWER PARAMETERS AND TESTING**CP60-1057. Terrestrial and Extra-Terrestrial Electrical Support  
Frontiers in the Space Age. R. M. Loeb, The Martin Co.CP60-1058. Precise Rotary Power Conversion for Ground Sup-  
port of Aero-Space Vehicles. J. A. Hedges, The Martin  
Co.; G. O. Williams, Hobart Bros., Inc.CP\*60-1071. Very Slow Charge-Fast Discharge of Nickel Cad-  
mium Batteries. F. Albrecht, The Martin Co.CP60-1067. One-Point Ground System with Radio Frequency  
Shielding and Filtering for Missiles and G.S.E., R. A.  
Varone, The Martin Co.CP60-1059. Testing of a 600°F Electrical Generation and Distri-  
bution System. S. J. Nalbandian, J. V. Ekberg; North  
American Aviation, Inc.60-990. Determination of Intermittent Duty Rating of an Aircraft  
II  
Motor by Equivalent Thermal Circuit and a Direct Ana-  
log Computer. J. N. C. Chi, General Electric Co. (Re-  
presented for Discussion only).CP60-1060. Test Analysis of Aircraft Alternator Fault Transient  
Torque Loading. J. S. Turner, Jr., Convair-Fort Worth,  
A Division of General Dynamics Corp.**SOLAR POWER IN SPACE**CP60-1040. Experimental Solar Thermionic Converter for Space  
Use. H. Oman, Boeing Airplane Co.; G. Street, Jr.,  
General Electric Co.CP60-1041. Selectively Emissive Materials for Solar Heat-Absorb-  
ers. R. B. Gillette, Boeing Airplane Co.CP60-1042. Design of a Solar Powered Thermionic Diode. W. J.  
Leovic, M. W. Mueller; Thompson Ramo Wooldridge,  
Inc.CP60-1043. Configuration Effects on the Performance of Solar  
Photovoltaic Systems for Earth Satellites. S. J. McCun-  
ney, Convair-San Diego, A Division of General Dynam-  
ics Corp.**RELIABILITY**CP\*60-1100. Optimizing Simple Circuitry for Reliability and Per-  
formance by Failure Mode. J. R. Hanne.CP60-1045. Reliability Considerations in the Design of Static vs.  
Relay Logic for Aircraft Protective Panels. W. O. Han-  
sen, J. Popa; General Electric Co.CP60-1046. Development of an Electrical Initiation System for  
Flight Capsule Recovery with Emphasis on Reliability.  
R. M. Sells, Jr., Vought Aeronautics.60-1047. Statistics Applied to Electrical Laboratory Evaluations.  
II  
F. Albrecht, The Martin Co.CP\*60-1153. Component Development—A Key to Space Relia-  
bility. M. E. Wheelock, North American Aviation.

**THURS. (Continued)**

9:00 A.M.

COTILLION ROOM  
No. 1**Chairman:**J. W. Winslow, U.S.  
Naval Radiological  
Defense Laboratory**Sponsor:**

Nucleonics Committee

9:00 A.M.

COTILLION ROOM  
No. 3**Chairman:**R. A. Erwin, City of  
L.A., Dept. of Water  
& Power**Sponsor:**Industrial & Commercial  
Power Systems  
Committee

2:00 P.M.

PACIFICO ROOM

**Chairman:**G. Sherman, Wright  
Air Dev. Div.**Sponsor:**Aero-Space Transpor-  
tation Committee**RADIATION TECHNOLOGY**CP\*60-1113. How Radiation from a Nuclear Explosion May  
Affect Electronic Equipment. W. R. Langdon, General  
Electric Co.CP60-1015. Neutron and Gamma Irradiation of Some Square  
Loop and Microwave Ferrites. R. W. Moss, Boeing Air-  
plane Co.; C. F. Kooi, M. E. Baldwin; Lockheed Aircraft  
Corp.CP\*60-1138. Neutron Irradiation of Esaki Diodes. F. J. Reid,  
L. W. Aukerman, R. D. Baxter; Battelle Memorial Insti-  
tute.CP\*60-1094. Electron Irradiation of Silicon Solar Cells. J. C.  
Fraser, General Electric Co.CP\*60-1081. Proton Damage to Solar Cells. K. T. Chow, E. A.  
Lodi; Lockheed Missile Systems Div.CP60-991. Radiation Shielding for Space Vehicles. J. W. Keller,  
N. M. Schaeffer; Convair-Fort Worth, A Division of  
General Dynamics Corp.**INDUSTRIAL AND COMMERCIAL POWER SYSTEMS**CP\*60-1139. Power Distribution and Associated Problems When  
Dealing with Taconite Ores. A. F. Reynolds, United  
States Steel Corp.CP\*60-1099. Electrical Systems for Power and Lighting at the  
New Los Angeles International Airport. J. S. Hamel,  
Burbank, California.CP\*60-1075. Electrical Load Calculations for Industrial Power  
Systems by Digital Computer. C. W. Boice, Jr., C. F.  
Braun & Co.CP\*60-1141. Techniques of High Frequency Distribution Within  
Buildings. J. N. Robertson, City of Los Angeles, Dept. of  
Water and Power.**POWER SOURCES**CP60-1048. Reserve-Type Ammonia Electrochemical System as  
Secondary Electric Power Sources for Space Vehicles. H.  
S. Gleason, G. S. Gunnison; Eastman Kodak Co.CP\*60-1121. Waste Heat Radiators for Space Power Conversion  
Systems. J. L. McCabria, P. E. Keuser; Westinghouse  
Electric Corp.60-1049. Step Up Frequency Changer. R. J. Wurm, L. J. Strat-  
ton; Jack & Heintz, Inc.60-985. Photovoltaic Solar Energy Converters for Space Ve-  
hicles—Present Capabilities and Objectives. A. B. Fran-  
cis, W. W. Happ; Lockheed Aircraft Corp.**THURS. (Continued)**

2:00 P. M.

FRANCISCAN ROOM

**Chairman:**Kenneth R. Smythe, U.S.  
Navy Air Dev. Center**Sponsor:**Aero-Space Transpor-  
tation Committee

2:00 P.M.

COTILLION ROOM  
No. 2**Chairman:**J. W. Winslow, U.S.  
Naval Radiological  
Defense Laboratory**Sponsor:**Elec. Insulation & Nu-  
cleonics Committee

2:00 P.M.

COTILLION ROOM  
No. 3**Chairman:**L. Kornblith, Jr.  
General Electric Co.**Sponsor:**Nucleonic & Radiation  
Instrumentation  
Committee**SUPPORT CHECKOUT EQUIPMENT**CP60-1050. Jet Aircraft and Automation—An Airline's Venture in  
Automatic Checkout Equipment. R. G. Collins, United  
Air Lines.CP\*60-1082. Design Considerations for Simple Inexpensive Port-  
able Trouble-Shooting Equipment for Aircraft Mainte-  
nance. S. D. Clayton, C. J. Jenkins, A. P. Case; Douglas  
Aircraft Co.CP\*60-1074. Computed Confidence for Aero Space Transpor-  
tation. D. S. Bassett, Hughes Aircraft Co.CP\*60-1077. Digital Evaluation Equipment—A Multipurpose Test  
System. O. T. Carver, Radio Corp. of America.**RADIATION EFFECTS ROUND TABLE**Round Table Discussion Led by:  
CP\*60-1152. E. J. Wesley, U.S. Navy Radiological Defense Lab.  
CP\*60-1115. J. W. Lindner, Space Technology Lab.**NUCLEAR INSTRUMENTATION**CP\*60-1123. Ion Chambers and Proportional Counters for Sensor  
Applications. R. D. Moorhead, General Electric Co.CP\*60-1119. Reactor Safety Circuit Static Annunciator, A. A.  
Maupin, Jr., General Electric Co.CP\*60-1088. Trends in Solid State Nuclear Reactor Instrumenta-  
tion. R. L. Deming, Stromberg-Carlson—Rochester, A  
Division of General Dynamics Corp.CP\*60-1089. A Completely Transistorized Nuclear Instrumenta-  
tion System for a Power Reactor. R. L. Deming, C. H.  
Clarridge; Stromberg-Carlson—Rochester, A Division of  
General Dynamics Corp.CP\*60-1104. A Completely Transistorized Self-Tested Safety  
System for a Power Reactor. H. L. Hill, H. P. Pinder;  
Stromberg-Carlson—Rochester, A Division of General  
Dynamics Corp.CP\*60-1105. Portable Radiation Instrumentation Standardization.  
W. G. Spear, General Electric Co.

**THURS. (Continued)**

2:00 P.M.

BOARD ROOM

**Chairman:**R. L. Bieseke, Schokley  
Transistor Corp.**Sponsor:**Solid State Devices  
Committee

2:00 P.M.

COTILLION ROOM  
No. 1**Chairman:**G. J. Thaler, U.S.  
Naval Postgradt. School**Sponsor:**Feedback Control  
Systems Committee**FRI.—AUGUST 12**

9:00 A.M.

PACIFICO ROOM

**Chairman:**O. C. Walley  
Hartman Electric Co.**Sponsor:**Aero-Space Transpor-  
tation Committee**SOLID STATE DEVICES**

CP\*60-1150. Transistor-Tunnel Diode Combination Produces an N-Type Negative Resistance Characteristic. C. D. Todd, Hughes Aircraft Corp.

CP\*60-1125. A Survey of Semiconductor Materials Technology. J. H. Myer, Hughes Aircraft Corp.

CP\*60-1159. Equivalent Circuit Characteristics of the Solar Cell. R. H. Watson, Lockheed Aircraft Corp.

CP\*60-1126. The Propagation of Production Spread Error in Transistor Calculations. T. R. Nisbet, Lockheed Aircraft Corp.

CP\*60-1112. High Temperature Conversion by High Temperature Semi-conductors. S. W. Kurnick, R. L. Fitzpatrick, J. F. Leavy; General Atomic, Division of General Dynamics Corp.

**FEEDBACK CONTROL SYSTEMS—I**

CP60-1020. Problems of Asymptotic Behavior and Stability. L. Cesari, Purdue University.

CP60-1021. Phase Space Analysis and Design of Linear Discontinuously Damped Feedback Control Systems. K. W. Han, G. J. Thaler; U.S. Naval Postgraduate School.

60-1022. A Modified Posicast Method of Control with Applications to Higher Order Systems. H. C. So, G. J. Thaler; U.S. Naval Postgraduate School.

CP\*60-1133. Time Domain Design of Sampled-Data Control Systems. M. P. Pastel, G. J. Thaler; N.S. Naval Postgraduate School.

**POWER SYSTEM CONTROLS**

60-988. Semiconductor-Magnetic Overvoltage and Underfrequency Protection Circuits. R. R. Secunde, Jack &amp; Heintz, Inc.

60-1051. A High Speed Voltage Regulating and Static Excitation System for AC Aircraft Generators. H. W. Gayek, A. C. Hupp; General Electric Co.

CP60-1052. A Synchronous Static Frequency Controller. L. B. Hallberg, A. W. Patterson; Sundstrand Aviation.

60-1054. Model Laws of Eddy-Current Couplings for Aircraft Alternator Drives. E. A. Erdelyi, Univ. of Delaware; (Formerly with General Electric Co.); E. E. Kolatorowicz, General Electric Co.

**FRI. (Continued)**

9:00 A.M.

FRANCISCAN ROOM

**Chairman:**W. C. Bryant, Lockheed  
Aircraft Corp.**Sponsor:**Aero-Space Transpor-  
tation Committee

9:00 A.M.

COTILLION ROOM  
No. 2**Chairman:**A. R. Bergen, Univ.  
of California**Sponsor:**Feedback Control  
Systems Committee

9:00 A.M.

BOARD ROOM

**Chairman:**J. W. Kallander, U.S.  
Naval Res. Lab.**Sponsor:**Electrical Insula-  
tion Committee**APPLICATIONS**

60-1055. Gas Discharge Lamp Fixtures for Aircraft Navigation II Lights. M. G. Tyler, Douglas Aircraft Co., Inc.

CP\*60-1111. Integrally Lighted Instruments—Their Color and Brightness Evaluation. H. C. Klein; Douglas Aircraft Co.

CP60-1056. Lightning Arresters for HF Antenna Systems on Jet Aircraft. R. F. Huber, Joslyn Mfg. and Supply Co.; M. M. Newman, J. D. Robb; Lightning and Transients Research Inst.

CP\*60-1168. Design Considerations for the Lighting of Supersonic Aircraft. G. W. Godfrey, North American Aviation.

60-984. Performance of Electrical Connectors at High Altitude. II A. L. Coates, Bendix Aviation Corp.

**FEEDBACK CONTROL SYSTEMS—II**

60-1016. Integral of the Error Squared as a Performance Index for Automatic Control Systems. R. N. Clark, University of Washington.

CP60-1017. Input-Output Relations for Sampled Data Systems by Inspection. R. Y. Huang, Syracuse University.

CP60-1018. Stochastic Time Optimal Control Systems. M. Aoki, University of California.

CP60-1019. A Synthesis Technique for Linear Feedback Control Systems. L. E. Weaver, The University of Arizona, R. L. Miller, Jr., U.S. Army Signal Corps.

**RADIATION EFFECTS**

CP\*60-1156. Radiation Induced Currents in Polyethylene. J. W. Winslow, U.S. Naval Radiological Lab.

CP\*60-1103. A Thin Plastic Radiation Dosimeter. K. K. Harris, W. E. Price; Lockheed Aircraft Corp.

CP\*60-1085. Gamma Radiation Induced Conductivity in Solid Insulation. V. Culler, W. Barney, H. E. Rexford; Corning Glass Works.

60-1013. Calculation of Absorbed Dose. C. H. Cheek, V. J. Linenbom; U.S. Naval Research Lab.

**FRI. (Continued)**

9:00 A.M.

COTILLION ROOM  
No. 1

**Chairman:**

C. C. Nash, Hoffman  
Electronics Corp.

**Sponsor:**

Solid State Devices &  
Power Generation  
Committee

9:00 A.M.

COTILLION ROOM  
No. 3

**Chairman:**

L. Kornblith, Jr.  
General Electric Co.

**Sponsor:**

Nucleonic & Radiation  
Instrumentation  
Committee

**DIRECT CONVERSION TECHNIQUES**

CP\*60-1078. Thermoelectric Converter Under Constant Heat Flux Operation. P. S. Castro, W. W. Happ; Lockheed Aircraft Corp.

CP\*60-1086. Electrical and Thermal Measurements at High Temperatures. C. Cutler, General Atomic, Division of General Dynamics Corp.

CP\*60-1106. Direct Conversion Reactor Systems. R. C. Howard, General Atomic, Division of General Dynamics Corp.

CP\*60-1096. Experimental Observations in Cesium Cells. H. L. Garvin, General Atomic, Division of General Dynamics Corp.

CP\*60-1148. Analysis of Thermionic and Plasma Heat-to-Electricity Converters. W. B. Teutsch, General Atomic, Division of General Dynamics Corp.

**NUCLEAR INSTRUMENTATION**

CP\*60-1131. An Accurate Control Rod Position Indicator System. M. N. Palmer, H. A. Morewitz; Westinghouse Electric Corp.

CP\*60-1124. Shipping Port Reactor Protection System Experience. A. I. Moss, Westinghouse Electric Corp.

CP\*60-1132. Performance of the Reactor Protection and Nuclear Instrumentation Systems in the Presence of Oscillations in P.W.R. Core 1 Seed 1. O. D. Parr, Westinghouse Electric Corp.

CP\*60-1154. P.W.R. Reactor Plant Control. E. A. Wiczorkowski, Westinghouse Electric Corp.

CP\*60-1129. Standardization in the Design and Construction of Electronic Instrumentation and Control Systems. J. G. Nish, University of California.

CP\*60-1069. Accelerator Beam Pulsing System with Extremely Wide Range of Pulse Lengths and Pulse Repetition Rates. K. Aaland, University of California.

**OFFICERS OF AIEE 1960-61**

**President**

C. H. Linder

**Past Presidents**

L. F. Hickernel

J. H. Foote

**Vice Presidents**

F. S. Bacon, Jr.

D. L. Greene

F. W. Bush

G. T. Harness

H. A. Carlberg

M. H. Kight

W. H. Chase

A. W. Rauth

Walter Criley

P. G. Wallace

J. W. Davis

R. T. Weil, Jr.

Rene Dupuis

S. C. Wright

C. E. Gaylord

**Directors**

Hendley Blackmon

E. W. Morris

W. R. Clark

S. M. Osthagen

R. B. Gear

C. T. Pearce

E. I. Green

N. F. Rode

C. T. Hatcher

E. C. Starr

W. A. Lewis

J. C. Strasbourger

**Treasurer**

W. R. Clark

**Executive Secretary**

N. S. Hibshman

# TECHNICAL OPERATIONS DEPARTMENT

F. L. Lawton, *Chairman*

D. E. Trucksess  
*1st Vice-Chairman*

R. H. Whaley  
*2nd Vice-Chairman*

I. S. Coggeshall  
*Staff Secretary*

E. C. Day  
*Assistant Secretary  
Technical Papers*

R. S. Gardner  
*Assistant Secretary  
Technical Activities*

B. G. Ballard  
Hendley Blackmon  
F. B. Bramhall\*  
C. N. Clark  
W. R. Clark  
C. E. Dean  
J. F. Deffenbaugh  
W. F. Denkhaus  
Ferdinand Hamburger, Jr.  
E. L. Harder  
C. T. Hatcher  
L. F. Hickernel  
H. F. Hoebel  
J. P. Jordan

J. W. Kearney  
J. A. Kinghorn  
L. R. Larson  
H. A. Lamonds  
E. U. Lassen  
W. A. Lewis  
R. L. Lloyd  
P. K. McElroy\*  
John Meszar  
R. A. Ramey  
C. F. Savage, Jr.  
F. D. Snyder  
S. R. Warren, Jr.  
C. A. Wells

\*Ex Officio

# 1960 Pacific General Meeting-Officers

## GENERAL COMMITTEE

J. F. Sinnott, *Chairman*  
M. R. Marston, *Vice Chairman*  
R. T. Strong, *Treasurer*  
G. C. Eggen, *Secretary*

## FINANCE

A. Paull, *Chairman*  
E. F. Kotnik  
C. W. Miller  
R. T. Strong  
O. E. Wiedmann

## HOTEL and REGISTRATION

L. R. Knerr, *Chairman*  
E. C. Fremo  
F. W. Garrison  
H. J. Harrington  
A. W. Leighton  
G. G. Linderman  
C. R. Machen  
I. E. McDougal  
C. W. Miller  
W. R. Nodder  
D. W. Struck  
D. H. Swanson, Jr.

## TECHNICAL

E. F. Kotnik, *Chairman*  
R. R. Chevron  
C. M. Davis  
R. B. Kimball  
V. E. Korski  
J. V. Kresser  
L. E. Massie  
T. McComb  
A. N. Shealy

## STUDENT ACTIVITIES

A. H. Keith, *Chairman*  
O. L. Doolittle  
R. W. Ganzer  
S. B. Hammond  
L. R. Kersey  
F. D. Robbins  
R. J. Smith  
D. W. Struck  
C. Uhden

## ARRANGEMENTS

C. W. Greenhill	G. B. Kenline, <i>Chairman</i>	P. E. Roosenberg
W. E. Grimm		J. H. van Buuren
E. B. Kipp		W. F. Whiston
J. O. Koopmans		

## ENTERTAINMENT

	R. K. Walter, <i>Chairman</i>	
M. P. Eisen		A. Paull
R. L. Mann		D. G. Wilson

## PUBLICITY

	H. R. Hughes, <i>Chairman</i>	
K. R. Brown		T. F. Jennings
F. F. Evenson		C. B. Phillips

## TRANSPORTATION and INSPECTION TRIPS

	W. A. Davis, <i>Chairman</i>	
G. A. Caporaletti		P. R. Leitner
R. L. Cole		W. J. Myers
J. T. Hayes		W. A. Popelar
R. Hightower		

## GOLF

	R. A. Kinslow, <i>Chairman</i>	
R. L. Cole		C. M. Salina
H. W. Masquelier		F. C. Six
W. F. Poynter		

## LADIES

## ENTERTAINMENT

	Mrs. M. R. Marston, <i>Chairman</i>	
Mrs. J. W. Crooks, Jr.		Mrs. L. R. Knerr
Mrs. G. C. Eggen		Mrs. E. F. Kotnik
Mrs. H. R. Hughes		Mrs. A. Paull
Mrs. A. H. Keith		Mrs. J. F. Sinnott
Mrs. G. B. Kenline		Mrs. R. T. Strong
Mrs. R. A. Kinslow		Mrs. R. K. Walter

## COMMITTEE MEETINGS

### MONDAY, AUGUST 8TH

**9:00 A.M.—5:00 P.M.**  
West Coast Subcommittee of Transformers Committee  
**9:00 A.M.—11:45 A.M.**  
Power Sources Subcommittee—ASTC  
**12:30 P.M.**  
Luncheon—Aero-Space Transportation Committee  
**1:30 P.M.—5:00 P.M.**  
Aero-Space Transportation Committee

### TUESDAY, AUGUST 9TH

**9:00 A.M.—5:00 P.M.**  
West Coast Subcommittee of Substations Committee  
**9:00 A.M.—9:00 P.M.**  
Ground Support Electric Systems Integration Subcommittee—ASTC  
**10:30 A.M.—11:45 A.M.**  
West Coast Subcommittee of Chemical Industries Committee  
**2:00 P.M.—5:00 P.M.**  
Forum of Technical Committee Chairmen

### WEDNESDAY, AUGUST 10TH

**9:00 A.M.—12:00 NOON**  
Ground Support Electric Systems Integration Subcommittee—ASTC  
**4:30 P.M.—6:30 P.M.**  
West Coast Subcommittee of Solid State Devices Committee  
**4:30 P.M.—6:30 P.M.**  
Flight-Vehicle Electric Systems Integration Subcommittee—ASTC  
**5:00 P.M.—7:00 P.M.**  
West Coast Subcommittee of Special Instruments and Auxiliary Apparatus Committee  
**6:00 P.M.—8:00 P.M.**  
Dinner—Pacific Coast Subcommittee of Relays Committee  
**8:00 P.M.—10:00 P.M.**  
Dielectric Testing and Procedures Subcommittee—ASTC  
**8:00 P.M.—10:00 P.M.**  
Working Group on Definitions—ASTC

### THURSDAY, AUGUST 11TH

**9:00 A.M.—11:45 A.M.**  
Substations Committee  
**9:00 A.M.—11:00 A.M.**  
Working Group on Power Transformers of the Electronic Transformers Subcommittee of the Electronics Committee  
**12:00 NOON—1:30 P.M.**  
Luncheon—Electronics Committee  
**2:00 P.M.—4:30 P.M.**  
Conference of Student Counselors  
**5:00 P.M.—7:00 P.M.**  
Joint Radiation Subcommittees

BOARD ROOM  
PATIO ROOM  
FRANCISCAN ROOM  
FRANCISCAN ROOM

ROOM NO. 505  
TO BE POSTED  
PATIO ROOM  
ROOM 205

TO BE POSTED  
FRANCISCAN ROOM  
COTILLION ROOM  
No. 2  
BOARD ROOM

COTILLION ROOM  
No. 1  
BOARD ROOM  
COTILLION ROOM  
No. 2

COTILLION ROOM  
No. 2  
BOARD ROOM  
BOARD ROOM  
PATIO ROOM  
COTILLION ROOM  
No. 2

## SPONSORS

The 1960 Pacific General Meeting Committee gratefully acknowledges the contributions of the following organizations whose support has aided greatly in making this meeting possible:

ALLIS CHALMERS MANUFACTURING COMPANY  
 CALIFORNIA ELECTRIC WORKS  
 COLE ELECTRIC COMPANY  
 EARL S. CONDON COMPANY  
 CONVAIR-SAN DIEGO  
 A DIVISION OF GENERAL DYNAMICS CORPORATION  
 CONVAIR-ASTRONAUTICS  
 A DIVISION OF GENERAL DYNAMICS CORPORATION  
 CUBIC CORPORATION  
 DUNCAN ELECTRIC CO.  
 ELECTRIC SUPPLIES DISTRIBUTING CO.  
 ETS-HOKIN & GALVAN  
 FRANK F. EVENSON  
 GENERAL ATOMIC  
 DIVISION OF GENERAL DYNAMICS CORPORATION  
 GENERAL ELECTRIC COMPANY  
 DONALD C. HARDER CO.  
 JOSLYN PACIFIC COMPANY  
 KAISER ALUMINUM & CHEMICAL CORPORATION  
 KINETICS CORPORATION  
 LINE MATERIAL INDUSTRIES  
 MAYDWELL & HARTZELL, INC.  
 NON-LINEAR SYSTEMS, INC.  
 OHIO BRASS COMPANY  
 PACIFIC TELEPHONE & TELEGRAPH COMPANY  
 PACIFIC WHOLESALE ELECTRIC COMPANY  
 SAN DIEGO GAS & ELECTRIC COMPANY  
 SQUARE D COMPANY  
 STROMBERG-CARLSON—SAN DIEGO  
 A DIVISION OF GENERAL DYNAMICS CORPORATION  
 WESTINGHOUSE ELECTRIC CORPORATION  
 ZINSCO ELECTRICAL PRODUCTS COMPANY

Due to the closing date for printing, it is not possible to acknowledge those contributions received after July 15, but they are equally appreciated.

## LIST OF AUTHORS

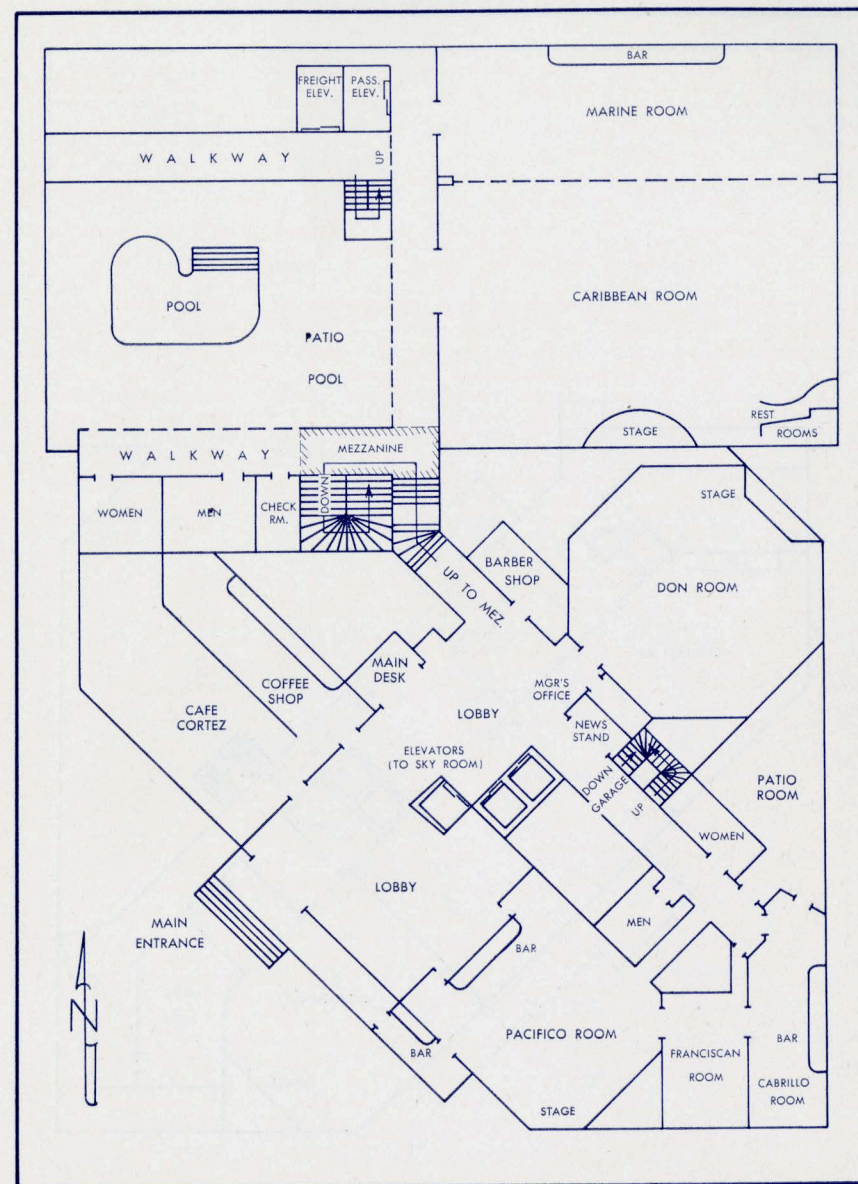
	Page		Page		Page
<b>A</b>		<b>E</b>		<b>K</b>	
Aaland, K. ....	16	Eichorn, R. L. ....	4	Kahle, H. A. ....	6
Adler, H. ....	7	Eisen, C. L. ....	4	Karkar, E. M. ....	6
Ahmad, K. A. ....	9	Ekberg, J. V. ....	11	Karsten, E. J. ....	9
Albrecht, F. ....	11	Erdelyi, E. A. ....	14	Katz, J. ....	7
Allen, R. J. ....	7			Keezer, D. C. ....	5
Andeen, R. E. ....	5	<b>F</b>		Keller, J. W. ....	12
Aoki, M. ....	15	Fitzpatrick, R. L. ....	14	Kelly, W. L. ....	9
Applegarth, G. ....	8	Flugstad, M. ....	4	Keuser, P. E. ....	12
Aronson, M. ....	5	Forsyth, S. L. ....	4	Kiesling, P. W. ....	9
Aukerman, L. W. ....	12	Francis, A. B. ....	12	Kirby, D. B., Mrs. ....	7
Austin, P. ....	8	Fraser, J. C. ....	12	Klein, H. C. ....	15
		Frisby, W. L. ....	7	Klingenberger, J. L. ....	4
<b>B</b>		Fuller, W. D. ....	10	Kofoed, M. J. ....	5
Baldwin, M. E. ....	12			Kolatorowicz, E. E. ....	14
Barney, W. ....	15	<b>G</b>		Kooi, C. F. ....	12
Bassett, D. S. ....	13	Garvin, H. L. ....	16	Kunze, J. F. ....	8
Baxter, R. D. ....	12	Gayek, H. W. ....	14	Kurnick, S. W. ....	14
Bernstein, T. ....	8	Gibbs, J. H. ....	10		
Bills, G. W. ....	5	Gillette, R. B. ....	11	<b>L</b>	
Boice, Jr., C. W. ....	12	Gleason, H. S. ....	12	Langdon, W. R. ....	12
Bose, T. K. ....	5	Gluckman, H. P. ....	4	Langford, R. C. ....	7
Briggs, R. W. ....	4	Godfrey, G. W. ....	15	Lantz, M. J. ....	7
Bulkley, O. R. ....	9, 11	Gordon, G. ....	7	Leavy, J. F. ....	14
Burroughs, J. L. ....	10	Grodsky, H. A. ....	4	Leovic, W. J. ....	11
		Gross, E. T. B. ....	11	Levy, G. W. ....	4
<b>C</b>		Gunnick, J. L. ....	6	Lindner, J. W. ....	13
Caldwell, S. C. ....	8	Gunnison, G. S. ....	12	Linnenbom, V. J. ....	15
Carver, O. T. ....	13			Little, E. ....	6
Case, A. P. ....	13	<b>H</b>		Lodi, E. A. ....	12
Castro, P. S. ....	10, 16	Hallberg, L. B. ....	14	Loeb, R. M. ....	11
Cesari, L. ....	14	Hamel, J. S. ....	12	Lorentzen, H. S. ....	10
Cheek, C. H. ....	15	Han, K. W. ....	14		
Cherney, J. F. ....	5	Hanne, J. R. ....	11	<b>M</b>	
Chi, J. N. C. ....	11	Hansen, W. O. ....	11	MacDonald, D. L. ....	8
Chirgwin, K. M. ....	8	Happ, W. W. ....	10, 12, 16	Magee, R. A. ....	7
Chow, K. T. ....	12	Harris, K. K. ....	15	Markowitz, O. ....	4
Clark, R. J. ....	7	Harris, L. J. ....	9	Maupin, Jr., A. A. ....	13
Clark, R. N. ....	15	Hedges, J. A. ....	11	Maxey, J. ....	10
Clarridge, C. H. ....	13	Heinrich, T. M. ....	8	McCabria, J. L. ....	12
Clayton, S. D. ....	13	Henderson, A. E. ....	5	McCunney, S. J. ....	11
Cline, A. C. ....	8	Herrick, R. C. ....	6	McMurtrey, A. W. ....	9
Coates, A. L. ....	15	Hildebrand, C. E. ....	7	Meador, J. R. ....	5
Coe, W. B. ....	4	Hill, H. L. ....	13	Melville, R. S. ....	11
Collins, R. G. ....	13	Hogg, C. H. ....	8	Miller, Jr., R. L. ....	15
Combs, E. E. ....	6	Howard, R. C. ....	16	Moorhead, R. D. ....	13
Conly, E. R. ....	10	Huang, R. Y. ....	15	Morewitz, H. A. ....	16
Cook, J. C. ....	10	Huber, R. F. ....	15	Moss, R. W. ....	12
Culler, V. ....	15	Hulsey, R. E. ....	8	Moss, A. I. ....	16
Cutler, C. ....	16	Hupp, A. C. ....	14	Mueller, M. W. ....	11
		Hyvarinen, W. E. ....	8	Myer, J. H. ....	14
<b>D</b>				<b>N</b>	
Dana, H. J. ....	7	<b>I</b>		Nalbandian, S. J. ....	11
Dean, R. W. ....	6	Ishimoto, T. ....	4	Newman, M. M. ....	15
Demetriades, S. T. ....	4			Nisbet, T. R. ....	10, 14
Deming, R. L. ....	13	<b>J</b>		Nish, J. G. ....	16
Dietmeyer, D. L. ....	7	Jacobs, H. ....	7		
Donan, J. F. ....	5	Jenkins, C. J. ....	13		
Donovan, R. F. ....	9	Johnson, F. S. ....	10		

# LIST OF AUTHORS (continued)

	Page
<b>O</b>	
Oakes, P. A.....	5
Oman, H. ....	11
Overby, S. D.....	6
Owen, T. B.....	6
<b>P</b>	
Palmer, E. M.....	7
Palmer, M. N.....	16
Parr, O. D.....	16
Parsons, L. W.....	10
Pastel, M. P.....	14
Patterson, A. W.....	14
Peaslee, L. R.....	8
Perry, P. G.....	4
Pinder, H. P.....	13
Plette, D. L.....	8
Popa, J. ....	11
Prescott, H. L.....	5
Price, W. E.....	15
<b>Q</b>	
Quirk, D. ....	4
<b>R</b>	
Randolph, B. W.....	4
Reid, F. J.....	12
Renken, D. A.....	7
Reynolds, A. F.....	12
Rexford, H. E.....	15
Rickettes, G. B. S.....	9
Robb, J. D. ....	15
Robertson, J. N.....	12

	Page
Rosenthal, C. W.....	7
Runyon, J. P.....	7
<b>S</b>	
Sachs, M. S.....	10
Sanders, William.....	9
Schaeffer, N. M.....	12
Schmitz, N. L.....	8
Schock, A. ....	6
Schreiber, M. A.....	9
Scoville, J. F.....	9
Secunde, R. R.....	14
Sells, Jr., R. M.....	11
Seymour, A. M.....	6
Shilling, W. J.....	4
Simpson, J. D.....	8
Slack, D. ....	4
Slemaker, O. S.....	7
So, H. C.....	14
Sorenson, A. A.....	6
Sorkin, R. D.....	4
Spear, W. G.....	13
Stern, H. ....	9
Stevens, R. F.....	11
Stratton, L. J.....	8, 12
Street, Jr., G.....	11
Stuart, J. Gray.....	7
Surendranath, J. G.....	9
<b>T</b>	
Tabor, P. M.....	9
Tague, B. A.....	7
Talaat, M. E.....	6
Teutsch, W. B.....	16
Thaler, G. J.....	14

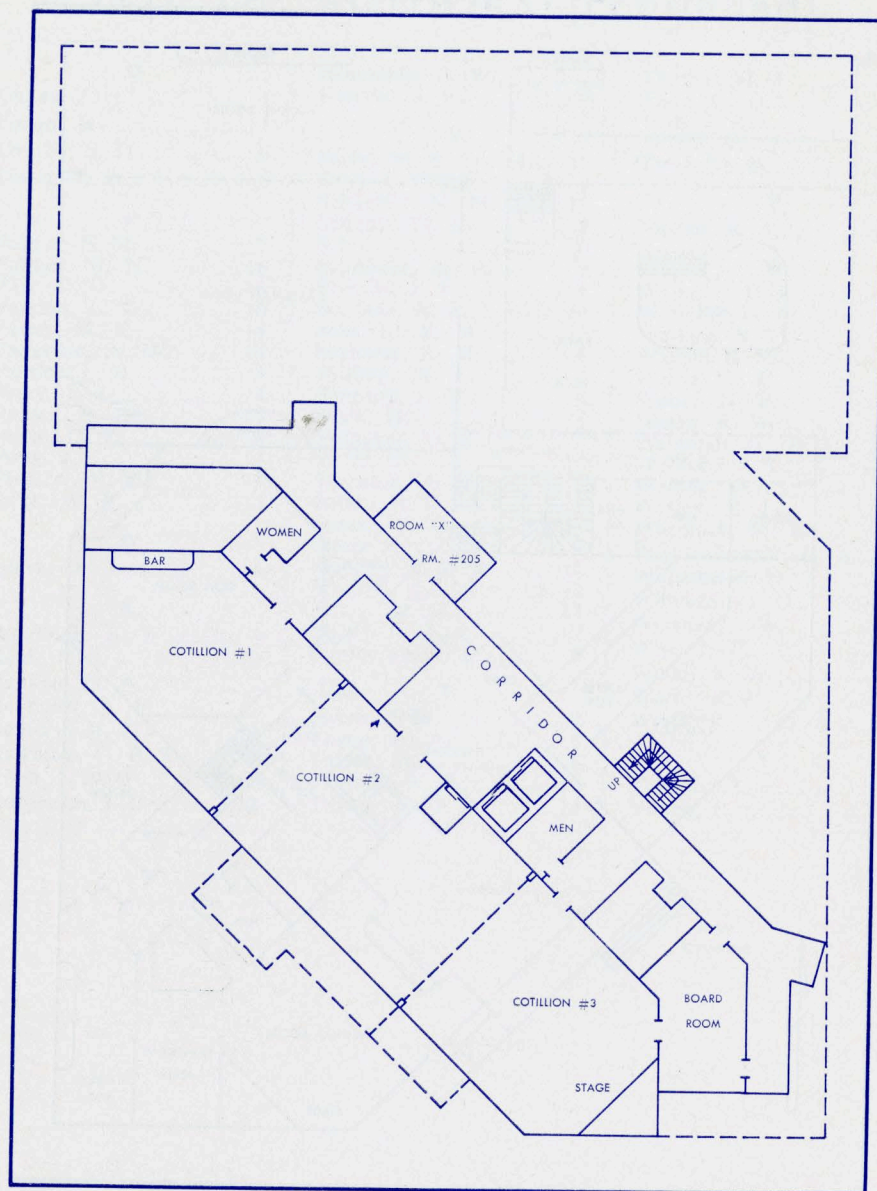
	Page
Thomas, H. A.....	8
Todd, C. D.....	14
Toth, J. R.....	8
Turner, Jr., J. S.....	11
Tyler, M. G.....	15
<b>V</b>	
Varone, R. A.....	11
<b>W</b>	
Wallman, E. J.....	11
Warchol, E. J.....	10
Watkins, B. O.....	7
Watson, R. H.....	14
Weaver, L. E.....	15
Weber, N. E.....	11
Weeks, R. W.....	5
Weigman, Jr., B. J.....	6
Wellford, A. L.....	6
Welling, D. ....	6
Wesley, E. J.....	13
Wheelock, M. E.....	11
Wieczorkowski, E. A.....	16
Wilhelmson, D. A.....	6
Williams, G. O.....	11
Winslow, J. W.....	15
Wise, J. F.....	6
Wood, R. E.....	8
Wurm, R. J.....	12
Wyatt, T. ....	9
<b>Y</b>	
Yeh, L. P.....	10
Young, S. ....	5



**MAIN FLOOR**

El Cortez Hotel

## MEMORANDA



### SECOND FLOOR

El Cortez Hotel



CABRILLO NATIONAL MONUMENT