

AERO-SPACE TRANSPORTATION COMMITTEE

SPECIAL TECHNICAL CONFERENCE

JUNE 26-30, 1961

PHILADELPHIA, PA.



Headquarters
Benjamin Franklin Hotel



Twilight view of central Philadelphia, with City Hall tower looming in the foreground. Penn Center is at the left in photo; the Benjamin Franklin Parkway is at right.

An AIEE Special Technical Conference will be held on June 26-30 at the Benjamin Franklin Hotel, Philadelphia, Pennsylvania. The host, the Aero-Space Transportation Committee, has developed the theme, "Concepts and Design in Aero-Space Electricity," for this special conference.

Although the Conference is an annual affair, this is the first time since 1950, that it has been held on the East Coast. Philadelphia is an ideal choice because it is centrally located for both Military and Airframe customers. No other section of the country can draw on so many companies involved in Aero-Space electric equipment. Military installations and manufacturing concerns interested in aircraft, missiles, and space vehicles cannot fail to interest the members of the Aero-Space Transportation Committee. In addition to the technical paper program, there will be inspection trips, a wide variety of industrial exhibits, and innumerable points of interest to visit in the Philadelphia area.

BUSINESS MEETINGS:

Monday, June 26, 1961—9:00 AM to 12 Noon
Power Sources Subcommittee:

A. J. Wesolowski, Chairman
William Penn Room (Second Floor)

Monday, June 26, 1961—2:00 to 5:00 PM
Aero-Space Transportation Committee:

D. H. Scott, Chairman
Valley Forge Room (Second Floor)

Luncheon—12:30 to 1:45 PM (Committee Members)

Wednesday, June 28, 1961—8 PM

Definitions Working Group of the Flight-Vehicle Electric Systems Integration Subcommittee:

Oscar Markowitz, Chairman
William Penn Room (Second Floor)

Thursday and Friday, June 29, 30, 1961—9:00 AM

Support Systems Integration Subcommittee (formerly Ground Support Electric Systems Integration Subcommittee):

J. I. Elliott, Chairman
William Penn Room (Second Floor)

HOTEL RESERVATIONS: The facilities of the Benjamin Franklin Hotel have been selectively assigned to the American Institute of Electrical Engineers for this meeting. Requests for room reservations should be mailed to Reservation Clerk, Benjamin Franklin Hotel, 9th & Chestnut Sts., Philadelphia, Pa. Phone: WA 2-8600. Hotel prices are: single, \$8.50 and \$9.50; double \$11.00 and \$12.00; twin, \$14.00 and \$15.00; suites, \$30.00 and \$35.00.

Hotel reservations should be made as far in advance as possible. Due to the presence in Philadelphia of other meetings and conferences at this time, and the possibilities that the Benjamin Franklin might not be able to accommodate all visitors, the following alternate facilities are suggested:

Continued on page 4

"AIEE AERO-SPACE TRANSPORTATION COMMITTEE SPECIAL TECHNICAL CONFERENCE"

ADVANCE COPIES OF PAPERS

Members may obtain preprints of numbered papers at the uniform price of 50¢ each (\$1.00 each to non-members), 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 \$10 denominations are available for those who wish to avoid remittance by check or otherwise). Papers in the CPA-5000 Series may not be available at the conference.

Note: Papers will be reviewed for publication in the Transactions at a later date.

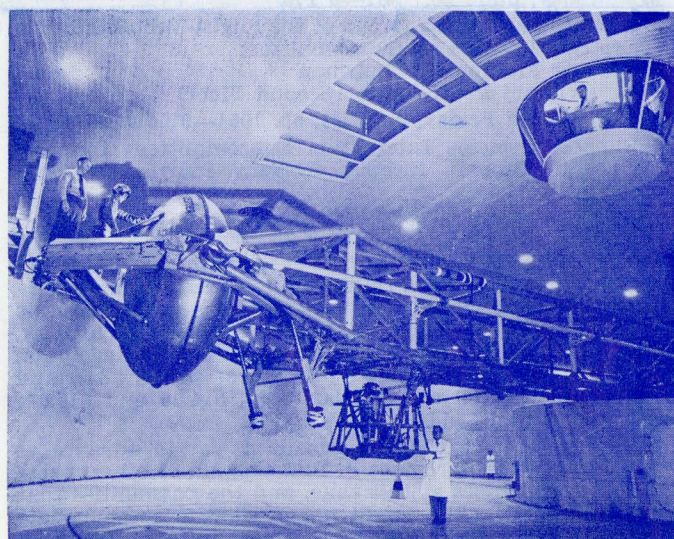
TUESDAY, JUNE 27

9:00 AM — GENERATION AND CONVERSION

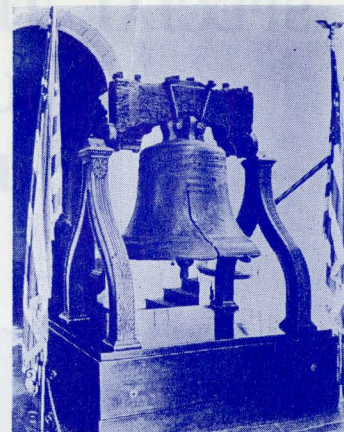
- CP61-880—"Form Factor Derived Voltage Amplitude Modulation in Aircraft 400 Cycle Electric Power Systems"—J. S. Turner, Convair, Fort Worth
- CP61-881—"Considerations for a Combination A-C Electric Power Generation and Engine Starting System for Aircraft"—W. E. Hyvarinen, H. E. Keneipp, L. J. Rosell—The Westinghouse Electric Corporation
- CP61-882—"A High Performance Voltage Regulator for a Brushless Aircraft Generator"—J. L. Bowen, T. R. Cabe, T. M. Wilson—General Electric Company
- CP61-883—"Frequency Changer Systems Using the Cycloconverter Principle"—R. A. VanEck—Jack & Heintz Division
- CP61-916—"Design and Reliability Study of 30 KVA AC Generator and Control for Aerospace Vehicles"—A. C. Oeinck, R. E. Keys, P. M. Mueller—Jack & Heintz Division
- CP61-913—"Voltage Modulation on Aircraft Electric Power As a Function of the Flexibility of the Alternator Drive-Shaft"—M. Flugstad—Boeing Airplane Company (Re-presented for Discussion Only)

9:00 AM — INSTRUMENTATION: AERO-SPACE INSTRUMENTATION COMMITTEE

- CPA61-5043—"Automated Testing of the Tracking Capabilities of Missile Ground Guidance Equipment"—T. G. North, J. B. Casey, J. B. Crouch, and J. L. Collins—Western Electric Company



NADC JOHNSVILLE, PA. "Official Photograph U.S. Navy"



The famous old LIBERTY BELL is on permanent exhibition in Independence Hall. Visitors hear the Story of the Bell through a tape recording by Edward R. Murrow.

- CP61-884—"Selection of Optimum Parameters for a Lunar Mapping Satellite"—R. S. Duggan, Lockheed Aircraft Corp., Marietta, Ga.
- CP61-885—"Guidance and Data Transmission Considerations for Lunar Mapping Satellite"—J. A. Webb, Lockheed Aircraft Corporation, Marietta, Ga.

2:00 PM — ENVIRONMENT AND RELIABILITY

- CP61-887—"Application and Performance of Insulations for 500° C Hypersonic Aircraft Generators"—R. L. Balke, C. H. Merrifield, J. A. Diamond—General Electric Company
- CP61-888—"The Effect of High Temperature and Outer Space Vacuum on Electrical Equipment"—O. P. Steele, III, North American Aviation, Inc.
- CP61-889—"Optimizing Simple Circuitry for Reliability and Performance by Failure Mode"—J. R. Hanne—The Bendix Corporation (Re-presented for Discussion Only)
- CP61-917—"Radiation Problems with Electric Components"—Dr. H. L. Wiser—Hughes Aircraft Company

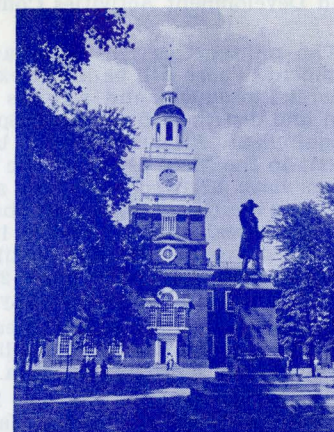
2:00 PM — ASTROBIOLOGY/HUMAN FACTORS: AERO-SPACE INSTRUMENTATION COMMITTEE

- CPA61-5045—"Designing for the Human Component of Transportation Systems"—Dr. Ross McFarland—Harvard University; Dr. Bertram J. Smith, General Electric Company (MSVD)
- CPA61-5046—"Instrumentation and Telemetry for Man in Space"—Raymond S. Bark—Boeing Airplane Company
- CPA61-5047—"Measuring Man's Ability to Maintain His Strength and Performance During Prolonged Space Flight"—Dr. Irving Streimer—Boeing Airplane Company; Dr. Robert Tidwell, Dr. Walter Duncan—Orthopedic Hospital, Seattle Washington
- CPA61-5048—"Measuring Man's Reaction to Strains of Aero Space Travel—Remote Blood Pressure Monitoring"—Arthur B. Edmunds—Boeing Airplane Company

WEDNESDAY, JUNE 28

9:00 AM — GENERATION AND CONVERSION

- CP61-890—"Induction Frequency Converter Performance Calculations by Exact Graphical Method"—I. V. Nagrath, S. K. Agarwal, S. S. Rao—Birla Engineering College, India
- CPA61-5049—"Design, Development and Performance Characteristics for Aircraft Constant Frequency Drive and Engine Starting Unit"—P. R. Wood, C. J. Sperr—AiResearch Manufacturing Company
- CP61-891—"Static Inverter with Neutralization of Harmonics"—A. Kernick, J. L. Roof, T. M. Heinrich—The Westinghouse Electric Corporation
- CP61-892—"A Programmable Precision Electronic AC Power Supply"—L. Haner—AVTRON Manufacturing, Incorporated



Independence Hall, the most historic place in the nation. Here the Declaration of Independence was signed and first proclaimed and here the Constitution of the United States was debated and adopted.

- CP61-918—"Electric Power Generator for Mach 3 Aircraft"—C. T. Luddy—General Electric Company

9:00 AM — SUPPORT SYSTEMS

- CP61-893—"The Need for Standardized, Automatic Multi-Purpose, Support Equipment"—D. B. Dobson, L. L. Wolf—Radio Corporation of America
- CP61-894—"The Philosophy and Development of an Automatic Checkout Adapter for an Airborne Electrical Power System"—K. P. Worcester—AiResearch Manufacturing Company.
- CP61-895—"Parallel Operation of Alternators"—N. G. Alvis—Woodward Governor Company
- CP61-915—"Aerospace Systems Checkout Equipment"—Wm. Kaufman—Space Technology Laboratories, Incorporated

12:00 NOON — CONFERENCE and LUNCHEON

2:00 PM — SUPPORT SYSTEMS

- CP61-896—"Speed Control of Precise Power Generating Sets"—G. W. Taylor—Woodward Governor Company
- CP61-897—"How to Guarantee Proper Function of Protective Devices in Support Equipment"—T. M. Urban, R. J. Dikeman—Multi-Amp Electronic Corporation
- CP61-898—"Criteria Determination for Aerospace Equipment Electrical Portable Cable Assemblies"—T. A. Robinson, C. L. Hennigan—Northrop Corporation
- CP61-912—"Guidelines for Integrated Engine-Generator Set Design"—A. L. Jokl, R. Johnston—Continental Motors Corporation; R. E. Hopkins, U. S. Army Engineer Research and Development Laboratories.

THURSDAY, JUNE 29

9:00 AM — ELECTRIC SYSTEMS—GENERAL

- CP61-899—"A Study to Establish the Best Voltage Levels for Future Naval Aircraft"—J. P. O'Connor—U.S. Naval Research Laboratory
- CP61-914—"Zero Sequence Transmission Impedances in Aerospace Vehicles"—W. T. Cronenwett, Electro-Mechanics Company; R. T. Smith—Virginia Polytechnic Institute
- CP61-900—"Aircraft Control—Fly by Wire"—O. J. M. Smith, University of California, Berkeley; D. M. Petrie, W. E. Mitchell, Boeing Airplane Company; E. Buxton, North American Aviation Incorporated, Downey, Cal.; A. Salmon, United Air Lines; W. N. Lundahl, Minneapolis-Honeywell Regulator Company
- CP61-901—"Good Electrical Installation Design Practices—Practiced"—O. D. Swain—North American Aviation, Incorporated, Los Angeles
- CP61-902—"Philosophy and Design of Aero-Space Electric Systems"—J. E. Phillips—North American Aviation, Inc., Los Angeles

9:00 AM — SYSTEM COMPONENTS

- CP61-903—"Contactor Design for Advanced Environ-

ments"—L. R. Siegl—The Hartman Electrical Manufacturing Company

- CP61-904—"Design of a Light Weight High Voltage Distribution Transformer for Use in a 60 KVA Generating System for a High Altitude Mach 3 Aircraft"—J. W. Butler, J. E. Nease—General Electric Company
- CP61-905—"Miniature "True" A. C. Coil Relays"—G. A. Marshall—North American Aviation, Incorporated, Los Angeles

CP61-906—"Problems in the Selection and Testing of Nickel Cadmium Batteries for Satellites"—F. Albrecht—The Martin Company (Re-presented for Discussion Only)

CPA61-5054—"Robert H. Goddard's Solar Motor"—Dr. E. R. Hagemann—Aerospace Corporation

2:00 PM — UNCONVENTIONAL POWER SOURCES

- CP61-907—"Applicability of Radioisotope Fueled Thermoelectric Generators as Power Supplies for Unmanned Soft Lunar Landings"—T. S. Bustard, R. J. Wilson—The Martin Company
- CP61-908—"Investigation of Static Nuclear Space Powerplants"—W. R. Corliss—The Martin Company
- CP61-909—"Solar Thermionic Space Power System"—R. J. Harvey—The Martin Company
- CP61-910—"Power Sources for Space Vehicles"—L. Waldorf—The Bendix Corporation
- CP61-911—"Solar Cell Performance with Concentrated Sunlight"—R. J. Tallent, H. Oman—Boeing Airplane Company

6:30 PM — CONFERENCE RECEPTION and BANQUET

FRIDAY, JUNE 30

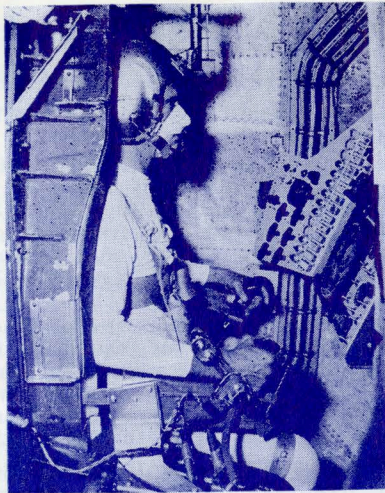
9:00 AM — UNCONVENTIONAL POWER SOURCES

- CPA61-5050—"Generalized Theory of The Thermionic Plasma Converter"—Dr. M. E. Talaat—The Martin Company
- CPA61-5051—"An Isotopic-Fueled Thermionic Power Source"—R. J. Harvey—The Martin Company
- CPA61-5052—"A Nuclear Thermoelectric Power System for Space"—R. D. Turner, F. C. Stump—Westinghouse Electric Corporation
- CPA61-5053—"Static Nuclear Thermoelectric System for Space"—P. E. Kueser, P. S. Merrill, F. G. Tauch—Westinghouse Electric Corporation
- CP61-919—"Chemical Thermionic Auxiliary Power System"—C. V. Burkland—The Marquardt Corporation



NADC JOHNSVILLE, PA. "Official Photograph U.S. Navy"

Astronaut Alan Bartlett Shepard Jr., CDR., USN of East Derry, New Hampshire, checking his molded foam plastic acceleration couch under the watchful eye of Flight Surgeon William Douglas, LCOL, USAF of Project Mercury. This phase of the project was conducted at the Aviation Medical Laboratory located at the U.S. Naval Air Development Center, Johnsville, Pa.



Astronaut Alan Bartlett Shepard Jr., CDR., USN of East Derry, New Hampshire, shown in the gondola of the human centrifuge in preparation for the dynamic simulation of space flight under Project Mercury. This was conducted at the Aviation Medical Acceleration Laboratory located at the U.S. Naval Air Development Center, Johnsville, Pa.

Bellevue Stratford Hotel, Broad and Walnut Streets, Philadelphia. Phone, PE 5-0700. Air conditioned, TV, prices: single, \$10.00 and up; double, \$15.00 and up; twin, \$15:00 and up; studio room, \$20.00; suites, \$32.00 and up. Sheraton Hotel, 1725 Pennsylvania Boulevard, Philadelphia. Phone, LO 8-3300. Air conditioned, TV, prices: single, \$9.85 and up; double, \$12.00 and \$16.00; twin, \$16.00, \$18.00 and \$22.00; suites \$35.00 and up.

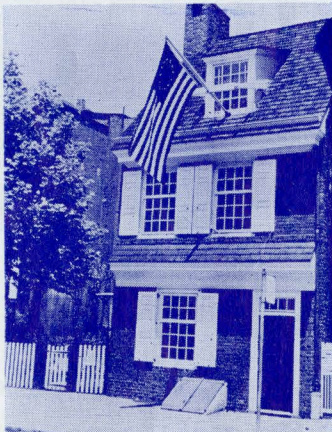
University Motor Inn, 600 University Ave. (near Schuylkill Expressway) Philadelphia, Pa. Phone, EV 2-8200. Air conditioned, TV, swimming pool, prices: single \$10.50 and \$14.00; double, \$14.00 and \$17.00.

REGISTRATION: The registration desk, located on the mezzanine floor of the Benjamin Franklin Hotel, will be open from 9 AM until 5 PM on Monday, June 26, 1961, from 8 AM until 5 PM on Tuesday, Wednesday, and Thursday, June 27, 28, and 29, 1961, and from 8 AM until 12 Noon on Friday, June 30, 1961.

Members and nonmembers should register in advance by returning the advance registration card sent with this announcement. Registration fees are \$6.00 for members and \$9.00 for non-members. Student members and families of members will not be charged a registration fee.

LUNCHEON: A luncheon for all members, wives and guests will be held in the Crystal Ballroom of the Benjamin Franklin Hotel at 12:00 Noon on Wednesday, June 28. "Industry's Role in Aero-Space Electricity" will be the subject of the address by Dr. R. W. Porter, Consultant—Advanced Development for the General Electric Company, New York, N. Y.

BANQUET: A reception and banquet for all members,



The Betsy Ross House is the "Birthplace of Old Glory". Here the little Colonial seamstress made the First American Flag.

wives and guests will be held in the Crystal Ballroom of the Benjamin Franklin Hotel at 6:30 P.M. on Thursday, June 29. "Your Navy in the Space Age" will be the subject of the address by RADM. J. N. Murphy, USN, Commander, Naval Air Research and Development Activities Command, Johnsville, Pa.

EXHIBITS: The military services will have displays of their latest equipment. There will be many exhibits of military and commercial products and services pertaining to power generation and distribution for Aero-Space and Aero-space support equipment. All displays will be located immediately adjacent to the Main Lobby of the Hotel and the technical meetings have been scheduled to allow adequate time for all visitors to see the exhibits with the least possible interference with technical papers and the inspection trip. Exhibits will be open from 10:00 AM until 7:00 PM on Tuesday, Wednesday, and Thursday, June 27, 28, and 29, and from 10:00 AM until 2:00 PM on Friday, June 30.

RECREATION: Golf, Tennis, Major League Baseball, Race Tracks, Theaters, and night Club facilities are available throughout the entire metropolitan area.

INSPECTION TRIP: On Wednesday, June 28, 1961, starting at 1:45 PM, there will be a trip to the Naval Air Development Center, Johnsville, Pa. The highlight of this trip will be a visit to the world's largest centrifuge which is operated by the Medical Acceleration Laboratory, NADC. The Astronauts are currently undergoing tests at the centrifuge.

LADIES' ENTERTAINMENT: Mrs. Susan Zischkau, Chairman of the Ladies Entertainment Committee, will be assisted by the Committee members' wives and the AIEE Women's Auxiliary in the program of activities planned for the June Conference.

Headquarters will be in the Crystal Ballroom Foyer, on the mezzanine, where coffee will be available from 9:00 AM.

A tour of the major points of interest in historic Philadelphia is scheduled for Tuesday, June 27th at 2 PM.

On Wednesday, June 28th, a theatre party is planned. Thursday, June 29th, there will be a tour of Valley Forge at 10 AM followed by the banquet in the evening.

Several shopping trips are also planned.

GENERAL CHAIRMAN: Mr. Gerald A. Cundiff is General Chairman of this Technical Conference and any inquiries pertaining to the business or other information concerning the details of the meeting can be directed to him at General Electric Company, #3 Penn Center Plaza, Philadelphia 2, Pa., Phone: OSborne 2-2915 or LOcust 8-1800.

GENERAL INFORMATION:

National Officers

- C. H. Linder, President
- L. F. Hickernel, J. H. Foote, Past Presidents
- W. R. Clark, Treasurer
- N. S. Hibshman, Executive Secretary
- E. C. Day, Asst. Secretary—Technical Papers
- R. S. Gardner, Asst. Secretary—Technical Activities

Philadelphia Section

- R. L. Halberstadt, Chairman
- W. O. Mascaro, Vice Chairman
- T. H. Story, Secretary
- R. T. Ferris, Treasurer

Aero-Space Transportation Committee

- D. H. Scott, Chairman
- F. L. Lyons, Vice Chairman
- S. H. Hanville, Jr., Secretary

Local Arrangements Committee

- G. A. Cundiff, Chairman
- J. W. Pobst, Co-Chairman

Technical Program

- K. R. Smythe, Chairman
- L. M. Cobb, Vice Chairman

Finance

- O. Markowitz, Chairman
- R. L. Beatty, M. A. Daroff, W. A. Ritchie, J. E. Surline

Facilities

- H. S. Zischkau, Jr., Chairman
- C. Shakespeare, J. P. Triolo, E. J. Wood
- Exhibit Manager—F. C. Finch

Publicity

- J. A. Scarcelli, Chairman
- R. Entrot, E. A. Brown, W. C. Rabe

Ladies' Entertainment

- Mrs. H. S. Zischkau, Jr., Chairman
- Committee Members' Wives

Women's Auxiliary to the Philadelphia Section

Issued by

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS
33 West 39th Street, New York 18, N. Y.