



MIDDLE EASTERN DISTRICT MEETING

May 4 - 6, 1955

Columbus, Ohio

Headquarters: Deshler-Hilton Hotel



Columbus, Capital City of Ohio

Columbus Convention Bureau

The 1955 AIEE Middle Eastern District Meeting will be held May 4-6, 1955 at the Deshler-Hilton Hotel in Columbus, State Capital of Ohio. Columbus, the third city of Ohio, has a population of 400,000 people living within its 40 square mile area, with an estimated 150,000 living in its suburbs and contiguous areas. An outstanding technical program has been arranged. A complete social program will include luncheons, smorgasbord, and dinner-dance. Novel and integrated inspection trips are expected to heighten interest in the technical sessions. Friday, May 6th, will also be student meeting day, when the district prize paper contest will be held.

HOTEL RESERVATIONS

Rooms have been arranged for all members and guests at the Deshler-Hilton, Headquarters Hotel. The return post card included with the announcement should be mailed directly to the Hotel. Reservations are suggested prior to April 18th, with arrival on Tuesday afternoon or evening, May 3rd, the preferred plan. No reservations should be sent to the Hotel Sub-Committee. Hotel prices are as follows:

Deshler-Hilton Hotel, Broad and High Streets.	
Single	\$5.50 to \$9.00
Double	\$9.50 to \$13.50
Twin Bed	\$10.00 to \$14.50
Suites, Single or Double	\$12.00 to \$32.00

Rates at other Columbus Hotels are comparable.

REGISTRATION

The registration desks will be located adjacent to the ballroom on the second floor of the Hotel. Registration facilities will be open Tuesday, May 3rd, 6:00-9:00 P.M., Wednesday and Thursday, May 4th and 5th, 8:00 A.M.-5:00 P.M., and Friday, May 6th, 8:00 A.M.-12:00 Noon.

Please return the advance registration card if possible, as this will enable the Registration Committee to prepare programs and tickets, etc. in advance and facilitate the registration procedure in general. Do not enclose remittance with advance registration cards, as all fees will be collected upon arrival at the registration desks.

OPENING GENERAL SESSION

Philip Sporn, President, American Gas and Electric Service Corporation, will deliver the principal address at the Opening General Session, Wednesday, May 4th, 10:00 A.M. in the ballroom of the Hotel. His topic will be: "Problems and Opportunities in Electric Utility Engineering." Mayor M. E. Sensenbrenner, of Columbus, will welcome the membership. W. B. Morton, Vice President, District #2, will open the session. A. C. Monteith, President of the Institute, will address the members briefly.

SMORGASBORD

A buffet-style dinner with entertainment will be held Wednesday Evening, May 4th, 7:30-10:30 P.M. in the ballroom. Informal entertainment will be provided by the Earl March Trio and the Harmonaires. A seating plan will enable friends to sit at the same table. Tickets, priced at \$4.75 each, will be available at the registration desk.

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AIEE MIDDLE EASTERN DISTRICT MEETING — PROGRAM — Columbus, Ohio, May 4-6, 1955

ADVANCE COPIES OF PAPERS

Members may obtain preprints of Numbered Papers at the uniform price of 30¢ each (60¢ each for nonmembers), by sending enclosed order form and remittance to the AIEE Order Department, 33 West 39th Street, New York 18, N. Y. Mail orders (particularly from out-of-town members) are advisable, inasmuch as an adequate supply of each paper at the meeting cannot be assured. Coupon books in \$9 denominations are available for those who wish to avoid remittance by check or otherwise. The Transaction Papers will also be published in the bimonthly publications.

NOTE: Unnumbered District papers (DP.*) 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.

Wednesday, May 4

10:00 A.M.—General Session

2:00 P.M.—Ethics

DP55-265. Ethics—Paramount Professional Earmark. C. J. Freund, University of Detroit.

DP.* Ethics and Engineering Organizations. E. W. Seeger, Cutler-Hammer Co.

DP55-292. Developing a Professional Consciousness. Cornelius Wandemacher, University of Cincinnati.

2:00 P.M.—Atomic Power I

DP.* Research Tools for the Development of Atomic Power. S. L. Fawcett, Battelle Memorial Institute.

DP55-266. An Industrial Approach to Atomic Power. J. L. Everett, Philadelphia Electric Co.

DP.* The Present State of Power Reactor Development. W. K. Davis, U. S. Atomic Energy Commission.

2:00 P.M.—Electronic Aids to Medicine I

DP.* Color Television, an Aid in Medical Instruction. F. M. Deerhake, General Electric Co.

DP.* A new Development in Retinal Photography. J. H. Prince, John Cowan, and N. A. Smith, Ohio State University.

DP.* Xeroradiography, X-Ray Inspection by Xerography. Harold Clark, Haloid Company.

DP55-267. Cinefluorography with a Screen Intensifier. D. H. Steinweg, Westinghouse Electric Corporation.

2:00 P.M.—Communication System I

DP.* Telefax Patron Switching. W. B. Lloyd, Western Union Telegraph Company.

DP.* Rigorous Determination of the Capacitance and Characteristic Impedance of UHF Coaxial Rectangular Transmission Lines. T. J. Higgins and J. Skiles, University of Wisconsin.

DP55-300. Railway Signaling—A Railway Signal System Employs Fail-Safe and Conventional Transmission Circuits and Equipment. G. W. Baughman, Union Switch and Signal Co.

DP.* Solutions to Unreliability in Complex Electronic Equipment. G. H. Sheer, Wright Field Air Development Center.

Thursday, May 5

9:30 A.M.—Management

DP55-302. Planning, Control, and Appraisal of Performance in the Management of an Engineering Organization. C. J. Beller, Cleveland Electric Illuminating Company.

DP55-268. Human Engineering—The Key to Executive Growth and Development. M. J. Evans, M. J. Evans Company.

DP.* The Plus and Minus of Supervision. Paul Brouwer, Rohrer, Hibler and Replogle, Consulting Psychologists.

9:30 A.M.—Atomic Power II

DP.* Nuclear Power Reactor Control. J. J. Stone, Battelle Memorial Institute.

DP.* Opportunities for Education in Nuclear Engineering. C. E. Dryden and G. B. Carson, Ohio State University.

DP55-269. Atomic Energy from Electrical Energy. G. E. Isaksson, Goodyear Atomic Corporation.

9:30 A.M.—Electronic Aids to Medicine II

DP55-306. A Probe-Type Radiation Counter for Beat Particles. D. T. Williams, Battelle Memorial Institute.

DP.* Probe Amplifiers for Nuclear Measurements. E. Fairstein, Oak Ridge National Laboratories.

DP55-308. Medical Spectrometer. J. E. Francis and P. R. Bell, Oak Ridge National Laboratories.

DP.* Gamma-Ray Projection Analysis. W. G. Myers, Ohio State University.

9:30 A.M.—Rotating Machinery I

55-270. Effect of Skew on Induction Motor Magnetic Fields. C. E. Linkous, General Electric Company.

55-271. Computation of Skin-Effects in Bars of Squirrel-Cage Rotors. Michael Liwshitz-Garik, National Electric Coil Company.

DP55-272. Effect of Saturation on Air-Gap Flux Distribution. N. F. Tsang, University of Arkansas.

DP.* Calculations of AC/DC Resistance Ratios for Stator Conductors. D. S. Babb and J. E. Williams, University of Illinois.

55-273. Weighted Mutual Reactances for a Triple-Cage Motor Circuit. E. R. Martin, University of Michigan.

9:30 A.M.—Communication Systems II

DP55-289. Telephone Carrier for Subscriber Service. R. E. Pickett, North Electric Mfg. Co.

DP.* A Grass Roots Telephone Man Looks at Research and Manufacturing. G. W. Searle, Wisconsin Telephone Company.

DP55-290. Color Video Transmission over Inter-City Television Networks. G. J. Harms, American Telephone and Telegraph Company.

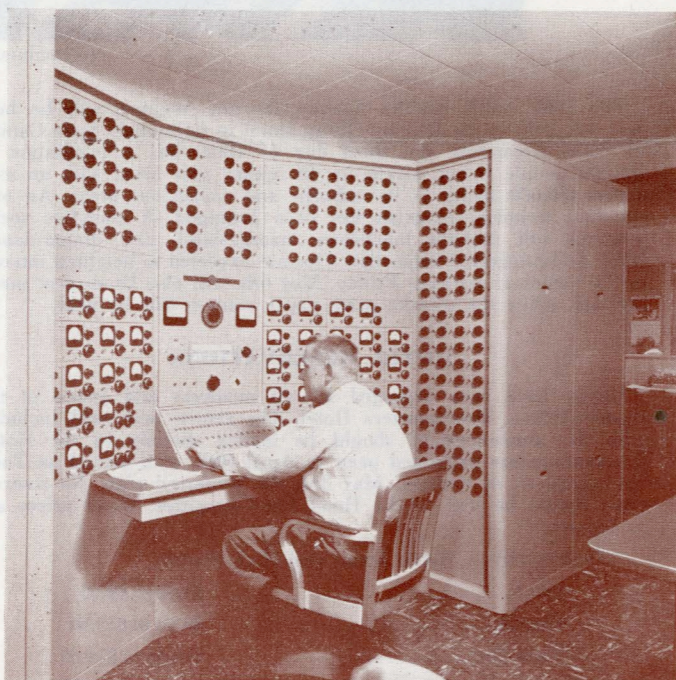
DP55-274. Non-Multiple Magnetic Frequency Changers. H. M. Hugel, Lorain Products Corporation.

2:00 P.M.—Rotating Machinery II

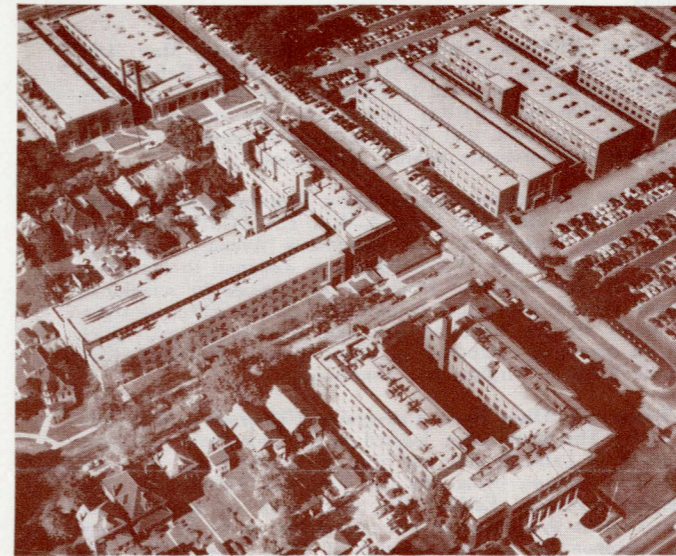
DP.* Ventilation of Enclosed Motors. W. H. Mathews, Westinghouse Electric Corporation.

55-275. Some Factors Influencing the Temperature Rise of Armature Windings. Michael Liwshitz-Garik, National Electric Coil Company.

DP55-276. Two-Axis Method of Analyzing Electrical Machines. K. Y. Tang and Robert Cosgriff, Ohio State University.



The Electric Transmission Loss Penalty Factor Computer of the American Gas and Electric System



Battelle Memorial Institute Ralph Ernst

DP55-288. Low Inertia Motors. F. A. Yates, Diehl Mfg. Co.

DP.* The Magnetostrictive Transducer as a Reciprocating Electric Motor. B. A. Wise, Battelle Memorial Institute.

2:00 P.M.—Electric Power Systems I

DP55-277. Development in Substation Design. F. W. A. Myers, Philadelphia Electric Co.

55-278. Basic Sequence Networks. Dr. H. S. Kirschbaum, Ohio State University.

DP.* Insulation Application of Modern Power Transformers. G. W. Clothier, Allis-Chalmers Manufacturing Company.

55-279. Interpretation and Significance of Tests Indicating the Concentration of Polar Compounds in Transformer Oil. R. W. Johnson, Line Material Company.

DP55-280. A new Method for Representing Zero-Sequence and Mutual Impedances for Faults on Overhead Lines. A. L. Miller, Cleveland Electric Illuminating Company.

2:00 P.M.—Semi-Conductors and Solid-State Devices I

DP.* Recent Advances in Transistor Development. J. A. Morton, Bell Laboratories.

DP.* Transistor Reliability. W. J. Pietenpohl, Bell Laboratories.

DP.* High Frequency Transistors with Emphasis on PNIP. J. M. Early, Bell Laboratories.

DP.* Silicon Transistors. J. L. Moll, Bell Laboratories.

DP.* Solar Batteries and Power Rectifiers. A. E. Anderson, Bell Laboratories.

DP.* Alloy Germanium Transistors. J. J. Ebers, Bell Laboratories.

2:00 P.M.—Computers I

Panel Session—Centralized vs. Decentralized Computers.

The NORC.—A Central Computer. W. J. Eckert, Watson Laboratories and Columbia University.

Decentralized Computers. Frank Verzuh, Massachusetts Institute of Technology.

Decentralized Input—Output with Central Computer. H. R. J. Grosch, General Electric Co.

Friday, May 6

9:30 A.M.—Semi-Conductors and Solid-State Devices II

DP.* Alpha Fall-Off in Fused Junction Transistors. R. L. Bright, Westinghouse Electric Corporation.

DP.* High Temperature Area-Type Diode Rectifiers. H. C. Gorton and T. S. Shilliday, Battelle Memorial Institute.

DP.* Techniques for Measurement of Barrier Capacitance of Metallic Rectifiers. K. E. Hassler and W. E. Bulman, Battelle Memorial Institute.

9:30 A.M.—Computers II

DP.* Application of Electronic Computers to Flood Routing and Other Hydraulic Problems. Ed. Lawler, U. S. Army Corps of Engineers.

DP.* Application of GEDA to Human Dynamics Studies. H. L. Flowers, Goodyear Aircraft Corp.

DP.* Design Studies of Large High Performance Pressure Control Systems Using Analogue Computer. G. Rouvalis, Hagan Corporation.

DP.* Simulation of Mechanical Systems Coupled by Cams and Levers. J. J. Stone, W. Hecox and J. K. Weatherbee, Battelle Memorial Institute.

9:30 A.M.—Insulation for Rotating Machinery III

DP.* Magnet Wire Performance in Product Life Tests. R. L. Balke, General Electric Company.

DP.* Insulation Evaluation Program and Equipment Used for Medium-Sized Electric Machinery. G. L. Moses and R. D. Wolford, Westinghouse Electric Corporation.

DP.* Guiding Principles in the Thermal Evaluation of Insulating Materials. L. J. Berberich and T. W. Dakin, Westinghouse Electric Corporation.

DP.* The End Point in Motorette Testing. G. A. Cypher and T. J. Gair, General Electric Co.

9:30 A.M.—Electric Power Systems II

55-281. Grounding Grids for High-Voltage Stations II. E. T. B. Gross and R. B. Wise, Illinois Institute of Technology.

55-282. Combination Load-Flow and Stability Equivalent for Power System Representation on A-C Network Analyzers. W. T. Brown and W. J. Cloues, Philadelphia Electric Company.

DP55-283. Generator Loading Guides for Power System Operation. R. H. Travers, Ohio Edison Company and I. H. Landes, Commonwealth Associates, Inc.

DP.* Economic Study of Higher Voltages. P. L. McVean, Detroit Edison Company, and J. G. Tarboux, University of Michigan.

DP.* Use of Higher Secondary Voltages in Commercial Areas. R. F. Lawrence, Westinghouse Electric Corporation.

9:30 A.M.—Aircraft Electric Systems I

DP.* Electric Systems Unique to Airships. J. L. Lytle and R. Lyman, Goodyear Aircraft Corp.

DP.* Electric Systems Unique to Fighter-Airplanes. Geo. Godfrey, North American Aviation, Inc.

DP.* Electric Systems Unique to Flying Boats. W. Colehower, Glenn L. Martin Company.

DP.* Developments in Aircraft Exterior Lighting. M. K. Laufer, Grimes Manufacturing Co.

DP.* Emergency Electric Systems for Aircraft. M. Smallberg, Marquardt Aircraft Corp.

2:00 P.M.—Rotating Machinery IV

DP55-284. Equivalence Theorems—Analysis and Synthesis of Single-Phase Induction Motors with Multiple Non-Quadratic Windings. Sheldon Chang, New York University.

DP.* Motor Inertia Effect in the Operation of Air Conditioning Compressors. R. G. Rescorla, General Electric Company.

55-285. An Improved Electronic Speed-Torque Computer. J. Shulman and H. W. Hansen, Westinghouse Electric Corporation.

DP.* Calculation of Impedance-Frequency Characteristics of Induction Motor Rotor Conductors. J. E. Williams, University of Illinois.

55-286. Application of Statistics to Motor Testing. J. L. Oldenkamp, General Electric Co.

2:00 P.M.—Electric Power Systems III

DP.* The Role of Economics in System Planning. Abraham Gerber, American Gas and Electric Service Corporation.

DP.* Planning the Power System I—General Considerations. T. J. Nagel and C. A. Imburgia, American Gas and Electric Corporation.

DP.* Planning the Power System II—Examples of Technical Problems. C. F. DeSieno, American Gas and Electric Service Corporation.

DP.* Economic System Loading. G. W. Stagg, American Gas and Electric Service Corporation.

2:00 P.M.—Aircraft Electric Systems II

- DP.* Coordination Problems in AC Systems. H. K. Omer, Westinghouse Electric Corporation.
- DP55-346. Environmental Free Machines and High Temperature Problems of Rotating Equipment. O. E. Buxton, Jack and Heintz, Inc.
- 55-287. Design and Protection of AC Power Systems for Aircraft Instruments. O. Markowitz and C. Sears, Naval Air Development Center, Johnsville, Pa.

2:00 P.M.—Computers III

- DP.* Special Analogue Computer. G. D. McCann, California Institute of Technology.
- DP.* Improved Servo-Multipliers for Analogue Computers. E. H. Gamble, General Electric Co.
- DP.* Quasi-Random Access Memory Systems. G. L. Hollander, Clevite Brush Co.
- DP.* Magnetic Computer Components. R. D. Kochs, Raytheon Manufacturing Company.
- DP55-351. Reliability of Computer Tubes. E. S. Mockus, Raytheon Manufacturing Company.

DP.* Unnumbered District papers may be available at or after the meeting if copies are provided by the author. They are not intended for publication in Transactions and are not presently scheduled for reproduction in any form by the Institute.

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DINNER-DANCE

The outstanding social event, a dinner-dance will be held Thursday, May 5th, 7:30-12:00 P.M. Dinner hour will be 7:30-9:00 P.M., with dancing 9:00-12:00 Midnight. Chuck Selby and his orchestra will furnish musical entertainment. Price of tickets will be \$5.75 each. Tickets will be available at the registration desk.

No advanced remittances should be sent for either the Smorgasbord or the Dinner-Dance.

LUNCHEONS

Luncheons will be held at 12:30 P.M. in the ballroom of the hotel. The Wednesday, May 4th and Thursday, May 5th, luncheons will be \$3.00 each, ladies also invited. The Friday, May 6th, luncheon will be a joint student luncheon, price \$2.00. Student members admitted free. Non-member students price, \$1.00. Speaker Friday will be A. C. Monteith, President of AIEE.

LADIES EVENTS

The ladies who attend as guests have a varied and interesting schedule to look forward to. A daily morning "Coffee Hour" will be held Wednesday, Thursday, and Friday, May 4, 5, 6th, each morning from 8:30-10:00 A.M. no charge. Wednesday afternoon, May 5th, the ladies will join Mrs. Lausche, wife of Governor Frank J. Lausche, for tea at the Governor's Mansion. Tickets, \$1.00 each. Thursday morning, May 5th, a tour of F. and R. Lazarus Department Store, one of the country's finest, is scheduled. No charge.

One of the highlights for the ladies will be Thursday afternoon, May 5th. A bus tour of the Ohio State University Campus and of some of Columbus' more scenic views will precede luncheon at Ilonka's Provincial House at 3:00 P.M. Tickets, \$3.00 each. Friday, May 6th, will be left free for shopping or informal tours for which private transportation will be provided.

INSPECTION TRIPS

Five interesting inspection tours have been arranged, which should offer something to all members. Tickets should be purchased promptly upon arrival at the registration desk, as the accommodations are necessarily limited. Bus transportation will be furnished for all tours.

Westinghouse Electric Corporation (Wednesday, May 4th, 1:30 P.M.) This huge plant houses the Westinghouse Refrigerator and Freezer Division. Completed in 1953, this facility now produces approximately 2400 units per day. It is one of this country's largest buildings under one roof, and is an outstanding example of overhead conveyor and automatic welding techniques.

American Gas and Electric Corporation System Loading Computer (Thursday, May 5th, 9:00 A.M.) The AG&E System Coordination Office located at 1384 Grandview Avenue, Columbus, houses this unique device. The computer is designed to determine instantaneously the correction factors to be applied in scheduling power plant electric generation to minimize adverse effect of transmission losses on the American Gas and Electric System, which includes six operating companies in Ohio, Indiana, Michigan, Kentucky, West Virginia, Virginia and Tennessee.

Radio Telescope, Ohio State University (Thursday, May 5th, 10:00 A.M.) This installation, located on the Ohio State University Farms, north of Lane Avenue and west of Kenny Road. It is one of the world's biggest, being 160 feet long and includes 96 cork-screw-shaped antennas. Earlier this year, work of mapping the northern sky with this telescope was named one of the 10 most outstanding astronomical accomplishments of 1954. This project also helped locate the exact center of the galaxy or "Milky Way" in which our solar system is located.

North American Aviation Company (Thursday, May 5th, 1:15 P.M.) One of America's oldest and largest airplane manufacturers operates this large Navy-owned plant. The F-86 Sabre Jet and the F-100 Super Sabre are produced here for the U. S. Air Force and Navy. Almost 15,000 employees from the Central Ohio area work at this factory, which is adjacent to Port Columbus, the Columbus Municipal Airport, and the U. S. Naval Air Station. Tickets for this trip must be purchased by 12:00 Noon, Wednesday, May 4th, so names may be submitted for security clearance.

Battelle Memorial Institute (Friday, May 6th, 9:00 A.M.) Located on a 50-acre tract, the buildings of Battelle, with more than $\frac{3}{4}$ million square feet of laboratory floor space, houses more than 2100 people engaged in contract industrial research on a not-for-profit basis. Battelle also has a 400-acre site on the west outskirts of Columbus. Facilities for pilot-plant and large-scale research are being developed there, as well as an atomic energy research center. Other Battelle laboratories are located in Frankfurt, Germany, and Geneva, Switzerland.

STUDENT ACTIVITIES

Friday, May 6th, will be Student's Day, with the District Prize Paper Contest being held from 9:00 to 11:00 A.M., with an additional session from 2:00 to 4:00 P.M., if required. The students will lunch with members at 12:30 P.M. Price: Student Members—Free, Non-member students—\$1.00. A student banquet will be held at 6:00 P.M. at the Ohio Student Union on the OSU Campus. Prizes, including the District first prize of \$25.00, will be awarded at that time. After the banquet Open House will be held in the Electrical Engineering Department at Ohio State University.

GENERAL COMMITTEE

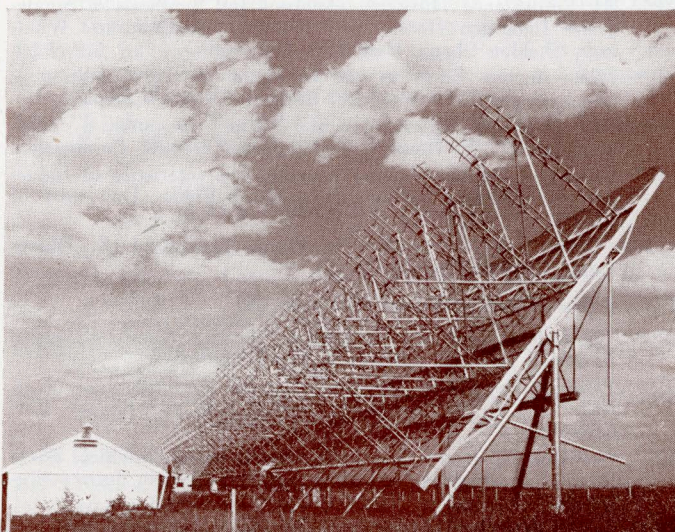
Members of the 1955 Middle Eastern District Meeting General Committee are: E. K. McCoy, General Chairman; G. M. L. Sommerman, Honorary General Chairman; R. C. McMaster, Advisory; L. M. Moore, Administration; G. R. Tamplin, Coordinating Secretary; N. J. Greene, Budget and Finance; D. E. Stafford, Treasurer; E. E. Dreese, Technical Program; N. A. Smith, Student Meetings; C. K. Bishop, Special Meetings; P. L. Gilmore, Jr., Entertainment; J. W. Cade, Arrangements; E. O. Wolden, Publicity.

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160 Ft. Radio Telescope Antenna at The Ohio State University