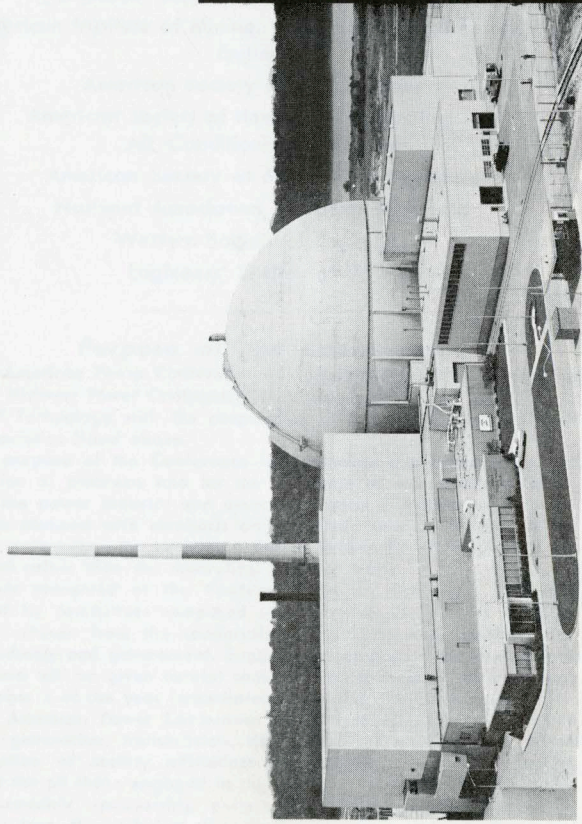


# AMERICAN POWER CONFERENCE

24TH  
ANNUAL  
MEETING  
MARCH 27-29, 1962  
SHERMAN HOUSE  
CHICAGO

ADVANCE  
PROGRAM



Sponsored by

## **ILLINOIS INSTITUTE OF TECHNOLOGY**

### **COOPERATING UNIVERSITIES**

Iowa State University	State University of Iowa
Michigan State University	University of Illinois
Northwestern University	University of Michigan
Purdue University	University of Minnesota
University of Wisconsin	

### **REGIONAL ASSOCIATED UNIVERSITIES**

Agricultural and Mechanical College of Texas  
Georgia Institute of Technology  
Massachusetts Institute of Technology  
New York University

### **COOPERATING SOCIETIES**

American Institute of Chemical Engineers  
American Institute of Electrical Engineers  
American Institute of Mining, Metallurgical and Petroleum  
Engineers  
American Society of Civil Engineers  
American Society of Heating, Refrigerating and  
Air Conditioning Engineers  
American Society of Mechanical Engineers  
National Association of Power Engineers  
Western Society of Engineers  
Engineers' Society of Milwaukee

---

### ***Purpose of the Conference***

The American Power Conference was organized in 1952 as successor to the Midwest Power Conference. It is sponsored by the Illinois Institute of Technology with the cooperation of the universities and technical societies listed above.

The purpose of the Conference is to provide a national forum for discussion of problems and for the exchange of information of interest to the power industry and associated areas of endeavor. The program is planned with emphasis on the broad over-all aspects of the subject, rather than the intricate technical details. Papers emphasize the practical rather than the theoretical point of view.

Papers presented at the Conference are by invitation. They are selected by committees composed of experts in the various fields of activity, chosen from the cooperating universities and societies, and from industry and government. Suggestions for papers are always welcome and will be given careful consideration if received on or before September 1 of the year immediately preceding the Conference.

The American Power Conference is open to all persons interested in the generation, transmission, distribution, or utilization of power irrespective of society affiliations. It provides a common meeting ground for all those engaged in the industry's many and varied activities. Academic sponsorship permits the freest possible discussion, ranging from the technical through the economic and into the social aspects of the subject.

A cordial invitation is extended to everyone to attend this twenty-fourth annual meeting of the American Power Conference.

## REGISTRATION IN ADVANCE BY MAIL

All those who can do so are urged to register in advance by mail before Wednesday, March 21. This may be done by filling out the registration form appearing on page 21 and returning it together with your remittance to:

Edwin R. Whitehead, Secretary, American Power Conference  
Illinois Institute of Technology, Technology Center  
Chicago 16, Illinois

Upon arrival at the Conference, badges and tickets ordered in advance may be picked up at a special registration desk reserved for advance registrants.

## EARLY REGISTRATION AT THE CONFERENCE

For the convenience of those arriving early, a special registration desk will be set up in the lobby of the Sherman House on Monday evening, March 26. Those who can are urged to register at this time in order to avoid the early Tuesday morning rush.

## REGISTRATION DURING THE CONFERENCE

Registration during the Conference will begin on the Mezzanine Floor of the Sherman House at 8:30 Tuesday, March 27 and continue throughout the three-day period. Everyone planning to attend the technical sessions is required to register. Those who plan to attend only the luncheon or dinner functions are not required to register although they are urged to do so in order to obtain a copy of the Proceedings and to provide support for the Conference.

A registration fee of \$15.00 will be charged each registrant. This fee entitles the registrant to receive without further charge a cloth bound volume of the Proceedings containing all of the papers and addresses presented at the Conference. The volume will be mailed to the registrant as soon as it becomes available from the printer. Each registrant also receives an identification badge which will serve as his ticket of admission to all sessions of the Conference.

## HOTEL ACCOMMODATIONS

All meetings of the Conference will be held in the Sherman House located in the Loop on the corner of Randolph and Clark streets in Chicago. Those who plan to attend and are in need of hotel accommodations are urged to make reservations directly with the Sherman House or with any other desired hotel at an early date. For your convenience a reservation card for the Sherman House appears on page 21.

## PUBLISHED PROCEEDINGS

Each year papers and addresses delivered at the Conference are published in a cloth bound volume called "The Proceedings of the American Power Conference." A copy of this volume will be mailed without further charge to each registrant. Additional copies may be ordered at the registration desk or by mail. The price of the volume will be \$10.00 per copy.

## PREPRINTED PAPERS

As an additional service to registrants, the Conference will have available for sale at the meeting copies of most of the papers scheduled for presentation. These copies will be furnished to the Conference through the courtesy of the authors. A charge of 25c will be made for each paper to cover the cost of handling and to help defray some of the expenses of printing the proceedings. Those desiring copies of papers should purchase them at the meeting since many will not be available after the conference.

## FINAL PROGRAM

The advance program is tentative. Copies of the final program incorporating necessary changes will not be mailed but will be available at the registration desk during the meeting. Although it is expected that only minor changes in the advance program will be necessary, there may nevertheless be a few additions and deletions. Each registrant is therefore urged to secure a copy of the final program at the registration desk upon arrival at the meeting.

## ADVANCE PROGRAM

### 1962 Meeting

## AMERICAN POWER CONFERENCE

SHERMAN HOUSE

MARCH 27, 28 and 29, 1962

## TUESDAY, MARCH 27, 1962

**8:30 A.M. REGISTRATION** — *Mezzanine Floor — Sherman House.*

**9:30 A.M.—12:00 Noon. OPENING MEETING—Grand Ballroom.**

CHAIRMAN: Nicholas Galitzine, Vice President, Commonwealth Edison Company, Chicago, Ill.

CO-CHAIRMAN: Raymond D. Maxson, Consultant, Sargent & Lundy, Engineers, Chicago, Ill.

a. Invocation: The Reverend Dr. Stephen B. Barnwell, Chaplain, Illinois Institute of Technology, Chicago, Ill.

b. Accelerating Engineering Progress. M. Nielsen, President, The Babcock & Wilcox Company, New York, N. Y.

c. Federal Encroachment—The Rights Being Surrendered by Citizens and States. C. Hamilton Moses; Moses, McClellan, Arnold, Owen & McDermott, Little Rock, Ark.

**12:15 P.M. JOINT APC-ASME LUNCHEON—Bernard Shaw Room.** Sponsored by the American Society of Mechanical Engineers.

CHAIRMAN: William H. Byrne, President, American Society of Mechanical Engineers.

CO-CHAIRMAN: C. E. Evanson, Chairman, Chicago Section ASME and President and General Manager, T A B Engineers, Inc., Chicago, Ill.

Speaker: The Honorable Thomas G. Morris, United States Congressman from New Mexico, Washington, D. C.

Subject: Space, Power and the Atom—One Congressman's Viewpoint.

**2:00-5:00 P.M. LARGE STEAM GENERATORS—Grand Ballroom.**

CHAIRMAN: H. L. Solberg, Associate Dean of Engineering, Purdue University, Lafayette, Ind.

CO-CHAIRMAN: T. W. Schroeder, Manager of Power Production, Illinois Power Company, Decatur, Ill.

a. Present Status of the B & W Universal Pressure Boiler System. Will H. Rowand, Vice President, Marketing, Boiler Division, The Babcock & Wilcox Company, Barberton, Ohio.

b. A New Steam Generator for Supercritical Pressures. W. W. Schroeder, Assistant Manager, Product Development Department, Combustion Engineering, Inc., Windsor, Conn.

c. Recent Experiences with Radiant Superheaters in Central Station Steam Generators and Their Effect on Design Criteria. Robert P. Welden, Assistant Chief Engineer, Steam Department and Harry H. Pratt, Chief Performance Engineer, Service Department, Foster Wheeler Corporation, New York, N. Y.

d. A Liquid Metal Heated, Fossil Fuel Fired Supercritical Steam Generating System. Robert W. Dickinson, Sodium Reactors Department and Donald F. Casey, Research Specialist, Atomics International Division, North American Aviation, Canoga Park, Calif.

**2:00-5:00 P.M. INDUSTRIAL I—AIR CONDITIONING—Assembly Room.** Sponsored by the American Society of Heating, Refrigerating and Air Conditioning Engineers.

CHAIRMAN: Louis Oosten, Vice President of Engineering,

## TUESDAY PM

Bell & Gossett Company, Morton Grove, Ill.

CO-CHAIRMAN: Burgess H. Jennings, Dean, Research Coordination, Northwestern University, Evanston, Ill.

- a. Coil and Control Characteristics and Problems at Point of Use. Harold W. Alyea, Director of Engineering, Johnson Service Company, Milwaukee, Wis.
- b. Primary and Secondary Hot and Chilled Water Circuitry. Gilbert F. Carlson, Chief Engineer, Specialty Division, Bell & Gossett Company, Morton Grove, Ill.
- c. Economic Factors Affecting the Selection, Installation and Operation of a 500 ton Absorption Refrigeration System. Norman E. Bueter, Engineering Consultant, Chicago, Ill.
- d. Evaluation of Heating and Cooling Sources For Large Buildings. C. J. R. McClure; C. J. R. McClure and Associates, St. Louis, Mo.

### 2:00-5:00 P.M. HYDROELECTRIC POWER—Crystal Room. A

Symposium on Hydroelectric Power from the Missouri River. CHAIRMAN: Adolph J. Ackerman, Consulting Engineer and President, Hydroelectric Planners, Madison, Wis.

CO-CHAIRMAN: H. B. Gotaas, Dean, Northwestern Technological Institute, Northwestern University, Evanston, Ill.

- a. Main Stem Hydro-Electric Power Plants on the Missouri River. Asa V. Shannon, Chief of the Technical Engineering Branch, Missouri River Division, U. S. Corps of Engineers, Division Office, Omaha, Neb.
- b. Operation of Missouri River Main Stem Reservoirs. Tarmo Waara, Assistant to the Chief of the Reservoir Control Branch, Missouri River Division, U. S. Corps of Engineers, Division Office, Omaha, Nebraska.
- c. Transmission and Marketing of Hydro-Electric Power in the Missouri River Basin. Robert L. Barta, Assistant Regional Supervisor of Power, Region 6, U. S. Bureau of Reclamation, Butte, Montana.
- d. A Proposal for Integration of the Federal Missouri Basin Hydroelectric System and Adjacent Thermal Systems. D. W. Angland, General Superintendent of System Planning, Northern States Power Company, Minneapolis, Minn.

### 2:00-3:30 P.M. WATER TECHNOLOGY I—Boiler Water Treatment—Bal Tabarin Room—6th Floor.

CHAIRMAN: M. B. Baker, Chief Chemist, West Penn Power Company, Springdale, Pa.

CO-CHAIRMAN: Howard M. Rayner, Plant Engineer, Western Electric Company, Chicago, Ill.

- a. Semi-Automatic Treatment Control for Low Pressure Water Systems. Brian Walker, Magnus Chemicals, Ltd., Montreal, Quebec, Canada.
- b. To be announced.

### 3:30-5:00 P.M. WATER TECHNOLOGY II—Condensate Cleanup Systems—Bal Tabarin Room—6th Floor.

CHAIRMAN: S. F. Whirl, Chemical Operating Engineer, Duquesne Light Company, Pittsburgh, Pa.

CO-CHAIRMAN: W. R. Homan, Chief Chemist, Commonwealth Edison Company, Chicago, Ill.

- a. A Large Industrial Installation. P. H. Caskey, Illinois Water Treatment Company, Rockford, Ill.
- b. Powdex—A New Approach. J. L. Levendusky, Group Leader, Research and Development and J. Duff, Technical Manager, Graver Water Conditioning Company, New York, N.Y.

### 2:00-3:30 P.M. ELECTRICAL APPARATUS—Louis XVI Room.

CHAIRMAN: K. V. Knudson, Chairman, Power Division, Chicago section, AIEE; Utility Sales, Allis-Chalmers Manufacturing Company, Chicago, Ill.

CO-CHAIRMAN: J. J. Carey, Professor of Electrical Engineer-

## TUESDAY PM—WEDNESDAY AM

ing, University of Michigan, Ann Arbor, Mich.

a. Recent Developments in the Use of SF<sub>6</sub> for Power Circuit Breakers. W. M. Leeds, Engineering Manager and R. E. Friedrich, Engineer, Electric Utility, Engineering Department, Westinghouse Electric Corporation, East Pittsburgh, Pa.

b. Interrelationships Between Circuit Breaker Arc Interruption and Other Fields of Advanced Research. C. H. Titus, Manager, Engineering, Engineering Research and Development Laboratory and T. H. Lee, Manager, Engineering Research, General Electric Company, Philadelphia, Pa.

### 3:30-5:00 P.M. AUTOMATION—Louis XVI Room.

CHAIRMAN: L. B. LeVesconte, Associate and Electrical Engineer, Sargent & Lundy, Engineers, Chicago, Ill.

CO-CHAIRMAN: J. H. Kuhlmann, Professor of Electrical Engineering, University of Minnesota, Minneapolis, Minn.

- a. Application of Sequential Recording Annunciators. Lowell E. Ackman, Electrical Engineer, Sargent & Lundy, Engineers, Chicago, Ill.
- b. Problems in Installation of Computer Control in Automation of Steam Power Plants. C. P. Milne, Application Engineering, Utility Systems Unit of Process Computer Section, Industry Control Department, General Electric Company, Phoenix, Ariz.

### EVENING GENERAL INTEREST SESSION

#### 8:00-10:00 P.M.—Bal Tabarin Room—6th Floor.

Each year the conference presents a special session devoted to some basic area of knowledge which is of interest to engineers and scientists in the power field. This year we are proud to present two of the nation's leading physicists in the fields of high energy research and fusion power.

CHAIRMAN: Louis A. Turner, Deputy Director, Argonne National Laboratory, Argonne, Ill.

CO-CHAIRMAN: Andrew W. Kramer, Editor, ATOMICS, Barrington, Ill.

- a. High energy Research and the Zero Gradient Synchrotron. Albert V. Crewe, Director, Argonne National Laboratory, Argonne, Ill.
- b. Progress in the Field of Controlled Thermonuclear Energy. D. W. Kerst, Fusion Project Manager, General Atomic Division of General Dynamics Corporation, San Diego, Calif.

## WEDNESDAY, MARCH 28, 1962

### 9:00 A.M.—12 Noon. CENTRAL STATIONS I—Grand Ballroom.

CHAIRMAN: Ben G. Elliott, Professor Emeritus of Mechanical Engineering, University of Wisconsin, Madison, Wis.

CO-CHAIRMAN: J. D. Howard, Vice President, Wisconsin Power and Light Company, Madison, Wis.

- a. Design Considerations in Extra Large Steam Power Plants. F. A. Ritchings, Consulting Mechanical Engineer, Ebasco Services, Inc., New York, N. Y.
- b. Performance Characteristics of Combined Steam-Gas Cycles.\* Robert D. Sheldon, Advance Engineer, Large Steam Turbine Generator Department and Thomas D. McKone, Manager, Proposition and Requisition Engineering, Gas Turbine Department, General Electric Company, Schenectady, N. Y.
- c. Working Fluids for Power Generation of the Future.\* C. A. Meyer, Advisory Engineer and F. K. Fischer, Manager, Development Engineering, Westinghouse Electric Corporation, Lester Works, Philadelphia, Pa.
- d. Feasibility Study of 300 MWe—MHD Power Plant. R. C. Allen, Senior Engineering Consultant, Industries Group, Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

\* Sponsored by the Power Division of ASME.

## WEDNESDAY AM

### 9:00 A.M.-12 Noon. SYMPOSIUM ON ADVANCEMENT OF POWER ENGINEERING—Bal Tabarin Room—6th Floor.

Session I—A Dynamic Industry With Challenging Engineering Problems.

An important problem facing the utility industry is that of attracting and keeping highly qualified personnel, especially in the engineering fields. To discuss this problem a number of recognized leaders in the electric utility industry, education and government have been invited to participate in an all day symposium devoted to the subject. The present session constitutes the first half of the symposium. It will be followed by the second half in the afternoon. All who are interested in this topic are urged to attend. Students are especially invited.

CHAIRMAN: J. B. Thomas, Chairman of the Board, Texas Electric Service Co., Fort Worth, Tex.

CO-CHAIRMAN: Lee A. Kilgore, Director of Engineering, Westinghouse Electric Corporation, East Pittsburgh, Pa.

- The Challenge of an Engineering Career in the Exploding Technology of Thermoelectric Power. V. F. Estcourt, Manager of Steam Generation Department, Pacific Gas & Electric Company, San Francisco, Calif.
- Modern Scientific Tools Used in the Power Industry for Tomorrow's Problems. C. J. Baldwin, Generation Engineer, Westinghouse Electric Corporation, East Pittsburgh, Pa.
- Applications of Modern Technology in the Utility Industry. Herbert Estrada, Manager, Station Operating Department, Philadelphia Electric Company, Philadelphia, Pa.
- Research—Path to Progress in Electric Power. William G. Meese, Director, Engineering Research Department, The Detroit Edison Company, Detroit, Mich.

### 9:00 A.M.-12:00 Noon. INDUSTRIAL II—INDUSTRIAL PLANTS—Assembly Room.

Sponsored by the National Association of Power Engineers.

CHAIRMAN: Edwin D. Raygor, President, National Association of Power Engineers and Sales Engineer, Riley Stoker Corporation, Chicago, Ill.

CO-CHAIRMAN: Kenneth R. Hodges, Chief Engineer, Sears Roebuck & Company, Chicago, Ill.

- Integration of a Large Heat Recovery Unit with an Industrial Steam Plant. R. W. Wendes, Senior Staff Engineer, and S. P. Zambo, Staff Engineer, American Oil Company, Whiting, Ind.
- Stack Inspection and Maintenance. G. R. Setterlund, Steam Power Supervisor, Oxford Paper Company, Rumford, Me.
- Turbine Control Systems Keep Pace with Computer Technology. T. E. Pounds, Superintendent, Power and Utilities, Louisiana Division, Dow Chemical Company, Plaquemine, La.; J. B. Wagner, Engineer, Advance Systems and K. O. Straney, Engineer, Applied Mechanical Research, Medium Steam Turbine, Generator and Gear Department, General Electric Company, Lynn, Mass.
- Power Plant Control Innovations of the Last Ten Years. T. M. Nourse, Sales Manager and L. F. Martz, Service Manager, Controls Division, Hagan Chemicals & Controls, Inc., Pittsburgh, Pa.

### 9:00 A.M.-12:00 Noon. COMPUTERS—Crystal Room.

CHAIRMAN: J. E. Van Ness, Professor of Electrical Engineering, Northwestern University, Evanston, Ill.

CO-CHAIRMAN: E. B. Eggers, Research Engineer, Illinois Institute of Technology, Chicago, Ill.

- Service Experience with Analog Computers for Large Utility Power Plants. A. S. Grimes, Head, Results Section, American Electric Power Service Corporation, New York, N. Y.
- Computer Model to Determine What and When Facilities are Needed by Simulating Actual Operations of an In-

## WEDNESDAY AM—WEDNESDAY PM

dustrial Steam-Power System. Aaron D. Brooks, Technical Expert, Engineering and Construction Department, Dow Chemical Company, Midland, Mich.

- Why Use Computers for Programmed Maintenance? Howard M. Rubel, Staff Assistant, Substation Construction, and A. W. Whitton, Staff Assistant, Substations Operating Manager's Office, Commonwealth Edison Co., Chicago, Ill.
- System Operation With an On-Line Closed-Loop Digital Computer. D. G. Blodgett, Assistant to the superintendent of Electrical Systems Performance and A. K. Falk, System Engineer, The Detroit Edison Co., Detroit Michigan.

### 9:00 A.M.-12:00 Noon. WATER TECHNOLOGY III—Sea Water Desalination—Louis XVI Room.

CHAIRMAN: R. A. Lorenzini, Chairman, ASME Research Committee on Boiler Feedwater Studies, Chief Engineer, Foster Wheeler Corporation, New York, N. Y.

CO-CHAIRMAN: K. G. Picha, Associate Director, School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, Georgia.

- Point Loma—The Largest Flash Type Seawater Conversion Plant. R. L. Coit, Engineering Manager, Heat Transfer Department, Steam Division, Westinghouse Electric Corporation, Philadelphia, Pa.
- The Wiped Thin-Film Evaporator—An Efficiency Gain for Seawater Conversion. Charles W. Lotz, Project Engineer, Seawater Distillation Project, Missile and Armament Section, General Electric Company, Burlington, Vermont.
- To be announced.

### 12:15 P.M. JOINT APC-AIEE LUNCHEON—Bernard Shaw Room. Sponsored by American Institute of Electrical Engineers.

CHAIRMAN: Warren H. Chase, President, AIEE and Vice President, Ohio Bell Telephone Company, Cleveland, Ohio.

CO-CHAIRMAN: G. L. Welch, Chairman, Chicago Section, AIEE and Engineering Manager, Midwestern Region, Westinghouse Electric Company, Chicago, Ill.

Speaker: Philip A. Flegar, President, Edison Electric Institute; Chairman of the Board and President, Duquesne Light Company, Pittsburgh, Pa.

Subject: Meeting America's Power Needs—Today and Tomorrow.

### 2:00-5:00 P. M. CENTRAL STATIONS II—Grand Ballroom.

Sponsored by the Power Division of ASCE.

CHAIRMAN: Richard N. Bergstrom, Chairman of Committee on Nuclear Power, ASCE; Associate, Sargent & Lundy, Engineers, Chicago, Ill.

CO-CHAIRMAN: Robert T. Colburn, Chairman, Executive Committee, Power Division, ASCE; Charles T. Main, Inc., Boston, Mass.

- A 350,000 KW Generating Unit Purchased under Single, Complete Responsibility of one Supplier: Its Basic Concept and Opportunities Afforded for Repetitive Manufacture. J. B. Thomas, Chairman of the Board, Texas Electric Service Company, Fort Worth, Tex.
- Discussion of Oklahoma Gas & Electric Company Contract for the Horseshoe Lake Station. R. E. Thornton, Superintendent of Engineering, Oklahoma Gas and Electric Co., Oklahoma City, Okla.
- A Large Combined Gas Turbine—Steam Turbine Generating Unit. J. Bruce Stout, Chief Mechanical Engineer, Oklahoma Gas & Electric Company, Oklahoma City, Okla.; J. J. Walsh, Partner, Sargent & Lundy, Engineers, Chicago, Ill. and A. G. Mellor, Project Manager, General Electric Company, Schenectady, N. Y.
- Evaluation of Power Plant Cost and Capability. Frank V. Smith and K. W. Hamming, Partners, Sargent & Lundy, Engineers, Chicago, Ill.

## WEDNESDAY PM

### 2:00-5:00 P. M. SYMPOSIUM ON THE ADVANCEMENT OF THE POWER INDUSTRY (Continued)—*Bal Tabarin Room—6th Floor.*

Session II—The Environment which Affects the Power Industry.

CHAIRMAN: Clarence H. Linder, Vice President and Consultant, Electric Utility Group, General Electric Company, Schenectady, N. Y.

CO-CHAIRMAN: Eric T. B. Gross, Philip Sporn Professor of Electric Power Systems Engineering, Rensselaer Polytechnic Institute, Troy, N. Y.

- a. Recent National and International Developments Affecting Engineering Manpower. W. G. Torpey, Consultant, Executive Office of the President, Office of Engineering Planning, Washington, D. C.
- b. The trends in Engineering Education: Do They Concern the Power Industry? C. R. Soderberg, Institute Professor Emeritus, Former Dean of Engineering, Massachusetts Institute of Technology, Cambridge, Mass.
- c. Optimizing Use of Technical Manpower to Enhance Image of Power Industry. Larry Dwon, Manager, Engineering Manpower, American Electric Power Service Corporation, New York, N. Y.
- d. Enhancing the Climate for Engineers in a Related Industry. Philip G. Eckert, Chief Engineer, Suburban Area, Illinois Bell Telephone Company, Chicago, Ill.

### 2:00-5:00 P.M. FUELS—*Crystal Room.*

CHAIRMAN: F. G. Feeley, Jr., Olin Mathieson Chemical Corporation, New York, N. Y.

CO-CHAIRMAN: George V. Cooper, Vice President, Consolidation Coal Company, Cleveland, Ohio.

- a. Spreader Stoker Firing North Dakota Lignite for 66 Megawatts.† Earle C. Miller, Manager, Research and Development Department, Riley Stoker Corporation, Worcester, Mass. and W. Van Tassel, General Superintendent, Power Production, Montana Dakota Utilities Company, Bismark, N. D.
- b. Development of a Multi-Fuel Fired Heater for Applications in Polar Environments.† S. T. Hsu, Associate Professor of Mechanical Engineering, University of Wisconsin, Madison, Wis.; E. Beck, Head, Nuclear Division, Naval Civil Engineering Research Laboratory, Port Hueneme, Calif.; H. S. Wang, Chief Engineer, Ground Equipment Group, Vandenberg Air Force Base, California; A. E. Kofal, Research Assistant and F. M. Rafchick, Ford Foundation Fellow, University of Wisconsin, Madison, Wis.
- c. A New Fly Ash Collector Concept—Selective Reinjection.† W. E. Barkovitz, American Standard Industrial Division, Detroit, Mich.
- d. The Role of Fossil Fuels in Meeting Future Energy Demands. Martin Elliott, Vice President for Academic Affairs and executive consultant to the Institute of Gas Technology, Illinois Institute of Technology, Chicago, Ill.

### 2:00-5:00 P.M. INDUSTRIAL III-ELECTRICAL—*Assembly Room.*

CHAIRMAN: W. H. Cook, Senior Engineer, Western Electric Company, Hawthorne Works, Chicago, Ill.

CO-CHAIRMAN: Amos Turner, Meissner Engineers, Incorporated, Chicago, Ill.

- a. Electric Power Generation and Distribution in a Large Steel Mill. Paul Thanos, Assistant Superintendent, Power, Steam and Combustion Departments, Inland Steel Company, East Chicago, Ind.
- b. The Proper Application and Testing of Industrial Electrical Power Systems Protective Devices. W. A. Wedden-

## WEDNESDAY PM—THURSDAY AM

dorf, Manager, Technical Services, Mutual Boiler and Machinery Insurance Company, Waltham, Mass.

- c. Equipment Grounding. R. H. Kaufmann, Application Engineer, Industrial Power Systems Unit of Industrial Systems and Sales Engineering Operation, General Electric Company, Schenectady, N. Y.
- d. Important Considerations in the Use and Installation of Synthetic Cables for Medium Voltage Industrial Power Systems. William John Neiswander, Senior Engineer, Western Electric Company, Inc., New York, N. Y.

### 2:00-5:00 P.M. WATER TECHNOLOGY IV—INDUSTRIAL IV—*Cooling Water—A Symposium—Louis XVI Room.*

CHAIRMAN: J. F. Wilkes, Director of Research, Dearborn Chemical Company, Chicago, Ill.

CO-CHAIRMAN: E. P. Mikol, Professor, Department of Mechanical Engineering, University of Wisconsin, Madison, Wis.

- a. Scale Control. R. G. Dalbke, Product Manager, Cooling Water Treatment, Dearborn Chemical Company, Chicago, Ill.
- b. Recognition and Control of Wood Decay. J. R. DeMonbrun, Utilities Engineer, Union Carbide Nuclear Company, Oak Ridge, Tenn.
- c. Microbiological Control. F. F. Shema, Chief Microbiologist, Betz Laboratories, Inc., Philadelphia, Pa.
- d. Corrosion Control. (Author to be announced)
- e. Control of Fouling. P. R. Puckorius, Manager, Stabilization Department, Nalco Chemical Company, Chicago, Ill.

### ALL ENGINEERS DINNER

#### 6:30 P.M.—*Grand Ballroom.*

Presiding: C. Hamilton Moses; Moses, McClellan, Arnold, Owen & McDermott, Little Rock, Ark.

Entertainment: Helen Starr and her Starlighters.

Speaker: Arthur G. Trudeau, Lt. General, Chief of Research and Development, Department of the Army, Washington, D.C.

## THURSDAY, MARCH 29, 1962

### 9:00 A.M.—12 Noon. CENTRAL STATIONS III—*Grand Ballroom.*

CHAIRMAN: Vern Stone, Manager of Production, Commonwealth Edison Company, Chicago, Ill.

CO-CHAIRMAN: Reno C. King, Associate Professor of Mechanical Engineering, New York University, New York, N. Y.

- a. Operating Experience with the Widows Creek 500—Mw Steam-Electric Unit. C. L. Karr, Director of Power Production; T. H. Gladney, Chief, Power Plant Maintenance Branch and J. M. Johnson, Chief, Steam-Electric Generation Branch, Division of Power Production, Tennessee Valley Authority, Chattanooga, Tenn.
- b. Mercer Generating Station—The Case for 1100 F Steam. R. A. Baker, Chief Engineer, Electric Engineering Department, Public Service Electric and Gas Company, Newark, N. J.
- c. Large Sub and Supercritical Steam Generator Startup and Control System Integration with the Turbine Generator.\* Charles Strohmeyer, Jr., Project Manager, Gilbert Associates, Inc., Reading, Pa.
- d. Techniques for Detecting and Correcting Errors in Test Data from Large Steam Turbine Cycles. William F. Long, Instrument and Control Engineer, Cleveland Electric Illuminating Company, Cleveland, Ohio.

\*Sponsored by the Power Division of ASME

†Sponsored by the Fuels Division of ASME

## THURSDAY AM

### 9:00 A.M.-12 Noon. SYSTEM PLANNING—Louis XVI Room.

CHAIRMAN: W. A. Lewis, Professor of Electrical Engineering, Illinois Institute of Technology, Chicago, Ill.

CO-CHAIRMAN: F. L. Michelson, General Planning Engineer, System Planning Department, Commonwealth Edison Company, Chicago, Ill.

- a. System Planning—Past, Present, Future. J. K. Dillard, Manager, Electric Utility Engineering Department, Westinghouse Electric Corporation, Pittsburgh, Pa. and H. K. Sels, System Planning and Development Engineer, Public Service Electric and Gas Company, Newark, N. J.
- b. Trends in Distribution System Planning. Martin W. Gangel, and Robert C. Ender, Application Engineers, Electric Utility Engineering Operation, General Electric Company, Schenectady, N. Y.
- c. An Econometric Model for Electric Utility Forecasting. David N. Reps, Electric Utility Engineering Department, Westinghouse Electric Corporation, East Pittsburgh, Pa.
- d. Planning a Major Intercompany Purchase of System Peak Capacity. W. M. Kiefer, Power Planning Engineer, Commonwealth Edison Company, Chicago, Ill.

### 9:00 A.M.-12:00 Noon. INDUSTRIAL V—Power Generation in Industrial Plants—Assembly Room.

CHAIRMAN: Rolland H. Bradford, Director, Central Region, Ebasco Services, Inc., Chicago, Ill.

CO-CHAIRMAN: D. J. Renwick, Associate Professor of Mechanical Engineering, Michigan State University, East Lansing, Mich.

- a. An Objective Look at the Source of Power for Industrial Users. I. G. Grant, Staff Engineer, Pioneer Service and Engineering Company, Chicago, Ill.
- b. The Place for Purchased Power in Industry. James Gillespie, Division Sales Manager, Commonwealth Edison Company, Chicago, Ill.
- c. Discussion.

### 9:00 A.M.-12:00 Noon. COOLING TOWERS AND SPRAY PONDS—Crystal Room. Sponsored by the Power Division of ASME.

CHAIRMAN: J. G. Miller, Assistant Chief Engineer, Metropolitan Edison Co., Reading, Pa.

CO-CHAIRMAN: Donald H. Madsen, Professor of Mechanical Engineering, State University of Iowa, Iowa City, Iowa.

- a. Economic Features in the Selection of Circulating Water Supplies for Electric Generating Stations. George E. Weir, Mechanical Engineer and J. F. Brittain, Hydraulic Engineer, Stone & Webster Engineering Corporation, Boston, Mass.
- b. A New Development in Cooling Tower Protection. Robert W. Norris, Senior Engineer, Engineering Department, E. I. DuPont de Nemours & Company, Wilmington, Del.
- c. The Economic Sizing of Cooling Towers. A. G. Kelly and N. R. Lawless, Power Station Design Engineers, Electricity Supply Board of Ireland, Dublin, Ireland.

### 9:00 A.M.-12:00 Noon. NUCLEAR POWER PLANTS I—Bal Tabarin Room—6th Floor.

CHAIRMAN: Titus G. LeClair, Manager, Nuclear Power Applications, General Atomic Division of General Dynamics Corporation, San Diego, Calif.

CO-CHAIRMAN: Leonard E. Link, Associate Director of Reactor Engineering, Argonne National Laboratory, Argonne, Ill.

- a. Direct Cycle Nuclear Superheating for the Modern Steam Turbine. J. H. Wright, Manager, Advanced Reactor Systems, Atomic Power Department, Westinghouse Electric Corporation, Pittsburgh, Pa.
- b. Modern Steam Conditions from a 360 MWe Sodium Graphite Reactor. R. W. Dickinson, Director and R. J.

## THURSDAY PM

Beeley, Associate Director, Sodium Reactors Department, Atomics International, A Division of North American Aviation, Inc., Canoga Park, Calif.

- c. Development of Gas-Cooled Reactors for Large High Temperature Steam Power Plants. D. W. Ver Planck, Assistant Director of the Laboratory, General Atomic Division of General Dynamics Corporation, San Diego, Calif.
- d. Importance of High Power Density Boiling Water Reactor Development to Widespread Economic Power. Donald H. Imhoff, Manager, Engineering Development and S. Levy, Manager, Heat Transfer and Fluid Dynamics, General Electric Company, San Jose, Calif.
- e. The Effects of Reactor Core Parameters on Plant Economics. H. E. Vann, Manager, Nuclear Division, Jackson & Moreland, Inc., Boston, Mass.

### 12:15 P.M. JOINT APC-WSE LUNCHEON—Bernard Shaw Room. Sponsored by the Western Society of Engineers.

CHAIRMAN: P. L. Coleman, President, Western Society of Engineers and Vice President, Duff and Phelps, Inc., Chicago, Ill.

CO-CHAIRMAN: F. M. Scott, First Vice President, Western Society of Engineers and Manager of Utility Sales, Chicago District, Allis-Chalmers Manufacturing Co., Chicago, Ill.

Speaker: C. Ken Weidner, Dean of Engineering, American University of Beirut, Beirut, Lebanon.

### 2:00-5:00 P.M. CENTRAL STATIONS IV—Control of Air Contaminants from a Valley Power Station—Grand Ballroom.

CHAIRMAN: Louis C. McCabe, President, Resources Research, Inc., Washington, D.C.

CO-CHAIRMAN: Theodore Baumeister, Consulting Engineer, General Public Utilities Corporation and Stevens Professor of Mechanical Engineering, Columbia University, New York, N. Y.

- a. Introduction to the Problem and its Solution. R. F. Bovier, Vice President-Technical, Pennsylvania Electric Company, Johnstown, Pa.
- b. Seward Aerometric Survey. C. E. Billings, Assistant Professor of Industrial Hygiene, Harvard School of Public Health, Boston, Massachusetts and A. W. Taylor, Engineer, Pennsylvania Electric Company, Johnstown, Pa.
- c. Interpretation, Evaluation and Processing of the Data in the Seward Valley Study. G. M. Altstetter, Superintendent of System Economy and W. A. Verrochi, Superintendent of Production, Pennsylvania Electric Company, Johnstown, Pa.
- d. Action of Specific Airborne Contaminants. J. B. Middleton, Superintendent of Forestry, Pennsylvania Electric Company, Johnstown, Pa. and A. J. Tigges, Vice President, Jackson and Moreland, Inc., New York, N. Y.
- e. Corrective Measures in Seward Station Equipment and Operation. W. H. Lambert, Assistant to Vice President-Technical, Pennsylvania Electric Company, Johnstown, Pa. and F. W. Schmitz, Project Engineer, Research-Cotrell, Inc., Bound Brook, N. J.

### 2:00-5:00 P.M.—TRANSMISSION AND DISTRIBUTION SYSTEMS—Louis XVI Room. Sponsored by Power Division of American Institute of Electrical Engineers.

CHAIRMAN: J. H. Kinghorn, Technical Vice President, Power Division, AIEE, American Electric Power Service Corporation, New York, N. Y.

CO-CHAIRMAN: M. S. Helm, Professor of Electrical Engineering, University of Illinois, Urbana, Ill.

- a. The Electrical Design of Future EHV Systems. Lionel O. Barthold, Analytical Engineer, Electric Utility Engineering Operation, and Eugene M. Hunter, Manager, Power Transmission Engineering, Electric Utility Systems Operation, General Electric Company, Schenectady, N. Y.

## THURSDAY PM

- b. Switching Surge Experience on 345 kv Systems. H. M. Smith and D. F. Shankle, Electric Utility Engineering Department, Westinghouse Electric Corporation, Pittsburgh, Pa. and A. J. McElroy, American Electric Power Company, New York, N. Y.
- c. Short Circuit Current as a Factor in 13.2 kv Distribution Design. John H. White, Associate Engineer, System Planning Electric Distribution Department, Cincinnati Gas & Electric Company, Cincinnati, Ohio.
- d. Development of Low-Cost Underground Electric Distribution Systems for Residential Subdivisions. J. C. Smith, Staff Assistant and J. A. Schneider, Area Engineer, Commonwealth Edison Company, Chicago, Ill.
- e. Analysis of Outage Data on Distribution Systems. B. M. Gallaher, Distribution Planning Manager, Texas Electric Service Company, Fort Worth, Tex.

### 2:00-5:00 P.M. CONDENSERS—Crystal Room.

CHAIRMAN: W. A. Pollock, Technical Engineer of Power Plants, Wisconsin Electric Power Company, Milwaukee, Wis.

CO-CHAIRMAN: S. P. Kezios, Professor of Mechanical Engineering and Director of the Heat Transfer Laboratory, Mechanical Engineering Department, Illinois Institute of Technology, Chicago, Ill.

- a. Steam Condenser Considerations with Respect to Arrangement and Operation for Large Thermal Stations. R. A. Wilson, Consulting Engineer, Thermal Power Department, and W. E. Ellingen, Sales Manager, Steam Condensers, Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
- b. Condenser Performance Monitoring for Heat Rate Improvement. J. E. Wilhelm, Application Engineer, Systems Division, Bailey Meter Company, Pittsburgh, Pa.
- c. Measurement of the Performance of Condenser Tubes. Leonard A. Wenzel, Professor of Chemical Engineering, Lehigh University, Bethlehem, Pa.
- d. Control of Tube Vibration in Steam Surface Condensers. Joseph F. Sebald, Senior Consulting Engineer and Daniel Nobles, Senior Research Engineer, Harrison Division, Worthington Corporation, Harrison, N. J.

### 2:00-5:00 P.M. NUCLEAR POWER PLANTS II—Operation and Performance of the Dresden Nuclear Power Station of Commonwealth Edison Company—Bal Tabarin Room—6th Floor. Sponsored by the Chicago Section of the American Nuclear Society.

CHAIRMAN: W. Bennett Lewis, President, American Nuclear Society and Vice President Research and Development, Atomic Energy of Canada, Ltd., Chalk River, Ontario, Canada.

CO-CHAIRMAN: George J. Rotariu, Chairman, Chicago Section, American Nuclear Society and Director of Nuclear Technology, Booz Allen Applied Research, Inc., Glenview, Ill.

- a. Introductory Remarks. Irving L. Wade, Administrative Engineer, Nuclear Activities, Commonwealth Edison Company, Chicago, Ill.
- b. Plant Description. H. K. Hoyt, Superintendent, Dresden Nuclear Power Station, Commonwealth Edison Company, Morris, Ill.
- c. Plant Performance Measurements. E. R. Owen, Manager, Nuclear Systems, Atomic Power Equipment Department, General Electric Company, San Jose, Calif.
- d. Operating Experience.
  1. Power Generation Statistics, Load Schedule and Water Chemistry. G. L. Redman, Supervising Engineer, Dresden Nuclear Power Station, Commonwealth Edison Company, Morris, Ill.
  2. Economics, Physics and Power Distribution. A. F. Veras, Nuclear Engineer, Dresden Nuclear Power Station, Commonwealth Edison Company, Morris, Ill.

## THURSDAY PM

3. Load Following, Radiation Limits and Maintenance. N. A. Kershaw, Operating Engineer, Mechanical, Dresden Nuclear Power Station, Commonwealth Edison Company, Morris, Ill.
- e. Modification and Inspections of Plant Components. T. Tracki, Manager, Power Reactor Design, Atomic Power Equipment Department, General Electric Company, San Jose, Calif.
- f. Closing Remarks. I. L. Wade, Administrative Engineer, Nuclear Activities, Commonwealth Edison Company, Chicago, Ill.

### ANS CHICAGO SECTION DINNER

6:00 P.M.—Louis XVI Room.

Arranged by the Chicago Section of the American Nuclear Society. Speaker: W. Bennett Lewis, President, American Nuclear Society. Everyone is cordially invited to attend.

### FIELD TRIP TO DRESDEN NUCLEAR POWER STATION

The Chicago Section of the American Nuclear Society is arranging a field trip to the Dresden Nuclear Power Station on the morning of Friday, March 30. Those interested may obtain details and make reservations by writing to Mr. Lyman J. Templin, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, Illinois. Since the number that can be accommodated is limited, early response is requested.

### OFFICERS

R. A. BUDENHOLZER, Conference Director

E. R. WHITEHEAD, Conference Secretary

E. W. JONES, Assistant Secretary

### POLICY ADVISORY BOARD

N. BERNARD GUSSETT

Iowa Power and Light Co.

MURRAY JOSLIN

Commonwealth Edison Co.

DONALD S. KENNEDY

Oklahoma Gas and Electric Company

ALLEN S. KING

Northern States Power Co.

MARSHALL S. LUTHRINGER

Central Illinois Public Service Company

DEAN H. MITCHELL

Northern Indiana Public Service Company

ALLEN VAN WYCK

Illinois Power Company

### UNIVERSITY REPRESENTATIVES

PAUL M. ANDERSON

Iowa State University

J. J. CAREY

University of Michigan

M. STANLEY HELM

University of Illinois

BURGESS H. JENNINGS

Northwestern University

J. H. KUHLMANN

University of Minnesota

W. A. LEWIS

Illinois Institute of Technology

DONALD H. MADSEN

State University of Iowa

E. P. MIKOL

University of Wisconsin

D. J. RENWICK

Michigan State University

H. L. SOLBERG

Purdue University

### REGIONAL ASSOCIATED UNIVERSITY REPRESENTATIVES

A. B. ALTER

Agricultural and Mechanical College of Texas

RENO C. KING

New York University

K. G. PICHA

Georgia Institute of Technology

C. RICHARD SODERBERG

Massachusetts Institute of Technology



**NATIONAL SOCIETY REPRESENTATIVES**

- ROBERT M. BALDINI**  
American Society of  
Mechanical Engineers
- R. N. BERGSTROM**  
American Society of  
Civil Engineers
- P. L. COLEMAN**  
Western Society  
of Engineers
- D. A. DAHLSTROM**  
American Institute of  
Chemical Engineers
- KENNETH R. HODGES**  
National Association of  
Power Engineers
- J. H. KINGHORN**  
American Institute of  
Electrical Engineers
- WILLIAM C. McCULLOCH**  
American Institute of  
Mining, Metallurgical and  
Petroleum Engineers
- LOUIS OOSTEN**  
American Society of  
Heating, Refrigerating  
and Air Conditioning  
Engineers

**LOCAL SOCIETY REPRESENTATIVES**

- C. E. EVANSON**  
Chicago Section ASME
- PAUL KAAR**  
Illinois Section ASCE
- R. L. OPILA**  
Chicago Section AIChE
- ROBERT C. SIEGEL**  
Engineers' Society of  
Milwaukee
- C. M. SQUARCY**  
Chicago Section AIME
- L. H. STREB**  
Illinois Chapter ASHRAE
- G. L. WELCH**  
Chicago Section AIEE

**INDUSTRY COMMITTEE**

**D. A. SULLIVAN**, *Chairman*  
Armour Research Foundation

- FRANCIS L. ADAMS**  
Federal Power  
Commission
- S. K. ADKINS**  
Nalco Chemical Co.
- EDWARD ALLEN**  
Electrical World
- M. I. ALLEN**  
Philadelphia Electric Co.
- J. W. ANDERSON**  
Philadelphia Electric Co.
- H. G. BAUER**  
DeLaval Steam  
Turbine Co.
- RAWSON BENNETT**  
Sangamo Electric Co.
- HAROLD A. BERGEN**  
Burson-Marsteller  
Associates
- RALPH W. BOVIER**  
Pennsylvania Electric Co.
- R. H. BRADFORD**  
Ebasco Services, Inc.
- P. R. BROADLEY**  
Bituminous Coal Research
- AARON D. BROOKS**  
The Dow Chemical Co.
- B. B. BROWNELL**  
Electro-Motive Div.  
General Motors Corp.
- V. J. CALISE**  
Graver Water Conditioning  
Company
- W. K. CAVE**  
Office of the Chief of  
Engineers  
United States Army
- J. O. CHAMBERS**  
West Penn Power Co.
- H. H. CHAPMAN**  
Westinghouse Electric  
Corp.
- WALKER L. CISLER**  
Detroit Edison Company
- NATHAN COHN**  
Leeds and Northrup Co.
- DONALD E. CRAIG**  
General Electric Co.
- WILLIAM F. CRAWFORD**  
Rockwell Manufacturing  
Co.
- JAMES J. CUNIFFE**  
Pioneer Service &  
Engrg. Co.
- J. K. DILLARD**  
Westinghouse Electric Corp.
- J. C. DUCOMMUN**  
Standard Oil Company  
of Indiana
- CHESTER R. EARLE**  
Power Engineering

**INDUSTRY COMMITTEE Continued**

- B. L. ENGLAND**  
Atlantic City Electric Co.
- F. G. FEELEY, JR.**  
Olin Mathieson  
Chemical Corp.
- S. N. FIALA**  
American Elec. Power Co.
- E. S. FIELDS**  
Cincinnati Gas &  
Electric Co.
- CLARENCE C. FRANCK, SR.**  
Westinghouse Electric Corp.
- P. B. GARRETT**  
Electric Light and Power
- JAMES R. GARVEY**  
Bituminous Coal  
Research Inc.
- R. L. GIBSON**  
General Electric Company
- M. B. GOLBER**  
Armour & Company
- H. W. GOULDTHORPE**  
General Electric Company
- GEORGE A. GRIMM**  
Office of Secretary of  
Defense
- ERIC T. B. GROSS**  
Rensselaer Polytechnic  
Institute
- N. BERNARD GUSSETT**  
Iowa Power & Light Co.
- THANE R. HALSTEAD**  
The Air Preheater Corp.
- GAIL A. HATHAWAY**  
International Bank for  
Reconstruction and  
Development
- E. R. HENDRICKSON**  
Commonwealth Edison Co.
- F. C. HENSEL**  
Combustion Engineering,  
Inc.
- CHARLES F. HOCHGESANG**  
Electrical World
- T. J. HODAN**  
Allis-Chalmers Mfg. Co.
- KENNETH R. HODGES**  
Sears Roebuck & Co.
- WILLIAM R. HOMAN**  
Commonwealth Edison Co.
- F. P. HYER**  
Delaware Power and  
Light Co.
- CARL F. JOHN**  
Wisconsin Electric  
Power Co.
- MURRAY JOSLIN**  
Commonwealth Edison Co.
- J. A. KEETH**  
Kansas City Power &  
Light Co.
- ANDREW W. KRAMER**  
Atomics
- G. H. KRAPP**  
U. S. Steel Corp.
- HENRY R. KURTH**  
Boston Edison Company
- FRANK A. LASKER**  
Lasker Boiler &  
Engineering Corp.
- H. A. LEEDY**  
Armour Research  
Foundation
- D. C. LEFEBVRE, SR.**  
French Power Bureau
- L. W. LENGNICK**  
Hawaiian Electric Co.
- W. A. LEWIS**  
Illinois Institute of  
Technology
- L. J. LINDE**  
Allis-Chalmers Mfg. Co.
- CLARENCE H. LINDER**  
General Electric Company
- ELMER L. LINDSETH**  
Cleveland Electric  
Illuminating Co.
- LEONARD E. LINK**  
Argonne National Laboratory
- GEORGE LOVE**  
Pittsburgh Cons. Coal Co.
- E. ROBERT DE LUCCIA**  
Pacific Power & Light Co.
- M. S. LUTHRINGER**  
Central Ill. Public  
Service Co.
- W. A. LYONS**  
N. Y. State Electric &  
Gas Co.
- VAUGHN MANSFIELD**  
Peabody Coal Company
- V. M. MARQUIS**  
Amer. Elec. Power  
Serv. Corp.
- L. H. MARTIN**  
Huntington Alloy Products  
Division, International Nickel  
Company
- R. D. MAXSON**  
Sargent & Lundy,  
Engineers
- LOUIS C. McCABE**  
Resources Research, Inc.
- W. J. McLACHLAN**  
General Electric Company
- DURANDO MILLER**  
The Permutit Company
- A. C. MONTEITH**  
Westinghouse Elec. Corp.
- E. R. MOORE**  
Detroit Edison Company
- J. S. MORGAN**  
Allis-Chalmers Mfg. Co.

**INDUSTRY COMMITTEE Continued**

- A. G. MUMMA**  
Worthington Corp.
- J. R. MURRAY**  
Babcock & Wilcox Co.
- KENNETH D. NICHOLS**  
Consultant
- E. L. NICOLSON**  
General Electric Company
- FRANK NUGENT**  
Freeman Coal Mining Co.
- A. B. OPENSHAW**  
Combustion Engr., Inc.
- GEORGE A. PORTER**  
Detroit Edison Co.
- A. A. POTTER**  
Air Preheater Corporation
- E. M. POWELL**  
Combustion Engineering, Inc.
- F. A. RITCHINGS**  
Ebasco Services, Inc.
- KINSEY M. ROBINSON**  
Washington Water Power Company
- C. V. ROSEBERRY**  
Westinghouse Electric Corp.
- L. T. ROSENBERG**  
Allis-Chalmers Mfg. Co.
- W. H. ROWAND**  
Babcock & Wilcox Co.
- CARL SCHABTACH**  
General Electric Company
- R. M. SCHAFER**  
Northern Indiana Public Service Co.
- F. M. SCOTT**  
Allis-Chalmers Mfg. Co.
- FRANK SMITH**  
Sargent & Lundy, Engineers
- CHAUNCEY STARR**  
Atomics International
- VERN L. STONE**  
Commonwealth Edison Co.
- C. SUITS**  
General Electric Company
- R. L. SWINNEY**  
Babcock & Wilcox Co.
- W. M. TERRY**  
Allis-Chalmers Mfg. Co.
- J. B. THOMAS**  
Texas Electric Service Co.
- A. J. TIGGES**  
Jackson & Moreland, Inc.
- JOHN F. TOBIN**  
American Standard Industrial Div.
- M. S. UMBENHAUER**  
The Ralph M. Parsons Co.
- H. V. VAN VALKENBURG**  
Anaconda Wire & Cable Co.
- EDWIN VENNARD**  
Edison Electric Institute
- HERBERT D. VOGEL**  
Tennessee Valley Authority
- ALBERT R. WAEHNER**  
Line Material Industries
- H. B. WALLACE, JR.**  
Foster Wheeler Corporation
- G. B. WARREN**  
General Electric Company
- RICHARD I. WHEATER**  
Foster Wheeler Corp.
- S. F. WHIRL**  
Duquesne Light Company
- GEORGE WHITE**  
General Electric Company
- CHARLES WHITMORE**  
Iowa-Illinois Gas and Electric Company
- W. E. WIDAU**  
The Elliott Company
- EARLE WILD**  
Commonwealth Edison Co.
- STUART V. WILLSON**  
Northern States Power Co.
- CHARLES D. WILSON**  
Allis-Chalmers Mfg. Co.
- HENRY C. WOODS**  
Sahara Coal Company
- ALLEN VAN WYCK**  
Illinois Power Company
- JAMES F. YOUNG**  
General Electric Company
- WALTER H. ZINN**  
Combustion Engineering, Inc.

**PROGRAM COORDINATING COMMITTEE**

- ADOLPH J. ACKERMAN**, Hydroelectric Power
- SELDEN ADKINS**, Water Technology
- RICHARD N. BERGSTROM**, Representing ASCE
- R. A. BUDENHOLZER**, Mechanical
- H. J. CHASE**, Representing ASME
- R. S. GARDNER**, Headquarters Representative, AIEE
- KENNETH R. HODGES**, Industrial
- J. H. KINGHORN**, Representing AIEE
- ANDREW W. KRAMER**, Nuclear Engineering
- W. A. LEWIS**, Electrical
- WILLIAM C. McCULLOCH**, Representing AIME
- LOUIS OOSTEN**, Representing ASHRAE
- R. L. OPILA**, Representing AIChE
- HOWARD M. RAYNER**, Representing ASME
- F. M. SCOTT**, Representing WSE
- D. A. SULLIVAN**, General Interest Events

**PROGRAM COMMITTEE**

The University and Regional Associated University  
Representatives

The Society Representatives

The Industry Committee  
and

- T. A. ABBOTT**  
Standard Oil Company (Indiana)
- J. E. BLAIR**  
Illinois Institute of Technology
- JERRY BOUSKA**  
Commonwealth Edison Co.
- S. C. COOKE**  
General Electric Co.
- E. B. EGGERS**  
Illinois Institute of Technology
- A. A. FEJER**  
Illinois Institute of Technology
- LOIS GRAHAM**  
Illinois Institute of Technology
- M. S. HELM**  
University of Illinois
- D. L. HEMMENWAY**  
Arthur R. Mogge, Inc.
- W. E. HOPKINS**  
Stone & Webster Engineering Corp.
- S. P. KEZIOS**  
Illinois Institute of Technology
- W. M. KIEFER**  
Commonwealth Edison Co.
- K. V. KNUDSON**  
Allis-Chalmers Mfg. Co.
- F. J. KOVALICIK**  
Electrical World
- L. B. LE VESCONTE**  
Sargent & Lundy, Engineers
- JOSEPH C. McCABE**  
Combustion Engineering, Inc.
- T. O. MILLARD**  
Pioneer Service & Engineering Co.
- K. W. MILLER**  
Armour Research Foundation
- J. J. O'CONNOR**  
Power
- HOWARD M. RAYNER**  
Western Electric Company
- G. S. REEDER**  
Commonwealth Edison Company
- ROY SAHLSTROM**  
Faville LeVally Corporation
- F. E. SANFORD**  
Commonwealth Associates
- LYMAN J. TEMPLIN**  
Argonne National Laboratory
- A. C. TODD**  
Hallicrafters Company
- J. E. VAN NESS**  
Northwestern University
- EARLE WILD**  
Commonwealth Edison Co.

**INDUSTRY SPONSORED STUDENT ATTENDANCE COMMITTEE**

**J. D. HOWARD**, Chairman

Wisconsin Power and Light Company

**BEN G. ELLIOTT**, University Coordinator

University of Wisconsin

**ERIC T. B. GROSS**, Rensselaer Polytechnic Institute

**N. BERNARD GUSSETT**, Iowa Power and Light Co.

**E. W. JONES**, Illinois Institute of Technology

**MURRAY JOSLIN**, Commonwealth Edison Company

**W. A. LEWIS**, Illinois Institute of Technology

**M. S. LUTHRINGER**, Central Illinois Public Service Co.

**JOHN POTTS**, Wisconsin Electric Power Co.

**T. W. SCHROEDER**, Illinois Power Company

**HENRY P. RUGE**, Commonwealth Edison Company

**D. A. SULLIVAN**, Armour Research Foundation

**E. R. WHITEHEAD**, Illinois Institute of Technology

**EARLE WILD**, Commonwealth Edison Company

**COMMITTEE ON ARRANGEMENTS**

**E. W. JONES**, Conference Registration

**ROBERT H. JARRELL**, Financial

**JOHN E. BLAIR**, Program Distribution

**LOIS GRAHAM**, Student Aids

**A. McKINLAY, JR.**, Public Relations

Press Relations

**JAMES STATHAS, CONRAD E. LOCANDER, PAUL A. DEMING,**

**MYRON T. NOAR**

Publications

**E. L. HILTS, ELIZABETH BARLEY, JEANETTE BURKE, M. J. REID**

**RALPH LUOMA**, Photography

**NEAL PERZ**, Arrangements

All of Illinois Institute of Technology

**EDITORIAL COMMITTEE FOR PROCEEDINGS**

**ANDREW W. KRAMER**, Chairman

**W. A. LEWIS**

Chairman, Electrical Division

**SELDEN K. ADKINS**

Chairman, Water Technology Division

**KENNETH HODGES**

Chairman, Industrial Division

**PUBLICATION PROCEEDINGS**

**BETTE HAIGH**, Editor

**VIOLET B. FAULKNER**, Assistant Editor

**CATHERINE A. SIMMS**, Bibliographic Consultant

All of Illinois Institute of Technology

**MARGARET HULTQUIST**, Secretary to the Director

**american power conference**

Advance registration. Please use this card before March 21 to register by mail in advance.

Edwin R. Whitehead  
Conference Secretary  
American Power Conference  
Illinois Institute of Technology  
Technology Center  
Chicago 16, Illinois

24th ANNUAL MEETING

Sherman Hotel, Chicago, March 27, 28, 29, 1962

Registration of

Name \_\_\_\_\_

Position \_\_\_\_\_

Company \_\_\_\_\_

Company Address \_\_\_\_\_

Home Address \_\_\_\_\_

Conference Address \_\_\_\_\_

Please check the items desired and print your name and complete address. Mail this card together with your remittance to the Conference Secretary. Make checks payable to American Power Conference.

Registration ..... \$15.00  
(Includes Proceedings)

Tuesday Luncheon ..... 5.00

Wednesday Luncheon ..... 5.00

All Engineers Dinner ..... 10.00

Thursday Luncheon ..... 5.00

ANS Chicago Section Dinner ..... 5.50

Amount Received \_\_\_\_\_

Amount Due \_\_\_\_\_

Please use this card before March 21 to register by mail in advance. Mail to the Conference Secretary.

This card may be used for making hotel reservations at the Sherman.

Fill out and mail to:

Sherman House  
Room Reservation Department  
Randolph and Clark Streets  
Chicago 1, Illinois

Please reserve the following accommodations for me while attending the American Power Conference, March 27, 28, 29, 1962.

Single Room \$7.50 to \$18.00 ..... Approximate Price Desired

Double Bedroom \$11.50 to \$23.00 .....

Twin Bedroom \$15.00 to \$24.00 .....

Suite \$27.00 and up .....

Date of Arrival \_\_\_\_\_ Time \_\_\_\_\_

Name \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

*Proceedings of previous meetings of the*

**AMERICAN POWER CONFERENCE**

Cloth-bound copies of previous volumes of the *Proceedings of the American Power Conference* are available as follows:

1961, Volume XXIII	\$10.00
1960, Volume XXII	10.00
1959, Volume XXI	8.00
1958, Volume XX	8.00
1957, Volume XIX	8.00
1956, Volume XVIII	8.00
1955, Volume XVII	6.00
1954, Volume XVI	6.00
1953, Volume XV	6.00
1952, Volume XIV	6.00

Special price offering a saving of \$26.00: All ten of the above cloth-bound volumes for a total price of \$50.00.

Also available are paper-bound copies of the *Proceedings of the Midwest Power Conference* as follows:

1951, Volume XIII	\$5.00
1949, Volume XI	3.00
1948, Volume X	2.50
1947, Volume IX	2.00
1946, Volume VIII	2.00

Copies of the *Proceedings* may be obtained by sending advance remittance to:

Conference Director  
American Power Conference  
Illinois Institute of Technology  
Technology Center  
Chicago 16, Illinois

## SESSION SCHEDULE

Day	Time	Grand Ballroom	Louis XVI Room	Assembly Room	Crystal Room	Bal Tabarin Room	Bernard Shaw Room
Tues. Mar. 27	9:30 AM	Opening Meeting					APC-ASME Luncheon
	12:15						
	2 PM	Large Steam Generators	Electrical Apparatus	Industrial I Air Conditioning	Hydroelectric Power	Water Technology I	
	3:30		Automation			Water Technology II	
	8:00					Evening Session	
9 AM	Central Stations I	Water Technology III Desalination	Industrial II Industrial Plants	Computers	Advancement of Power Engineering I		
10:30							
Wed. Mar. 28	12:15						APC-AIEE Luncheon
	2 PM	Central Stations II	Water Technology IV Industrial IV	Industrial III Electrical	Fuels	Advancement of Power Engineering II	
	3:30						
	6:30	All Engineers Dinner					
	9 AM	Central Stations III	System Planning	Industrial V Power Generation	Cooling Towers and Spray Ponds	Nuclear Power Plants I	
10:30							
Thur. Mar. 29	12:15						APC-WSE Luncheon
	2 PM	Control of Air Contaminants	Transmission and Distribution		Condensers	Nuclear Power Plants II	
	3:30						