

# Midwest General Meeting

Milwaukee, Wis.,

October 18-22, 1948



Headquarters:  
Schroeder Hotel



Lincoln Memorial Drive in Milwaukee looking east from Wisconsin Avenue.

## MEETING FEATURES

**MILWAUKEE**, on the shore of Lake Michigan and one of the major centers of the electrical industry, provides an ideal setting for the Midwest General Meeting to be held October 18-22, 1948. Meeting headquarters will be in the Schroeder Hotel. Wisconsin is very colorful in the fall, and its state park system is one of the finest in the country. Within the city limits of Milwaukee is Mitchell Park and a few miles to the south is Grant Park.

A well coordinated program has been arranged consisting of entertainment during the evenings, golf on Tuesday afternoon, and a special program for the visiting ladies. Thirty-four technical sessions and conferences have been scheduled in three broad fields; power, industry, communication and basic sciences. The conferences on industrial control, material handling, and automatic contouring for machine tools, are particularly fitting, and the schedule of sessions has been arranged to permit inspection trips to corresponding industries with a minimum of conflict.

## ENTERTAINMENT

### Stag Smoker

*Tuesday, October 19, 6:30 p.m.—Hotel Pfister Fern Room.*

This event will be a stag smoker, dinner, and entertainment. A good orchestra and high-quality acts following the dinner have been engaged. Tickets will be \$4.00 per plate (limited to 500) and payment should accompany advance registration. Any tickets remaining will be available at the Special Registrations Department. Tickets will not be assigned to specific tables.

### Banquet and Dance, Informal

*Wednesday, October 20, 6:30 p.m.—Hotel Schroeder Crystal Room.*

An informal dance will follow the banquet. The program of dance music will be varied to provide dances for all. Tickets will be \$4.00 per plate (limited to 400) and payment should accompany advance

registration. Any tickets remaining will be available at the Special Registrations Department.

### Milwaukee Gemuetlichkeit

*Thursday, October 21, 7:30 p.m.—Lynde Hall, Allen-Bradley Co., 136 W. Greenfield Avenue.*

An evening of informal entertainment, including championship athletic exhibitions, music, movies, card games, refreshments, and plenty of space to sit and visit with your friends. There will be no charge for tickets (limited from 650-1,000) but reservations with advance registration will assist the committee in estimating the attendance and accommodations necessary. Tickets remaining will be available at the Special Registration Department.

### Theatre and Broadcast Tickets

Tickets for current theatrical productions and broadcasts may be obtained through the Special Registration Department, and information regarding the names of shows, ticket prices, theatre locations, etc., may be obtained from this department. These tickets should be obtained promptly, as tickets remaining unsold will be returned to the theatre for refund the day before the performance.

*Those wishing to buy Smoker or Banquet tickets in advance, please mail checks to B. F. Tellkamp, c/o Allen-Bradley Co., Milwaukee 4, Wis.*

## SPORTS

Golf enthusiasts will have an opportunity to have Lunch followed by an afternoon of golf on Tuesday, October 19th at the North Hills Country Club.

This Club, embracing a well groomed 18 hole golf course, is situated about 15 miles northwest of Milwaukee on highway U. S. 41.

## MIDWEST MEETING FEATURES

It is a picturesque and interesting par 72 wooded layout nestled in gentle rolling terrain. The beauty of this 6,288 yard course is further enhanced as the Menomonee River winds its way across the grounds and contributes largely in the creation of some very unusual golf holes. Each nine holes is virtually horse-shoe shaped with the incoming nine encircling the other, and its unique arrangement affords play at any time in the afternoon without encountering the sun's blinding rays.

North Hills' imposing clubhouse has been greatly enlarged and remodeled this year and proudly offers to guests its modern facilities. Here good food, refreshments and comfort may be enjoyed while viewing the golf course through its facade of many picture windows in a setting unequalled in this area. An afternoon in this genial and pastoral atmosphere should not be overlooked by golf enthusiasts.

### LADIES' PROGRAM

A well-planned program has been arranged by the Ladies' Committee to assure a pleasant and interesting stay in Milwaukee. The program schedule is as follows:

#### Monday, October 18

"Get-Acquainted Day." Hostess parlor open.  
Tea will be served during the afternoon.  
Evening—wives join husbands for brewery trips.

#### Tuesday, October 19

Tour of Phoenix Hosiery Co. at 9:00 a.m.  
Afternoon—Tour of city, followed by Tea at the Milwaukee Engineers' Society building.  
Evening—Informal dinner with Ednah Nichols giving her demonstration on remodeling and trimming hats.

#### Wednesday, October 20

Luncheon and Style Show at Milwaukee Country Club.  
Evening—Dinner Dance.

#### Thursday, October 21

Bridge Luncheon at Milwaukee Athletic Club.

#### Friday, October 22

Hostess parlor will remain open.  
No planned entertainment.

Hostess parlors will be open during the entire meeting. Ladies of the local committee will be present at all times to arrange card games and give information on shopping centers, theatres, and points of interest.

### INSPECTION TRIPS

**The Harnischfeger Corporation**, located at 4400 W. National Avenue, is the foremost builder of materials handling equipment in the country. Builders of overhead traveling cranes, gantry cranes, monorail hoists, crawler cranes, and power shovels. Also are manufactured considerable electrical equipment in the lines of motors, control, brakes, and electric welding equipment. During this shop tour, the manufacture and assembly of overhead traveling cranes will be viewed as well as a demonstration of an actual crane equipped with a magnetorque control, all as outlined in a paper presented before the AIEE. In addition all electric power shovels will be shown in various stages of assembly as well as a tour of P&H's Electrical Division showing motors, brakes, and control as well as electric welding machines in assembly and final test.

**The Blatz Brewing Company's** modernistic guest auditorium, to be visited Monday evening, occupies the northeast corner of the streamlined bottling plant. Deep leather chairs add an extra touch of comfort to the tap room. In the auditorium itself, fluted walnut paneling from floor to ceiling, extends from either side of the ample stage.

**The Pabst Brewing Company**, which may be visited Monday evening, was founded in 1844 and is two years older than Milwaukee itself. From a capacity of a few hundred barrels yearly, this plant produces more than 3,000,000 barrels. The plant has produced a variety of products and during World War II malt barley was furnished for the Government's alcohol production program which was so vital to the manufacture of synthetic rubber and smokeless powder.

**The Joseph Schlitz Brewing Company** which also may be visited Monday evening is the largest single establishment in the United States devoted exclusively to the brewing of beer.

**For 56 years Cutler-Hammer, Inc.**, pioneer electrical manufacturers, have furnished dependable control equipment to meet the ever increasing needs of American industry and commerce. Their products are used in such basic industries as steel, automotive, textile, oil refining, rubber and food . . . for resale on machine tools, electric stoves, water heaters, pumps, saws and machinery of all kinds . . . on bridges, locks and dams . . . on ships, planes and trains . . . in homes, offices and factories. Today more than 5000 people are employed in four Milwaukee plants. On the tour of the company's centrally located main plant, visitors will have an opportunity to see world famous Cutler-Hammer Motor Control being assembled.

**The Allis-Chalmers Manufacturing Company** will be host to an inspection trip on Tuesday. After luncheon at the Allis-Chalmers Club House visitors may see a variety of products in fabrication, farm tractors, hydraulic turbines and generators, steam turbine-generator equipment, transformers, unit substations, switchgear, voltage regulators, and etc.

**Visitors to the Square D Company** will see the manufacture of products of the industrial controller division including automatic motor starters, resistance welder controls, heavy duty d-c controls for steel mill use, and automatic pressure switches.

**Visitors to Globe-Union will see —**

— highly mechanized, mass production of "famous name" storage batteries. This is the home plant of Globe-Union's nine plants located throughout the United States. Here all new equipment and designs are tested and proven.

— complete, high volume production of automotive spark plugs from the steel bar stock and raw ceramic talc to packaged units and the newest in electro-plating and assembly equipment for the production of packaged, "ready to wear" roller skates directly from strip steel.

— the production of steatitic ceramics from raw talc to finished insulators, of the highest dielectric capacitor ceramics commercially produced in the world today, of ceramic filters fine enough to remove bacteria from liquids, and of custom ceramics to withstand heat and heat shock surpassing the performance of quartz or steel.

— transmitting and receiving radio stations that may be carried in your pocket and how the much discussed printed circuits used in them are made and tested.

— the electrical laboratories for the development and the production control of small electronic components such as temperature compensating ceramic capacitors, printed electronic circuits, ceramic trimmer capacitors, variable resistors and selector switches of all types.

**The A. O. Smith Corporation Plant Tour** will last about two and a half hours. It will include visits to the semi-automatic frame plant, the pipe mill, the vessel shop, several laboratories and the company's exhibit hall. In these various plants one will see assembly of automobile frames, fabrication of large diameter steel pipe, manufacture of glass-lined storage tanks, oil refining vessels and chemical equipment. A discussion period is planned following the tour, when members will have an opportunity to question engineers and research men.

**The Allen-Bradley Plant**, well known for its industrial controls with a major output in the form of solenoid switches for across-the-line starters, reversing switches, and multispeed motor controls of various types, will be visited on Thursday. Here good working conditions, good equipment, good supervision converge to produce a standard of quality in motor control and radio resistors which is unique in their respective fields. In addition to the design and manufacture of special tools, this company develops and produces many special machines for its manufacturing departments.

**The Hydraulic Model Of A Liquid-Cooled Turbo-Generator Rotor** demonstrates that very large thermal gains may be effected by using a liquid instead of a gas as a cooling medium. The mechanical difficulties associated with liquid cooling of a turbo-generator rotor have been overcome by C. J. Fechheimer. In the model, 55 gallons of water flow with the rotor running at 3560 rpm, which is sufficient for a 50,000-kva rotor with only 14-degrees F. rise for the water. The model may be seen in operation at the Milwaukee School of Engineering, 1020 North Broadway.

## MIDWEST MEETING FEATURES

### SCHEDULE OF EVENTS See Separate Schedule for Ladies Program

#### Monday, October 18

8:30 a.m. Registration  
10:00 a.m. Opening General Meeting  
1:15 p.m. Trip to Port Washington Power Plant  
1:30 p.m. Trip to Harnischfeger Corporation  
2:00 p.m. Transformers  
Basic Sciences  
Electric Heating  
7:30 p.m. Trip to Blatz Brewing Company  
Trip to Pabst Brewing Company  
Trip to Jos. Schlitz Brewing Company

#### Tuesday, October 19

9:30 a.m. System Engineering  
Conference on Nuclear Physics  
Mining  
Home Receivers  
Symposium on Circuit Analysis  
Trip to Cutler-Hammer, Inc.  
12:30 p.m. Luncheon at Allis-Chalmers Club House  
1:15 p.m. Trip to Allis-Chalmers Manufacturing Co.  
2:00 p.m. System Engineering  
Conference on Ore Beneficiation  
Conference on Television Broadcasting  
Conference on Industrial Control  
6:30 p.m. Stag Smoker

#### Wednesday, October 20

9:30 a.m. Insulated Conductors  
Industrial Control  
Conference on Electric Heating

1:30 p.m. Trip to Globe-Union, Inc.  
Trip to Square D Company  
2:00 p.m. Power Generation  
Regulators  
Industrial Power Systems  
Conference on Electric Heating  
6:30 p.m. Banquet and Dance

#### Thursday, October 21

9:30 a.m. Insulator Contamination  
Symposium on Speed Regulating Systems for Sectional Paper Machine Drives  
Steel Mills  
Railroad Communications  
Carrier Current  
Trip to A. O. Smith Corporation  
1:30 p.m. Trip to Allen-Bradley Company  
2:00 p.m. Transmission, Distribution, and Outdoor Substation Design  
Conference on Material Handling  
Land Transportation  
7:30 p.m. Milwaukee Gemuetlichkeit, Sports, etc.

#### Friday, October 22

9:00 a.m. Switchgear  
9:30 a.m. Conference on Automatic Contouring for Machine Tools  
Switching Systems  
Joint Conference on Education and Student Branches  
Trip to Liquid-Cooled Alternator at Milwaukee School of Engineering  
2:00 p.m. Relays  
Conference on Automatic Contouring for Machine Tools—continued  
Radio on Great Lakes



Reversing Starters on test in one of several of the test departments of the Square D Company to be visited on Wednesday afternoon.

## ADVANCE COPIES OF PAPERS

Members may obtain preprints of technical papers at the uniform price of 30¢ each (60¢ 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. Conference papers denoted by CP\* are intended for presentation only, and are not available. Mail orders (particularly from out-of-town members) are advisable, inasmuch as an adequate supply of each paper at the meeting cannot be assured. Most of the papers ultimately will be published as AIEE PROCEEDINGS and in the TRANSACTIONS.

## Monday, October 18

8:30 a.m.—Registration

10:00 a.m.—Opening General Meeting

2:00 p.m.—Transformers

- 48-289. Aging Characteristics of Dry-Type Transformer Insulation at High Temperature. H. C. Stewart, L. C. Whitman, General Electric Company.
- 48-290. Measuring Transformer Winding Temperatures Continuously with the Transformer Carrying Load. A. M. Lockie, G. M. Stein, Westinghouse Electric Corporation.
- 48-291. Experience with Transformer Impulse Failure Detection Methods. L. C. Aicher, Jr., Allis-Chalmers Manufacturing Company.
- 48-292. Voltage Stresses in Distribution Transformers Due to Lightning Currents in Low-Voltage Circuits. K. D. Beardsley, W. A. McMorris, H. C. Stewart, General Electric Company.

2:00 p.m.—Basic Sciences

- 48-274. Bridge Erosion in Electrical Contacts and Its Prevention. W. G. Pfann, Bell Telephone Laboratories, Inc.
- 48-275. The Magnetic Properties of Stainless Steels. W. A. Stein, Washington University.
- 48-276. Proximity Effect Factors for Three-Phase Coaxial Buses Comprised of Square Tubular Conductors. T. J. Higgins, University of Wisconsin.
- 48-277. Stabilized Permanent Magnets. P. P. Cioffi, Bell Telephone ACO.† Laboratories, Inc.

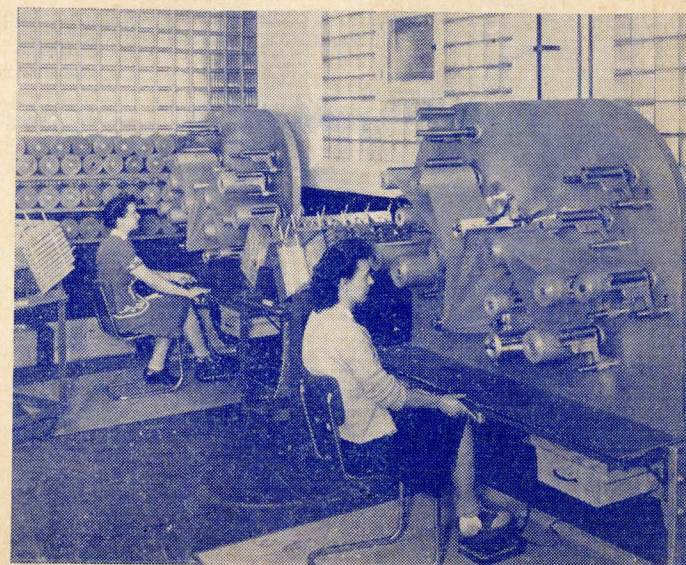
2:00 p.m.—Electric Heating

- 48-286. Ultrahigh-Frequency Antenna Considerations for Radiation ACO. Measurements. H. E. Dinger, G. E. Leavitt, Naval Research Laboratory.
- 48-287. Mercury-Arc Furnace Converter for Induction Heating of Metals. S. R. Durand, J. B. Rice, Allis-Chalmers Manufacturing Company.
- 48-247. Industrial Electric Resistance Heating. L. P. Hynes, Hynes Electric Heating Company.

## Tuesday, October 19

9:30 a.m.—System Engineering

- 48-265. Planning the Development of a Large All-Hydro System. ACO.† M. Ward, H. A. Smith, Hydro-Electric Power Commission of Ontario.



Pack winding operation in a room with controlled temperature and humidity at the plant of the Line Material Company.

- 48-266. Planning the Development of a Metropolitan Electric System. M. L. Waring, Consolidated Edison Company of New York, Inc.
- 48-267. Emergency Control of System Loads. J. M. Comly, J. E. McCormack, Consolidated Edison Company of New York, Inc.; C. B. Kelley, T. W. Schroeder, The United Light and Railway Service Company; H. W. Phillips, Pennsylvania-New Jersey Interconnection.

9:30 a.m.—Conference on Nuclear Physics

- CP\*. Recent Developments in the Design of High Energy Accelerators for Atomic Particles. J. T. Wilson, Allis-Chalmers Manufacturing Company.

9:30 a.m.—Mining

- 48-269. Evolution of Ward-Leonard Control for Shovels and Draglines. P. S. Stevens, Bucyrus-Erie Company.
- 48-270. Electric Equipment for Power Shovels and Draglines. W. H. Schwedes, D. Stoetzel, General Electric Company.

- CP\*. The Use of Electricity in the Operations of the Calumet and Hecla Consolidated Copper Company. J. E. Breth, Calumet and Hecla Consolidated Copper Company.

- CP\*. Main Line Track Haulage in Mines. Phelan McShane, Westinghouse Electric Corp.

9:30 a.m.—Home Receivers

- 48-278. Television Receiving Systems. C. M. Sinnett, Radio Corporation of America.
- 48-272. FM Receiver Design Trends. G. G. Young, General Electric Company.
- CP\*. The Columbia Long Playing Microgroove Recording System. P. C. Goldmark, Columbia Broadcasting System, Inc.
- CP\*. Light Weight Pickup Design for Microgroove Records. B. P. Haines, Philco Corporation.

9:30 a.m.—Symposium on Circuit Analysis

- CP\*. The History and Present State of the Operational Calculus as Applied in Electric Circuit Analysis. T. J. Higgins, University of Wisconsin.
- CP\*. The History and Present State of the Application of Matrix Algebra in Electric Circuit Analysis. Myril Reed, University of Illinois.

- CP\*. Circuit Analysis in Servomechanism Theory. C. N. Weygandt, University of Pennsylvania.

2:00 p.m.—System Engineering

- 48-268. Continuous Load-Frequency Control for Interconnected Power Systems. H. M. Dimond, G. S. Lunge, General Electric Company.
- CP\*. Report on Questionnaire "Current Status of Load-Frequency Control."
- CP\*. Designing Boiler and Control Equipment for Fluctuating Loads. P. S. Dickey, Bailey Meter Company; P. R. Loughin, Babcock and Wilcox Company.

- CP\*. Effect of Fluctuating Load on Steam Turbines. R. L. Reynolds, Westinghouse Electric Corporation.

2:00 p.m.—Conference on Ore Beneficiation

- CP\*. Introductory Talk on Ore Beneficiation. Official of United States Steel Corporation.
- CP\*. Heavy Media Separation. American Cyanamid Company.
- CP\*. Magnetic Separation. Ding Magnetic Company.
- 48-313. Power Distribution and Utilization in a Large Ore Beneficiation Plant. A. F. Gettelman, General Electric Company.

2:00 p.m.—Conference on Television Broadcasting

- 48-273. Progress in Coaxial Telephone and Television Systems. L. G. Abraham, Bell Telephone Laboratories, Inc.
- CP\*. New York to Schenectady Television Relay. F. M. Deerhake, General Electric Company.
- CP\*. Stratovision Broadcasting. C. E. Nobles, Westinghouse Electric Corporation.
- CP\*. Fundamental Design Problems Regarding Television Transmitters. C. E. Hamilton, Allen B. DuMont Laboratories, Inc.
- CP\*. Recent Development in Semiconductors and the Transistor. J. A. Becker, Bell Telephone Laboratories, Inc.

2:00 p.m.—Conference on Industrial Control

- CP\*. Thermal Overload Relays for the Protection of Motors Driving High Inertia Loads. R. E. Walters, Allen Bradley Company.
- CP\*. An A-C Operated Magnetically Latched Contactor. L. H. Matthias, Allen Bradley Company.



Interior view in the plant of the Allen-Bradley Company to be visited Thursday afternoon.

- CP\*. Inching Control for Large A-C Motors. R. M. Peebles, W. J. Herzinger, Allis-Chalmers Manufacturing Company.

- CP\*. The Application of Regulex to Improve Steady State Stability. J. F. Sellers, L. T. Rosenberg, T. B. Montgomery, Allis-Chalmers Manufacturing Company.

- CP\*. Automatic Power Factor Control on Synchronous Motors. T. H. Bloodworth, L. T. Rosenberg, Allis-Chalmers Manufacturing Company.

## Wednesday, October 20

9:30 a.m.—Insulated Conductors

- 48-253. Polyethylene Insulated Coaxial Cable for Carrier Current Control Circuit. H. B. Slade, The Okonite Company; F. P. West, Consolidated Edison Company of New York, Inc.
- 48-249. Problems in the Measurement of A-C Resistance and Reactance of Large Conductors. E. H. Salter, Electrical Testing Laboratories, Inc.
- 48-254. A-C Resistance of Large Size Conductors in Steel Pipe or Conduit. R. J. Wiseman, The Okonite Company.
- 48-252. Reactance of Large Cables in Steel Pipe or Conduit. W. A. Del Mar, Phelps Dodge Copper Products Company.

9:30 a.m.—Industrial Control

- 48-283. Application of Low Frequency to Industrial Control Problems. N. L. Schmitz, Cutler-Hammer, Inc.
- 48-284. Dynamic Lowering D-C Hoist Control. D. L. Pettit, Square D Company.
- CP\*. Some Machine Tool Electrical Control Applications. Leonard Hesse, Gisholt Machine Company.
- CP\*. Safety in Machine Tool Control. D. K. Frost, Mattison Machine Works.

- 48-279. The Characteristics and Application of Precision, Snap-Acting Switches. A. L. Riche, First Industrial Corporation. Demonstration.

9:30 a.m.—Conference on Electric Heating

- CP\*. Determination of Heat Requirements. Mark M. Greer, Edw. L. Wiegand Co.
- CP\*. Application of Electric Heating Units for Surface Heating. C. R. Hanna, General Electric Company.
- CP\*. Electrical Heating of Fluids. Lee P. Hynes, Hynes Elec. Heating Company.
- CP\*. Application of Electric Heating Units for High-Velocity Air Heating for Processing Materials. R. J. Ruff, Young Brothers Company.
- CP\*. Review of Developments in Controlled Atmosphere Electric Furnaces. C. E. Peck, Westinghouse Elec. Corporation.

2:00 p.m.—Power Generation

- 48-280. Speed Governing Design Considerations for Multi-Valve Condensing Steam Turbine Generators. J. W. Barnett, General Electric Company.
- 48-281. Preliminary Consideration of System-Wide Load Division by Means of Accurate Time Control. T. E. Curtis, W. M. Pickslay, Pacific Gas and Electric Company.
- 48-282. Performance Characteristics of Speed Governors on Automatic Extraction Turbines Driving Electric Generators. L. B. Wales, General Electric Company.
- CP\*. Hydraulic Model of a Liquid-Cooled Turbo-Alternator Rotor. Carl J. Fehheimer, Consulting Engineer.

## 2:00 p.m.—Regulators

- 48-177. Feeder Voltage Regulator Accuracy Standards. W. E. Birchard, General Electric Company.
- 48-261. Proposed Test Code for Feeder Voltage Regulators. Working ACO.† Group of ASA C57 Test Code Subcommittee.
- 48-263. Feeder Voltage Regulator Application on Power Systems. J. N. Gosinski, J. R. Oberholtzer, Commonwealth and Southern Corporation.
- 48-264. Power System Voltage Control without Feeder Voltage Regulators. N. N. Smeloff, Pennsylvania Power and Light Company.

## 2:00 p.m.—Industrial Power Systems

- 48-293. Dummy Loads Applied to Large Industrial Welders to Reduce Voltage Fluctuations. A. W. Brown, S. W. Johnson, Illinois Northern Utilities Company.
- 48-294. Flexible Power System for Rapidly Expanded Heavy Manufacturing Plant. H. J. Decker, General Motors Corporation.

## 2:00 p.m.—Conference on Electric Heating

- CP.\* The Resistance Furnace in The Non-Ferrous Metal Industry. E. H. Scheick, American Smelting & Refining Company.
- CP.\* Radiant Heating. H. J. Garber, University of Tennessee.
- CP.\* Induction Heating. W. C. Rudd, Induction Heating Corporation.
- CP.\* Dielectric Heating. W. H. Hickok, T. L. Wilson, Girdler Corporation.
- CP.\* Some Economic Aspects of Radio-Frequency Heating. L. M. Duryee, Connecticut Light & Power Company.

# Thursday, October 21

## 9:30 a.m.—Insulator Contamination

- 48-307. Flashovers of Suspension Insulators Due to Contamination. H. A. Adler, W. H. Wickham, Commonwealth Edison Company; M. S. Oldacre, Utilities Research Commission.
- 48-308. Performance of Dust-Contaminated Insulators in Fog. Bradley Cozzens, T. M. Blakeslee, Water and Power Department, City of Los Angeles.
- 48-255. Insulator Surface Contamination. H. A. Frey, Locke, Incorporated.
- 48-259. Insulators to Withstand Airborne Deposits. J. J. Taylor, Ohio Brass Company.

## 9:30 a.m.—Symposium on Speed Regulating Systems for Sectional Paper Machine Drives

- 48-295. Electronic Speed Regulators for Sectional Paper Machine Drive. V. B. Baker, J. F. Kovalsky, Westinghouse Electric Corporation.
- CP.\* The Differential Interlock Regulating System for Sectional Paper Machine. J. L. Van Nort, Reliance Electric and Engineering Company.
- CP.\* The Electronic Amplidyne Regulating System for Sectional Paper Machine Drive. W. Mikelson, General Electric Company.

## 9:30 a.m.—Steel Mills

- CP.\* History of Development of Blooming Mill Drives. G. E. Stoltz, Westinghouse Electric Corporation.

48-271. The Reversing Cycle of Modern Blooming Mills. T. B. Montgomery, J. F. Sellers, Allis-Chalmers Manufacturing Company.

CP.\* Auxiliary Drives for Blooming and Slabbing Mills—Selection of Motor Size and Gear Ratio. R. E. Marrs, S. H. Williamson, General Electric Company.

## 9:30 a.m.—Railroad Communications

- CP.\* Railroad Communication Systems. G. L. Miller, New York Central Railroad.
- 48-315. Railroad Radio. W. D. Hailes, General Railway Signal Company.
- CP.\* Radiotelephone Service for Passengers Utilizing Bell System Highway Channels. Newton Monk, Bell Telephone Laboratories, Inc.

## 9:30 a.m.—Carrier Current

- 48-262. Carrier Channels for Telemetering. T. D. Talmage, Tennessee Valley Authority.
- 48-296. System Operation Improved with Carrier Telemetering and Load Control. A. W. Walton, Oklahoma Gas and Electric Company; H. W. Lensner, Westinghouse Electric Corporation.
- 48-297. Characteristics of New Carrier-Current Equipment for Telemetering and Load Control. R. W. Beckwith, General Electric Company.
- 48-256. Coupling Capacitors and Traps for Rural Line Carrier. Carrier Current Committee.
- 48-257. Report on Method of Measurements at Carrier-Current Frequencies. Carrier Current Committee.

## 2:00 p.m.—Transmission, Distribution, and Outdoor Substation Design

- 48-319. Pole Fires Due to Insulator Contamination. W. H. Wickham, H. A. Adler, Commonwealth Edison Company; M. S. Oldacre, Utilities Research Commission.
- 48-285. Relative Surface Voltage Gradients of Grouped Conductors. M. Temoshok, General Electric Company.
- 48-298. Channels for Operation of Supervisory Control Equipment. W. A. Derr, M. J. Brown, Westinghouse Electric Corporation.
- 48-299. Design Considerations of Transmission Substations as Shown ACO.† by a recent Midwest Installation. A. H. Powell, L. D. Madsen, General Electric Company.

## 2:00 p.m.—Conference on Material Handling

- CP.\* Electric Truck Control Systems. D. I. Bohn, T. O. English, Aluminum Company of America.
- CP.\* Magnetorque A-C Crane Control. F. M. Blum, F. W. Wendelburg, Harnischfeger Corporation.

## 2:00 p.m.—Land Transportation

- 48-300. Short-Time Ratings of Diesel-Electric Locomotives. D. R. Campbell, T. J. Woods, Westinghouse Electric Corporation.
- 48-301. The Present Competitive Position of Coal, Residual Oil, Diesel Oil, and Electricity As Energy Sources for Motive Power Operation in the Pacific Northwest. T. M. C. Martin, Bonneville Power Administration.
- 48-302. Head End Power on Railroad Passenger Trains. H. H. Hanft, Westinghouse Electric Corporation.
- 48-303. Handling Suburban Traffic on Steam Railroads. M. L. Sloman, ACO.† Westinghouse Electric Corporation.

# Friday, October 22

## 9:00 a.m.—Switchgear

- 48-258. Simplified Calculation of Fault Currents. Working Group, Switchgear Committee.
- 48-248. A New Outdoor Air Switch and a New Concept of Contact Performance. S. C. Killian, Delta-Star Electric Company.
- 48-304. High-Speed Reclosing of Power Circuit Breakers from a ACO.† Manufacturer's Point of View. H. B. Ashenden, Allis-Chalmers Manufacturing Company.
- 48-305. Large Indoor Power Air Blast Breakers. G. E. Jansson, Allis-Chalmers Manufacturing Company.
- 48-306. Metal-Clad Switchgear with Air Blast Breakers. A. Ewy, Allis-Chalmers Manufacturing Company.
- 48-288. An Air Operated Interrupter Switch applied to Arc-Furnace ACO.† Duty Up to 15 Kv. J. H. Michael, T. G. Bank, Allis-Chalmers Manufacturing Company.

## 9:30 a.m.—Conference on Automatic Contouring for Machine Tools

General Paper:

- CP.\* Fundamentals of Machine Tool Contouring Systems. J. M. Delfs, General Electric Company.
- Individual Papers by: J. J. Jaeger, Pratt and Whitney Company  
R. E. Schutte, Barber Colman Company  
W. O. Osborn, Westinghouse Electric Corporation  
R. D. McComb, General Electric Company

## 9:30 a.m.—Switching Systems

- 48-312. Relay Preference Lockout Circuits in Telephone Switching. A. E. Joel, Jr., Bell Telephone Laboratories, Inc.
- CP.\* The 7-J Rotary Telephone Switching Exchange. R. W. Engsborg, Federal Telephone and Radio Corporation.
- 48-251. Military Teletypewriter Systems of World War II. F. J. Singer, Bell Telephone Laboratories, Inc.
- 48-317. Push-Button Switching in Telegraph Systems. R. F. Blanchard, W. B. Blanton, Western Union Telegraph Company.

## 9:30 a.m.—Joint Conference on Education and Student Branches

- CP.\* Career Breadth in Engineering. T. G. LeClair, Commonwealth Edison Company.
- CP.\* Unsolved Problems in the Power Field. A. C. Monteith, Westinghouse Electric Corporation.
- CP.\* Career Opportunities in the Utility Field. F. E. Sanford, Copper Wire Engineering Association.
- CP.\* Better Methods and Stimulation of Teaching in the Power Field. E. W. Boehne, Massachusetts Institute of Technology.

## 2:00 p.m.—Relays

- 48-309. Voltage Surges in Relay Control Circuits. T. R. Halman, L. K. Harris, Detroit Edison Company.
- 48-310. Electronic Protective Relays. R. H. Macpherson, A. R. VanC. Warrington, A. J. McConnell, General Electric Company.
- 48-260. A New Distance Ground Relay. S. L. Goldsborough, Westinghouse Electric Corporation.
- 48-311. Instantaneous Bus-Differential Protection Using Bushing Current Transformers. H. T. Seeley, General Electric Company; Frank von Roeschlaub, Ebasco Services, Inc.

## 2:00 p.m.—Conference on Automatic Contouring for Machine Tools—continued

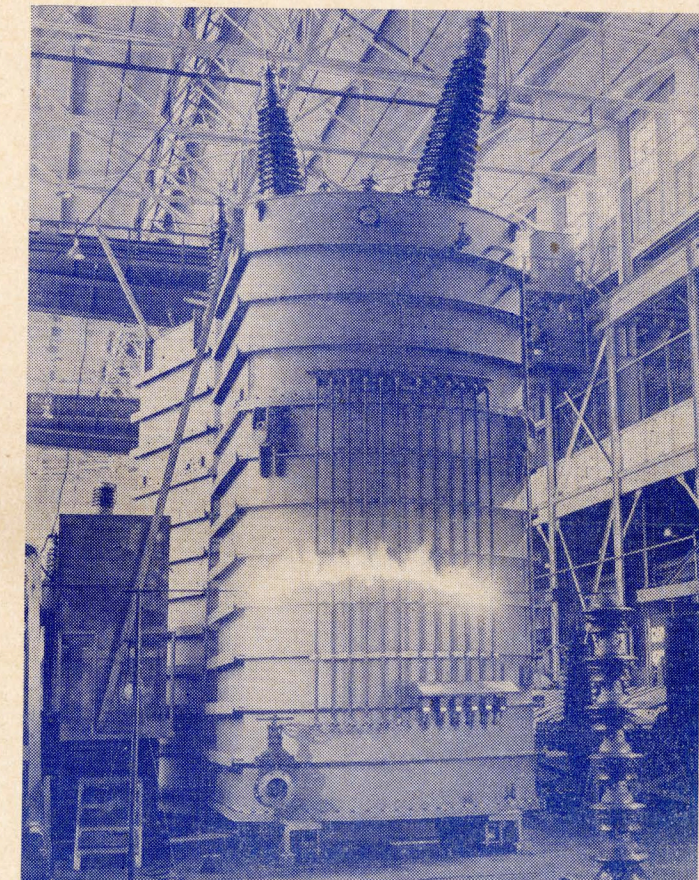
Papers by: C. L. Calosi, Raytheon Manufacturing Company  
P. M. Sampatacos, Consultant  
A. H. Dall, Cincinnati Milling Machine Company  
F. Fritzch and C. M. Griffin, Lodge and Shipley Company  
Nagle Gusching, Monarch Machine Tool Company

## 2:00 p.m.—Radio on Great Lakes

- 48-316. The Great Lakes Radiotelephone System. R. H. Herrick, The ACO.† Lorain County Radio Corporation.
- CP.\* The Organization and Administration of Wide-Area Servicing Activities. W. A. Goodell, Lorain County Radio Corporation.
- CP.\* Operational Requirements for VHF Equipment. C. M. Jansky, Jr., Jansky and Bailey, Consulting Engineers.
- CP.\* Three and Ten Centimeter Commercial Marine Radar. E. C. Kluender, General Electric Company.

\*CP.: Conference paper; no advance copies are available; not intended for publication in TRANSACTIONS.

ACO.†: Advance copies only available; not intended for publication in TRANSACTIONS.



A 1,210-kv chopped wave test on a 25,000-kva, 132/220-kv, OIWCO power transformer at the Allis-Chalmers Manufacturing Company to be visited on Tuesday afternoon.

# MIDWEST GENERAL MEETING

## INSPECTION TRIPS SCHEDULE

**Monday, October 18**

- 1:15 p.m. Port Washington Power Plant
- 1:30 p.m. Harnischfeger Corporation
- 7:30 p.m. Blatz Brewing Company
- 7:30 p.m. Pabst Brewing Company
- 7:30 p.m. Jos. Schlitz Brewing Company

**Tuesday, October 19**

- 9:30 a.m. Cutler-Hammer, Inc.
- 12:30 p.m. Luncheon at Allis-Chalmers Club House
- 1:15 p.m. Allis-Chalmers Mfg. Co.

**Wednesday, October 20**

- 1:30 p.m. Globe-Union, Inc.
- 1:30 p.m. Square D Company

**Thursday, October 21**

- 9:30 a.m. A. O. Smith Corp.
- 1:30 p.m. Allen-Bradley Co.

**Friday, October 22**

- 9:30 a.m. Liquid-Cooled Alternator at Milwaukee School of Engineering.

## HOTEL RESERVATIONS

The Housing Committee requests that all members write direct to the hotel of their choice for hotel accommodations. They also suggest that members make their reservation as early as possible (before October 1, 1948).

The selection of someone to share a twin-bed room is desirable.

Arrangements have been made with the following four hotels to honor reservations from members:

The Schroeder Hotel (Headquarters)	The Plankinton House
The Pfister Hotel	The Wisconsin Hotel

Rates on rooms (all with bath) are as follows:

Single .....	\$ 3.50 — \$ 7.70
Double .....	5.50 — 10.00
Twin Beds .....	7.00 — 12.00
Suites .....	16.00 — 25.00

## MIDWEST GENERAL MEETING COMMITTEE

E. W. Seeger, <i>Chairman</i>	E. F. Mekelburg, <i>Secretary</i>
E. U. Lassen, <i>Vice-Chairman</i>	J. A. Potts, <i>Treasurer</i>

L. C. Aicher	E. H. Davies	A. J. Krupy
M. A. Baker	T. G. Glenn	R. Neighboubs
K. R. Brown	F. C. Holtz	J. C. Strasbourger
C. C. Crane	J. H. Kuhlman	

### Committee Chairmen

<i>Technical Program</i>	<i>Sports</i>	<i>Finance</i>
W. Richter	W. O. Helwig	F. W. Bush
<i>Inspection Trips</i>	<i>Transportation</i>	<i>Ladies</i>
E. J. Lempel	E. M. Plettner	Mrs. E. L. McClure
		Mrs. E. W. Seeger
<i>Entertainment</i>	<i>Publicity</i>	<i>Registration &amp; Housing</i>
B. F. Tellkamp	E. T. Sherwood	R. Earle

### Subcommittee Chairmen

<i>Equipment</i>	<i>Hotels</i>	<i>Registration</i>
G. Hutchinson	M. M. Iglehart	C. H. Krueger

## NOTICE OF ADVANCE REGISTRATION

Please fill in and mail promptly the enclosed card—Notice of Advance Registration. A check of the events of interest you will attend will assist the committees. To help defray part of the cost of the meeting, a registration fee of \$3.00 will be charged to members; nonmembers, \$5.00. No fee will be charged to Student Members and the families of members. Complete your registration on arrival at the meeting and make payment of the fee at that time. Please do not pay the registration fee in advance by mail.

*Issued by*

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

33 West 39th Street, New York 18, N. Y.

PRINTED IN U.S.A.