

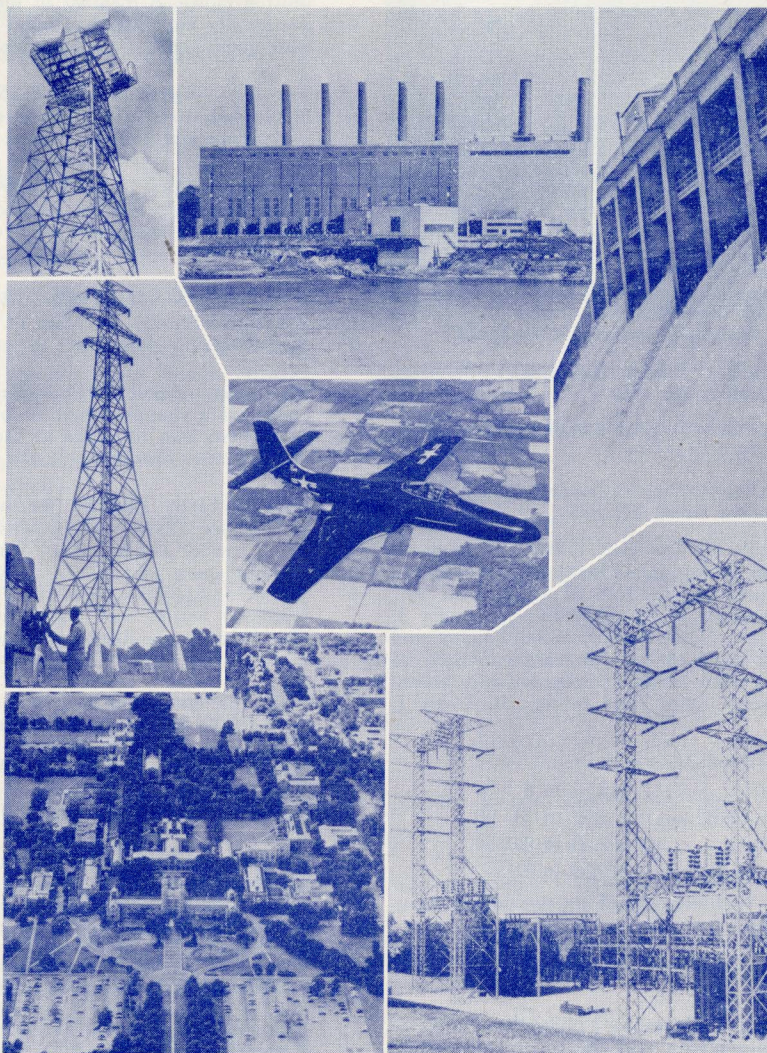
SOUTH WEST DISTRICT MEETING

ST. LOUIS, MISSOURI

APRIL 15-17, 1952



Headquarters
Jefferson Hotel



Southwestern Bell Microwave Relay Tower
138 KV Distribution Tower
Washington University Campus

Union Electric Venice Plant
MacDonnell Aircraft Jet Plane

Union Electric Bagnell Plant
Union Electric 138 KV Watson Substation

THEME

Research Development

and

Utilization of Electrical Energy

The AIEE South West District Meeting to be held at the Jefferson Hotel in St. Louis, Missouri, April 15th through 17th, 1952, is designed to appeal to all electrical engineers regardless of their specialization.

The broad and varied technical program will be augmented by a full social program and interesting inspection trips. In addition, student sessions will be held at Washington University in St. Louis, April 18th through the 19th, to permit maximum contact between the students and the practicing engineers.

South West District Meeting—Program—St. Louis, Missouri, April 15-17, 1952

Air Transportation—This District has been selected by the Air Transportation Committee, AIEE, for their annual meeting. It is hoped that members from all parts of the country will attend. This selection is felt to be appropriate because of the central location of St. Louis, the McDonnell Aircraft Plant here and the large number of component part manufacturers in this area. All members and guests may attend these sessions.

Advance Registration—Please register in advance by promptly filling in and mailing the advance registration card enclosed with this mailed announcement. Complete your registration at the Registration Desk on arrival at the Meeting. Identification badges will be prepared for those who register in advance, and these will be available at the Registration Desk. The desk will be open beginning in the afternoon of April 14th. A registration fee of Two Dollars (\$2.00) will be charged all members and Three Dollars (\$3.00) for all nonmembers. No fee will be required of enrolled students or the immediate families of members.

Student Activities—The students will hold sessions in Graham Chapel at Washington University in St. Louis all day Friday and Saturday morning, April 18th and 19th. The students are encouraged to attend the sessions of the District Meeting prior to their regular sessions, and they are welcome to attend any of the inspection trips and social functions. Additional events are as follows:

Registration: 15-17 April, 1952, Jefferson Hotel, St. Louis

Committee Meetings: Student Branch Chairmen's Meeting, Luncheon, Noon, Friday, 18 April, 1952.

District Student Counselors Meeting, Luncheon, Noon, Friday, 18 April, 1952.

Banquet: Banquet and Award of District Student Paper Prizes and St. Louis Section Prize, Noon, Saturday, 19 April, 1952.

Hotel Reservations—Hotel Jefferson has been designated as headquarters for the district meeting. To be sure of hotel accommodations, reservations should be made prior to the 15th of March and sent directly to Reservation Department, Hotel Jefferson, St. Louis 1, Missouri. Other nearby hotels are Hotel Statler, Hotel Lennox and Hotel Mayfair. Please send a copy of the reservation request to the hotel committee chairman, Mr. H. M. Duphorne, c/o Southwestern Bell Telephone Company, 1010 Pine Street, St. Louis 1, Missouri.

The following are the rates at Hotel Jefferson:

Single Room with bath.....	\$ 5.50 to \$ 8.50
Double Room, Double Beds.....	\$ 7.50 to \$11.00
Double Room, Twin Beds.....	\$ 8.50 to \$11.50
Parlor Suites	\$19.00 to \$30.50

Hotel reservations for students will be handled by the faculty counselors for the student branches.

Board of Directors—The Board of Directors will hold their official meetings all day April 17th.

Entertainment—An interesting program has been developed for the entertainment of members, guests and ladies in attendance.

April 15—12:15 p.m.: Get-together Luncheon—open for ladies and men. Mr. L. W. McLeod, Vice President, South Western District, Westinghouse Electric Corporation, will speak on "Land of Rich Rewards," Bob Slinger—Chairman.

The Smoker provides an opportunity for the visiting delegates to be together for an evening, and includes dinner and entertainment. The Smoker will be held in the Gold Room of the Jefferson Hotel on Tuesday evening, April 15th. There will be a pre-smoker gathering in the Ivory Room (arrangements made for purchase of refreshments) starting at 5:30 p.m., with dinner in the Gold Room starting at 6:30 p.m. The price of the tickets will be Six Dollars (\$6.00) per person, and tables will be available seating eight (8) persons. Reservations should be sent to Mr. George S. Whitlow, Chairman, Smoker Committee, c/o Union Electric Company of Missouri, 315 North 12th Boulevard, St. Louis 1, Missouri. Checks should be made payable to the "AIEE Smoker Committee."

The dinner dance promises to be the outstanding social event of the District Meeting for the mutual enjoyment of the delegates and their ladies. It will be held Wednesday, April 16th, in the Gold Room of the Jefferson Hotel. Dress informal. There will be a pre-dinner gathering period in the Crystal Room at 6:15 p.m. (arrangements made for purchase of refreshments). Dinner will be served

at 7:00 p.m. Begin to plan for your table of eight (8) for this enjoyable event. Reservations at Six Dollars (\$6.00) per plate will be accepted by Mr. James E. Smith, Chairman, Dinner-Dance Committee, c/o Westinghouse Electric Corporation, 411 North 7th Street, St. Louis 1, Missouri. Checks should be made payable to "AIEE Banquet Committee."

Ladies Program—Starting at 9:00 a.m., Tuesday, April 15th, and continuing through Thursday, April 17th, the East Room on the mezzanine floor of the Jefferson Hotel will be headquarters for the visiting ladies. A member of the Ladies Committee will be on hand continually to help the ladies arrange shopping tours, individual card games and to get acquainted with each other.

Tuesday—April 15th—12:15 p.m.—There will be a get together luncheon in the Ivory Room at the Jefferson Hotel. Tickets are \$2.50 per person and can be secured at time of registration.

Tuesday—April 15th—6:30 p.m.—The ladies will meet for dinner and an evening of cards. Location of this affair will be announced at the registration desk where tickets can be obtained at \$2.50 per person.

Wednesday—April 16th—12:15 p.m.—There will be a luncheon and entertainment. Location of this luncheon will be announced at the registration desk where tickets can be obtained at \$2.50 per person.

Thursday—April 17th—10:00 a.m.—The ladies will have a choice of a shopping tour or a tour of the City. Arrangements for these tours can be made at the registration desk or with members of the Ladies Committee in the East Room Hospitality Headquarters.

INSPECTION TRIPS: Wednesday—April 16th—1:30 p.m.—One Dollar (\$1.00) ANHEUSER-BUSCH, INC., founded in 1852, has a plant area of 110 acres, or 70 city blocks. There is 5,000,000 sq. ft. of floor space in the various buildings, with over 7,000 employees producing 6,000,000 barrels per year. Seventeen bottling lines package 4,500,000 bottles and eight canning lines 2,000,000 cans per day. The shipping facilities can accommodate 166 railroad cars simultaneously.

By the middle of this year, the steam generating capacity will be 920,000 lbs./hr. in six boilers. The present peak steam load is 610,000 lbs./hr. The electrical generating capacity is 29,825 KVA, with a peak load of 17,500 KW. Installed refrigeration capacity is 7,300 tons, with an ice plant capacity of 163 tons per day. The water works is capable of pumping 7,250,000 gallons per day.

Thursday—April 17th—1:00 p.m.—Two Dollars (\$2.00). MERAMEC PLANT, presently under construction, is the latest addition to the Union Electric system. The plant is located at the confluence of the Mississippi and Meramec Rivers about 12 miles south of St. Louis.

The initial installation consists of two steam units each rated 110,000 KVA, directly connected to transformers which step up the generator voltage from 16,500 to 138,000 for delivery to the system. Commercial operation of the first unit is scheduled for the end of 1952 and the second unit about a year later.

Plant coal will be received by barge, and the necessary unloading facilities will be located on the property. No equipment will be operating in April. The turbine, generator, boiler, coal handling equipment, transformers and auxiliary switchgear will be in the process of installation at that time.

General Information—Information on all features may be obtained at the registration desk. The bulletin board near the desk will contain notices concerning time and point of departure of all inspection trips and other information of general interest. Please consult it frequently.

Members of the District Meeting Committee are: I. T. Monseth, General Chairman; R. C. Horn, Vice Chairman; R. W. Schoetker, Secretary-Treasurer; H. R. Fritz, District Vice President; R. G. Meyerand, District Secretary; R. N. Slinger, Chairman of St. Louis Section; C. B. Fall, Finance; H. M. Duphorne, Hotel; J. S. Malsbary, Meetings and Papers; E. S. Rehagen, Entertainment; O. L. Luft, Registration; S. C. Sachs, Publicity; E. G. McLagan, Transportation and Trips; R. J. W. Koopman, Student Activity; Mrs. G. S. Whitlow, Ladies Activities.

ADVANCE COPIES OF PAPERS

Members may obtain preprints of numbered papers at the uniform price of 30c each (60c each to 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. Most of the papers ultimately will be published as AIEE Proceedings and in the Transactions. *District Papers* denoted by *DP.*** are intended for presentation only, and are not available.

Tuesday, April 15

10:00 a.m.—General Session

H. R. FRITZ, Presiding

Address: President F. O. McMillan, Our Heritage from Engineering Education.

Address: J. B. Thomas, President & General Manager, Texas Electric Service Company, Fort Worth, Texas; Research, Development and Utilization of Electrical Power.

2:00 p.m.—Industrial Power Utilization

W. J. ROA, Presiding

DP.** Development of the Anheuser-Busch Electrical System. W. J. Steiling, Anheuser-Busch, Inc.

DP.** Industrial Power Utilization from the Utility Standpoint. P. W. McCormick, Union Electric Co. of Missouri.

DP.** Operation and Experience with Heat Pumps in St. Louis. G. S. Whitlow, Union Electric Co. of Missouri.

DP.** Development of the Aluminum Ore Electrical System. M. B. Keen, Aluminum Ore Co.

2:00 p.m.—Power Stations

E. L. HOUGH, Presiding

DP.** Application of Shunt Reactors at Generating Plants. J. M. Dyer, Jr., Public Service Co. of Oklahoma.

DP.** Meramec Plant of Union Electric Co. I. F. Krughoff, W. G. Clover, R. G. Mueller; Union Electric Co. of Missouri.

DP.** An Electronic Control for Distribution Voltage Boosting Devices and Similar Step Regulators. John Zaborsky and J. W. Rittenhouse, Missouri School of Mines and Metallurgy.

51-371. Sensitive Ground Relaying of AC Generators. E. T. B. Gross, Illinois Institute of Technology. Presentation by title only for discussion.



Budweiser Eight-horse hitch of Champion Clydesdales

2:00 p.m.—Aircraft Electrical Equipment I

G. E. SYLVESTER, Presiding

52-131. A New Circuit Breaker for Aircraft Electric Systems, 40 to 125 Amperes, 120 Volts AC or DC. B. S. Beal III and P. J. Reifschneider, General Electric Co.

DP.** Preventive Maintenance Aids Large Aircraft AC System Progress. J. K. Howell, Westinghouse Electric Corp., and Capt. P. E. Burket, U. S. Air Force.

DP.** Electronic Equipment Installation in Fighter Aircraft. A. R. Anderson, McDonnell Aircraft Corp.

52-132. Distribution System Reliability of 28 Volt D-C Aircraft Electric Systems. K. W. Carlson and E. S. Sherrard, General Electric Co. Presentation by title only for discussion.

52-133. Weight Analysis of Aircraft Actuators. H. M. Geyer and R. C. Treseder, General Motors Corp. Presentation by title only for discussion.

52-134. Reduced Voltage D-C Motor Controllers for Aircraft. H. J. Finison and W. C. Andersen, Armour Research Foundation. Presentation by title only for discussion.

Wednesday, April 16

9:30 a.m.—Aircraft Electrical Equipment II

R. S. MEAD, Presiding

52-135. Unit Equipments for Aircraft Electric Power Systems. H. J. Finison, Armour Research Foundation.

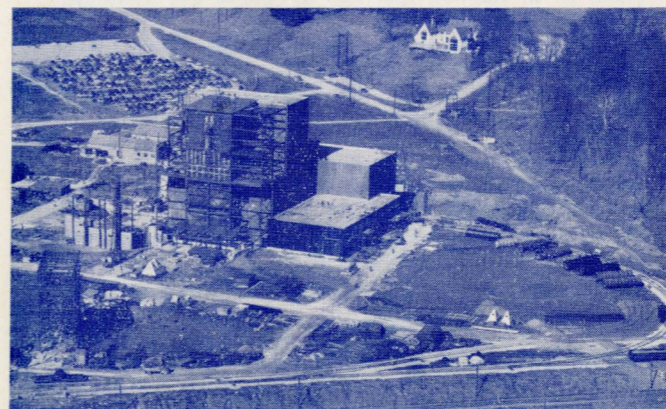
52-136. Study of Aircraft Cooling Systems for Rotating Electrical Equipment. C. G. Martin, Jack & Heintz, Inc.

52-137. Intermittent Faults in Aircraft Electrical Systems. L. R. Larson, M. Trbovich and P. E. Toomire, Naval Research Laboratory.

52-138. Characteristics of Faults on Aircraft Electrical Systems. L. R. Larson, Naval Research Lab. Presentation by title only for discussion.

52-139. Short-Circuiting Techniques to Deactivate a Generator After a Fault. O. Markowitz and J. W. Pobst, U. S. Naval Air Development Center. Presentation by title only for discussion.

52-140. Stopping Devices for 400 Cycle Motors. L. A. Zahorsky, Lear, Inc. Presentation by title only for discussion.



Meramec Plant, Union Electric System

- 52-141. Continuous Current and Temperature Rise in Aircraft Cables. Milton Schach, Naval Research Lab. Presentation by title only for discussion.
- 52-142. Effects of Terminal Voltage, Load Current and Minimum Rotor Speed on the Weight of D-C Aircraft Generators. D. H. Scott, Naval Research Lab. Presentation by title only for discussion.

9:30 a.m.—Transmission and Distribution I

O. S. HOCKADAY, Presiding

- DP.** Application and Operation of Switched Capacitors for System-Wide Requirements. B. M. Gallaher, Texas Electric Service Co.
- DP.** Expanding the Frontiers of Capacitor Economics. P. E. Hendrickson and V. A. Rydbeck, General Electric Co.
- DP.** Complex Multiplication of General Circuit Constants. R. D. Goodrich, Jr., Bureau of Reclamation.
- 52-143. Load Pickup After Extended Outage. A. W. Edwards and ACO.* L. V. Chabala, Westinghouse Electric Corp.

9:30 a.m.—Electrical Machinery I

J. L. HAMILTON, Presiding

- DP.** Resistance Characteristics of Squirrel-Cage Rotor End-Rings. R. J. W. Koopman, Washington University.
- 52-144. Temperature Differentials in Single End Ventilated Integral Horsepower Motors. C. P. Potter, Wagner Electric Corp.
- DP.** Recent Trends in Modern Control Designs. E. H. Alexander, General Electric Co.
- 52-145. Maintenance and Operating Experiences—Diesel Electric Locomotives. C. H. Griffith and E. H. Pfeil, Missouri-Kansas-Texas Lines.

9:30 a.m.—Sciences and Electronics

J. W. RITTENHOUSE, Presiding

- 52-146. Synthesis of Two-Terminal Pair Networks. Robert Kahal, Washington University.
- DP.** Recent Developments in Transistors. J. A. Morton, Bell Telephone Labs.
- 52-147. A Special Dynamometer for Testing Small Motors. S. H. ACO.* Van Wambeek, Knapp-Monarch Co., and W. A. Stein, U.S. Naval P.G. School.
- DP.** Magnetic Amplifier Applications. V. H. Krummenscher, Vickers Electric Div.

2:00 p.m.—Transmission and Distribution II

C. W. SCHEMM, Presiding

- DP.** Higher Transmission Voltages—Developments and Trends in U.S.A. and Abroad. P. L. Bellaschi, Portland, Oregon.
- DP.** Engineering Features of Union Electric 138 KV Development. G. S. Whitlow, Ren Beatty and T. D. Maintz, Union Electric Co. of Missouri.
- 52-148. Determination of Inductive and Capacitive Unbalance for Untransposed Transmission Lines. R. F. Lawrence and D. J. Povejsil, Westinghouse Electric Corp.
- DP.** The 230 KV Southern Illinois Transmission Line Project. L. T. Byars (deceased), Union Electric Co. of Missouri, and R. H. Osborne, Sverdrup & Parcel, Inc.

2:00 p.m.—Electrical Machinery II

P. G. WALLACE, Presiding

- DP.** Magnetic Noise in Salient Pole Synchronous Machines. W. L. Ringland, Allis-Chalmers Mfg. Co.
- DP.** Gas Turbine and Its Possible Applications. B. G. Hatch, General Electric Co.
- DP.** Feeder Voltage Regulators Save Critical Materials. W. L. Peterson, Allis-Chalmers Mfg. Co.
- 52-149. Economics of Distribution Type Transformers. H. F. Ostman, ACO.* Union Electric Co. of Missouri, and W. A. Sumner, Westinghouse Electric Corp.

2:00 p.m.—Computing Devices

L. M. HAUPT, Presiding

- DP.** Introduction to Electrostructural Analysis. Randolph Blumberg, Southwest Research Institute.
- DP.** Operating and Economic Features of the 60 Cycle Impedance Phase Shift Analyzer. E. B. Phillips, University of Kansas.

- DP.** Advantages of High Frequency Operation of Network Analyzer. M. A. Faucett and J. D. Ryder, University of Illinois.
- DP.** Method for Solving the Hydraulics of a Grid Iron Pipe System on a D.C. Calculating Board. L. C. Austill, Shell Oil Co.

Thursday, April 17

9:30 a.m.—Symposium on Loss of Generator Field

R. F. DANNER, Presiding

- DP.** Loss-of-Field Protection for Synchronous Generators. J. E. Barkle, Westinghouse Electric Corp.
- DP.** Loss of Excitation Experience on Oklahoma Gas & Electric Company System. A. W. Walton, Oklahoma Gas & Electric Company.
- DP.** Experience with Loss of Field on Synchronous Machines Involving the Kansas City Power & Light Company System. D. H. Cameron and E. L. Mueller, Kansas City Power & Light Co.
- DP.** The Application and Operating Experience with Loss-of-Generator-Excitation Relays. C. R. Mason, General Electric Company.

9:30 a.m.—System Operation

E. E. GEORGE, Presiding

- DP.** From Wire to Microwave on the Union Electric System. P. T. Ramey and C. W. Blood, Union Electric Co. of Missouri.
- DP.** A Classification of Outages of Facilities in Electric Power Systems. Arnold Rich, Federal Power Commission.
- DP.** Modern Railroad Communications and Signaling. R. M. Laurenson, St. Louis & San Francisco Railroad.
- DP.** Contemporary Train Radio Equipment Design. L. E. Verberg, Missouri-Pacific Railroad.

9:30 a.m.—Power System Protection

C. M. LYTTLE, Presiding

- DP.** High Speed Relaying. L. F. Kennedy, General Electric Co.; to be presented by C. R. Mason, General Electric Co.
- DP.** Surge Protection of Dry Insulated Equipment. R. C. Dickinson, G. L. Moses, R. L. Schwab and Edward Beck, Westinghouse Electric Corp.
- DP.** The Influence of Power System Design on Protective Relaying. J. L. Blackburn, Westinghouse Electric Corp.
- DP.** Plains Lightning of the Middle West. D. D. Clarke, Kansas City Power & Light Co.

2:00 p.m.—Engineering Education

A. S. LANGSDORF, Presiding

- DP.** Tomorrow's Engineer—in Preparation. K. B. McEachron, Jr., General Electric Co.
- DP.** Tomorrow's Engineer—in Use. Guy Kleis, Westinghouse Electric Corp.

2:00 p.m.—Communications

W. B. STEPHENSON, Presiding

- DP.** Exploitation of Message Statistics. B. M. Oliver, Bell Telephone Labs.
- DP.** New Instrumentalities for the Short Haul Toll Telephone Plant. H. R. Huntley, American Telephone and Telegraph Company.
- 52-150. Design of Low Frequency Constant Time Delay Lines. C. M. Wallis, University of Missouri.
- DP.** The Responses of Certain Basic Circuits to a Triangular Pulse. K. G. Black and T. J. Higgins, University of Wisconsin.

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