

# SOUTHWEST DISTRICT MEETING

March 31 - April 2, 1958



Tulsa, Oklahoma

Headquarters:  
Mayo Hotel



Tulsa, Oklahoma

## “THE ELECTRICAL INDUSTRY AND THE SOUTHWEST”

Tulsa, oil capital of the world and center of the “Magic Empire” region of Northeastern Oklahoma, will be host to the Seventh District Annual Meeting, March 31, April 1, 2, 1958.

Tulsa, one of the Southwest’s fastest growing cities is the heart of the “Magic Empire,” Oklahoma’s finest playground and largest industrial area. It is the home of over 800 oil companies and firms closely allied with the petroleum industry. Tulsa is also proud of the fact that despite its mushroom growth from a population of 1,390 in 1900 to 264,300 in 1958, it is nationally acclaimed as one of America’s cleanest and most beautiful cities.

The program has been designed to be of interest to all members in the Southwest and will include sessions on aircraft, engineering education, petroleum products, petroleum manufacturing, power generation, transmission, distribution, secondary distribution and substation design as well as industrial applications and communications. An excellent program of tours of local sites of interest has also been arranged.

### OPENING GENERAL SESSION

After a welcoming address by the Honorable George E. Norvell, Mayor, City of Tulsa, the keynote address, “The Electrical Industry and the Southwest,” will be given by Mr. R. K. Lane, Chairman of the Board of Directors, Public Service Company of Oklahoma. Mr. N. F. Rode, Vice President, Seventh District, will preside at this session which will be held at 10:00 A.M. Monday, March 31 in the Crystal Ballroom of the Mayo Hotel. We will also have a word from the Institute President, Mr. Walter J. Barrett, at this opening session.

The luncheon meeting at noon Monday will be held jointly with the Engineers Club of Tulsa at which the Honorable Mr. Hugh M. Milton II, Assistant Secretary of the Army, will be the speaker.

### ENTERTAINMENT

**Monday evening** an informal reception and fellowship hour compliments of Public Service Company of Oklahoma, will be held in the Crystal Ballroom of the Mayo Hotel at 6:00 P.M. Background music will be provided by a combo orchestra and refreshments will be served. Registrants and their ladies are invited. There will be no admission charge, however, admission will be by badge only.

**Tuesday evening** is planned to be the entertainment highlight of the convention. An informal banquet will be held in the Crystal Ballroom with all convention registrants and their ladies invited to attend. Dinner music will be provided by an orchestra with the main entertainment program presented by the University of Tulsa Choral Group and Theatrical Departments. A very interesting and entertaining program is anticipated. Tickets will be sold on Monday and Tuesday at the registration desk at \$7.50 per person.

### SPORTS

Golf will be arranged for those so desiring to participate. These arrangements can be made through the inspection trip committee.

### LADIES ACTIVITIES

#### Monday, March 31

- 9:00 A.M.—Registration, Mayo Hotel. All ladies should register with their husbands before signing up for the program.
- 12:00 Noon—Buffet Luncheon and Fur Style Show & Lecture on Furs—Pompeian Court, Mayo Hotel.
- 6:00 P.M. Informal Reception & Fellowship Hour—Crystal
- to 7:00 P.M. Ballroom, Mayo Hotel.

*Continued on page 4*

# AIEE SOUTHWEST DISTRICT MEETING — PROGRAM — Tulsa, Oklahoma, March 31 - April 2, 1958

## ADVANCE COPIES OF PAPERS

Members may obtain preprints of numbered papers at the uniform price of 40c each (80c 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 \$10 denominations are available for those who wish to avoid remittance by check or otherwise. The Transactions Papers will also be published in the bimonthly publications. Note: Unnumbered District Papers (DP.\*) may be available at or after the meeting, if copies are provided by the author. They are not intended for publication in the Transactions and are not presently scheduled for reproduction in any form by the Institute.

## Monday, March 31

### 7:45 A.M.—Registration

Main Lobby, Mayo Hotel

### 10:00 A.M.—General Session

Crystal Ballroom, Mayo Hotel  
Vice President, **NORMAN RODE**, Presiding

**WELCOME—The Honorable George E. Norvell, Mayor**  
City of Tulsa.

### A WORD FROM THE PRESIDENT—

President, **Walter J. Barrett**

**“THE ELECTRICAL INDUSTRY AND THE SOUTHWEST”**  
**Mr. R. K. Lane, Chairman of the Board,**  
Public Service Company of Oklahoma.

### 12:00 Noon—Luncheon

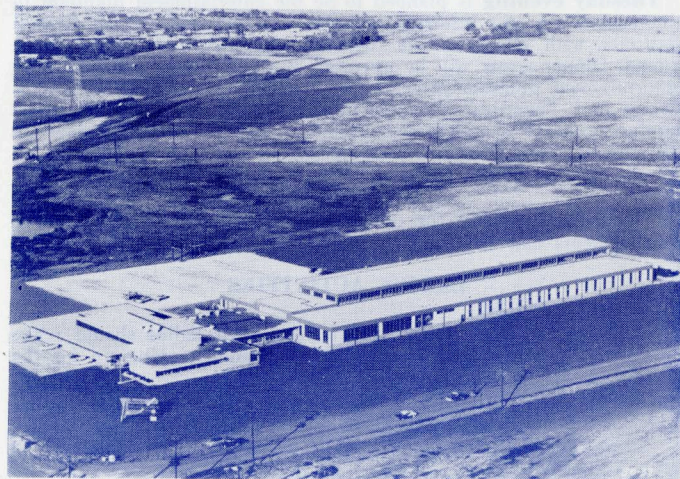
Chamber of Commerce Building  
Joint Luncheon—AIEE and Engineers Club of Tulsa

**ADDRESS—The Honorable Hugh M. Milton II**  
Assistant Secretary of the Army.

### 2:00 P.M.—Industrial Applications

Founder's Room, Mayo Hotel  
**J. H. HELLER**, Presiding

- DP.\* “A Planned Large High Voltage Germanium Rectifier Installation.” George Choma, Diamond Alkali Company and H. N. Hickok, General Electric Company.
- DP.\* “Electrical Installations in a Modern Cement Plant.” David LeClair, Ideal Cement Company.
- DP.\* “Comparative Economics of New Light Sources in Industrial Applications.” R. D. Bradley, Day-Brite Lighting, Inc.



Nelson Electric Manufacturing Company

### 2:00 P.M.—Systems Engineering

Ivory Room, Mayo Hotel  
**C. M. GORDON, Jr.**, Presiding

- DP.\* “Notes on System Planning.” John Wallis, Oklahoma Gas & Electric Company.
- DP.\* “Southwestern Public Service Company's Use of Digital Computers in Generation Scheduling.” R. W. Thomas, Southwestern Public Service Company and J. R. Wilson, General Electric Company.
- DP.\* “Operating Experience with Kansas City Power & Light's Automatic Dispatching System.” W. W. Scott, Kansas City Power & Light Company.

### 2:00 P.M.—Engineering Education

Room “U,” Mayo Hotel  
**DR. R. J. W. KOOPMAN**, Presiding

- DP.\* “Electrical Engineering Education for the Future.” Dr. Pierre Honnell, Professor of Electrical Engineering, Washington University.
- DP.\* “Automation and Education.” William B. Jarzembki, Jarco Services, Inc.

## Tuesday, April 1

### 9:30 A.M.—Aircraft

Room “U,” Mayo Hotel  
**HAROLD E. FELIX**, Presiding

- DP.\* “High Temperature Construction Materials for Aircraft Electrical Systems.” K. D. McIlvaine, Westinghouse Electric Corporation, Lima, Ohio.
- DP.\* “Qualification Testing of Aircraft Electrical Systems.” T. K. Johnson, General Electric Co., Lynn, Mass.
- DP.\* “Design Considerations for the C-132 Electrical Power Systems.” R. J. Robinson, Douglas Aircraft Company.

### 9:30 A.M.—Petroleum Production

Founder's Room, Mayo Hotel  
**GRAFTON A. SMITH**, Presiding

- DP.\* “Application of BS&W Monitor in the Petroleum Industry.” Karl T. Ball, Instruments, Incorporated.
- DP.\* “Power and Control Cables for Oil Industry.” Howard Knox, Kaiser Aluminum Company Cable Division.
- DP.\* “Determining Actual Power Output and Derating Factor of Electric Motors That Drive Oil Well Pumping Units.” Max Halderson, Phillips Petroleum Company.

### 9:30 A.M.—Power Distribution

Ivory Room, Mayo Hotel  
**FRANK J. MEYER, JR.**, Presiding

- DP.\* Modern Use of Reclosers.” Frank McStay, Line Material Industries.
- DP.\* “Overall Economics Dictates Single-Phase Residential Utilization.” Bela Mohr, Emil Buettner and Bryce Brady, Oklahoma Gas & Electric Company.
- DP.\* “Single-Phase Motors Now Cause Less Flicker in Residences Than Three-Phase.” Bryce Brady, Oklahoma Gas & Electric Company.
- DP.\* “Should Fault Current on Distribution Lines be Limited?” George G. Auer, R. W. Swarthout, General Electric Co.

### 2:00 P.M.—Aircraft

Room “U,” Mayo Hotel  
**MILO K. HENRY**, Presiding

- DP.\* “Electrical Ground Tester for the B-52.” Jimmy Jones, Boeing Airplane Company, Wichita, Kansas.
- DP.\* “Aircraft Systems Design for Commercial Airline Maintenance.” J. R. Whitlock, American Airlines, Tulsa, Oklahoma.
- DP58-450. “Switching From Now to the Future.” R. R. Jenner, Minneapolis-Honeywell Regulator Co.

### 2:00 P.M.—Petroleum Manufacturing

Founder's Room, Mayo Hotel  
**TOM R. SHAW**, Presiding

- DP.\* “Purchased Electrical Power for the Refinery.” John Mostrom, Phillips Petroleum Company.



Construction Work at Tulsa Power Plant

- DP.\* “Some Basic Design Considerations for Refinery Electric Power Distribution Systems.” H. O. Hodson and George Dupree, Southwestern Public Service Co.

- DP.\* “Requirements for Successful Applications of Data Systems to Processes.” Henry S. Stover, Beckman Instruments Incorporated.

### 2:00 P.M.—Power Transmission

Ivory Room, Mayo Hotel  
**C. A. BURGETT**, Presiding

- DP.\* “Insulator Research for Tomorrow's Lines.” A. D. Lantz, Ohio Brass Company.
- DP.\* “Wood Structures for 230 Kv and 345 Kv Construction.” R. G. Yerker, Hughes Brothers, Inc.
- DP58-449 “High Strength Aluminum Alloy Conductors.” E. W. Greenfield, Kaiser Aluminum & Chemical Corp.
- DP.\* “Narrow Base Steel Towers for Transmission Lines on City Streets.” H. C. Hughes, San Antonio City Public Service Board.

## Wednesday, April 2

### 9:30 A.M.—Industrial Applications

Room “U,” Mayo Hotel  
**B. F. THOMPSON**, Presiding

- DP.\* “Motor Operation and Protection on Unbalanced Voltages.” R. S. Reed and G. W. Cunningham, General Electric Company.
- DP.\* “Comparison of Modern Industrial Distribution Transformers.” F. J. Brütt, Westinghouse Electric Corporation.

### 9:30 A.M.—Communications

Founder's Room, Mayo Hotel  
**C. L. MOON**, Presiding

- DP.\* “Transistorizing Radio Equipment.” F. Vinton Long, Texas-Eastern Transmission Corporation.
- DP.\* “Microwave Systems and Transmission.” A. B. Munson, Southwestern Bell Telephone Company.
- DP.\* “Microwave Reflector Radiation Lobe Study.” Jointly by Motorola and B. J. Ballard, Sun Pipe Line Company, Beaumont, Texas.

### 9:30 A.M.—Power Systems

Ivory Room, Mayo Hotel  
**G. I. PAGE**, Presiding

- DP58-448 “Boiler Protection and Interlocking.” J. L. Barker, Oklahoma Gas & Electric Company.

- DP.\* “The Electrical Industry in Mexico.” A. W. Gelbke, Ebasco International Company, Mexico City.

- DP.\* “The Pump Turbine Story.” F. E. Jaski, Allis-Chalmers Mfg. Co.

- DP.\* “Pump Turbine Application in Northeast Oklahoma.” D. K. Holway, W. R. Holway & Associates.

### 2:00 P.M.—Substations

Ivory Room, Mayo Hotel  
**F. P. KASPAR**, Presiding

- DP.\* “Economics of Substation Standardization.” Tom R. Hoke, Oklahoma Gas & Electric Company.

- DP.\* “Consideration for Remote Data Logging.” William F. Cruess, Westinghouse Electric Corp., Pittsburgh, Pa.

- DP.\* “Overload Capability of Modern Power Fuses.” C. H. Baker, S & C Electric Company, Chicago, Ill.

- DP.\* “Progress in Station Class and Intermediate Class Lightning Arresters.” E. J. Allen, General Electric Company, Pittsfield, Massachusetts.

### 2:00 P.M.—Communications

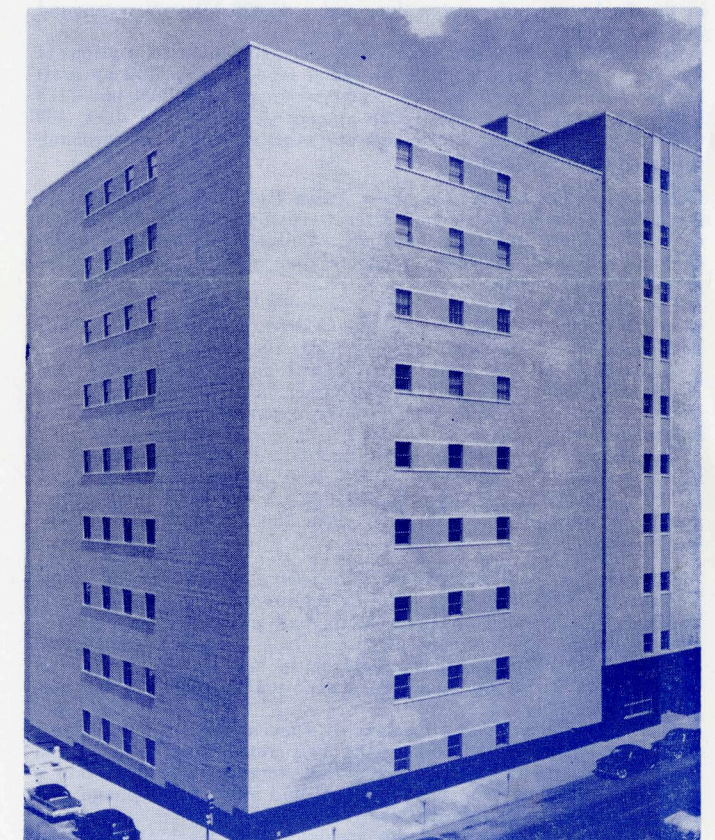
Founder's Room, Mayo Hotel  
**SIM C. WRIGHT**, Presiding

- DP.\* “Guard and Testing Circuit Channel.” W. J. Benton, Sinclair Pipe Line Co., Independence, Kansas.

- DP58-452. “Microwave Loop System for a Power Utility.” C. C. Anderson, City of Austin; E. T. Gray, G. A. Griffith, Westinghouse Electric Corp.

- DP.\* “Microwave Station Emergency Power.” W. E. Freese, Sinclair Pipe Line Co., Independence, Kansas.

- DP.\* “Selective Signaling and Control System.” H. J. Michael and W. V. K. Large of Bell Telephone Laboratories, Inc.



New Long Distance Building, The Southwestern Bell Telephone Co.

## Tuesday, April 1

9:30 A.M.—Load buses for tour of famous Frankoma Pottery Works. Buses then proceed to Oaks Country Club for buffet luncheon at 12:00 noon, with bridge, canasta and golf following in the afternoon. (Tickets for tour and luncheon—\$2.00—Green Fees not included.)

7:00 P.M.—Banquet.

## Wednesday, April 2

9:30 A.M.—Load buses for tour of Phillbrook Art Center and tour of Gilcrease Museum of Indian Art.

12:00 Noon—Buses return to hotel.

### INSPECTION TRIPS

Five tours have been arranged for those registrants and ladies interested in visiting local installations of interest. Tickets will be available at the registration desk for each of these trips. Tickets should be obtained as soon as possible. A nominal charge will be made for tickets for those tours which require transportation.

**Douglas Aircraft Co., Tulsa Division**—The tour will be made of the main assembly building and will include the fabrication area, wiring development and sub-assembly area, and main assembly line. The main assembly building is over 5,000 feet long. Douglas Tulsa Division is a major contractor for the modification of the Air Force Type B-66 and B-47 Bombers. Wives of members are invited to make this tour.

**Nelson Electric Manufacturing Company**—Nelson Electric Manufacturing Company plant and offices. Located on a 58-acre tract southeast of Tulsa, a new million-dollar building houses the largest manufacturing facilities of electrical control equipment in the entire region. The 22,000 square feet of air-conditioned office space are combined with a plant 400 feet long by 180 feet wide. High and low voltage switchgear, motor starters, explosion proof equipment and oil field specialty items are the company's principal products. Application and Design Engineering, Production Control, Electrical, Sheet Metal, Welding, and Machine Shop will be included in the departments visited. Equipment in various stages of manufacture will be inspected.

**Public Service Company of Oklahoma, Tulsa Power Station**—A brief introductory talk illustrated with a number of slides will precede the tour.

This station includes a 175,000 kilowatt turbo-generator unit that has been in operation for one year, a second 175,000 kilowatt unit in the final stages of construction, and a 45,000 kilowatt compound unit just completed.

In addition to the turbine-generator units, the electrical equipment that will be seen includes 3000 hp boiler feed motors, 1750 hp draft fan motors, 1500 hp circulating water pump motors, 1600 hp—1125 KW motor-generator exciter, 8000 ampere generator bus duct, 480 volt sub-station, central control unit and other electrical and mechanical equipment of interest.

**D-X Sunray Oil Company, West Tulsa Refinery**—A guided tour is planned through Oklahoma's largest refinery where 75,000 barrels of crude oil are processed each day. Lubricating gasolines, motor oils and hundreds of other products derived from petroleum are produced at this refinery.

The planned stops during this tour include the main substation where two 500 MVA, 14.4 KV, outdoor circuit breakers have recently been installed, a catalytic cracking unit, the canning plant where 400 quarts of oil per minute are canned on one machine, a new H. F. Alkylation unit, a new platformer, a new unifier, a new isomerization unit, and the recently expanded and modernized laboratory.

The refinery is served by three 13,200 volt lines from the local utility system. The motor connected load is approximately 15,000 HP. The substation capacity is 15,150 KVA at 13,800 volts with a maximum demand of 11,000 KW when the new units are placed on stream.

**Southwestern Bell Telephone Company, New Long Distance Telephone Building**—This building represents three years of work, hundreds of thousands of man hours and an expenditure of 7½ million dollars. The fantastic electronic long distance machine connects Tulsa with 44 similar machines in the United States and Canada. The Tulsa operator can dial more than 25,000,000 telephones direct.

The new "4A" switching machine—a superhuman telephone cross-roads—automatically determines the best route for the calls and sends the electrical impulses along the proper set of wires into a telephone switching center miles away and rings a telephone just as if the call has been dialed locally.

Other new equipment includes special billing machines designed for telephone use, a printing press which transforms a roll of blank

paper into a telephone bill with the proper amount printed thereon, a centipede-like machine which picks up the bills by vacuum, opens the envelope, inserts the bill, moistens the flap, seals and stacks them in a neat bundle for mailing.

This tour will be held Monday and Tuesday afternoons at 2:00 P.M. and Tuesday morning at 10:00 A.M. Each group of 10 will meet at the Long Distance Building and be conducted on the tour by a guide. If sufficient numbers sign up for this tour additional times will be scheduled. There is no transportation charge for this tour as it is located close to the headquarters hotel.

### SCHEDULE OF INSPECTION TRIPS

Monday 2:00 P.M.—Public Service Company of Oklahoma, Tulsa Power Station.

Monday 2:00 P.M.—Southwestern Bell Telephone Company.

Tuesday 10:00 A.M.—Southwestern Bell Telephone Company.

Tuesday 2:00 P.M.—Nelson Electric Manufacturing Company.

Tuesday 2:00 P.M.—Douglas Aircraft Co., Tulsa Division.

Tuesday 2:00 P.M.—Southwestern Bell Telephone Company.

### HOTEL RESERVATIONS

Arrangements have been made so that all hotel reservations can be made insofar as possible at the Headquarters Hotel, The Mayo. Reservations are to be made directly with the hotel, using the reservation cards, which will be included in the regular meeting notices. Rates, indicated on the cards, are as follows:

Single Rooms for 1.....\$ 8.00 — \$ 9.00 — \$12.00

Double Rooms for 2

(Double Bed) .....\$11.00 — \$12.00 — \$15.00

Double Rooms for 2

(Twin Beds) .....\$12.00 — \$14.00 — \$16.00 — \$18.00

Parlor Suites

(Parlor — 1 Bedroom) ..\$30.00 to \$50.00

Parlor Suites

(Parlor — 2 Bedrooms) ..\$40.00 to \$60.00

All Rooms have private baths

### REGISTRATION

The registration desk will open at 7:45 A.M. on Monday, March 31, 1958, in the main lobby of the Headquarters Hotel, The Mayo. This desk will be staffed from 7:45 A.M. to 5:00 P.M. on Monday, March 31, from 8:00 A.M. to 5:00 P.M. on Tuesday, April 1, and from 8:00 A.M. to 12:00 Noon on Wednesday, April 2. Tickets to all events and information concerning the meeting will be available at this desk. Registration fees for members will be \$3.00 per person. For non-members the fee will be \$5.00 per person. Members are encouraged to take advantage of the pre-registration forms which will be sent with the meeting notice. AIEE Student Members and families of members no fee but registration required.

### COMMITTEES

**The Members of the District Meeting Committee are:** R. K. Lane, General Chairman; Dwight W. Allison, Vice Chairman; John H. Heller, Secretary; F. N. Wightman, Program & Meeting Papers Chairman; G. R. Van Burkleo, Program and Meeting Papers Vice Chairman; B. F. Thompson, Meeting Papers Sub-Chairman, Industrial Applications; C. M. Gordon, Jr., Meeting Papers Sub-Chairman, Systems Engineering; Dr. R. J. W. Koopman, Meeting Papers Sub-Chairman, Engineering Education; H. E. Felix, Meeting Papers Sub-Chairman, Aircraft; Grafton A. Smith, Meeting Papers Sub-Chairman, Petroleum Production; C. A. Burgett, Meeting Papers Sub-Chairman, Power Transmission; F. J. Meyer, Jr., Meeting Papers Sub-Chairman, Power Distribution; Tom R. Shaw, Meeting Papers Sub-Chairman, Petroleum Manufacturing; C. L. Moon, Meeting Papers Sub-Chairman, Communications; D. K. Holway, Meeting Papers Sub-Chairman, Power Systems; J. L. Hixon, Finance & Budget; R. D. Bennett, Hotel Arrangements; H. A. Norberg, Inspection Trips Chairman; Charles W. Brown, Inspection Trips Vice Chairman; H. M. Furtney, Registration; D. L. McCausey, Publicity Chairman; Jack C. Wells, Entertainment.

Issued by

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

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

Printed in U.S.A.