



Northeastern District Meeting

May 2, 3 and 4, 1960

Providence, R. I.

Headquarters
Sheraton-Biltmore Hotel

SCHEDULE OF EVENTS

Sunday—May 1, 1960

Registration—5:00 to 8:00 P.M.
“Early Bird Reception”—5:00 to
8:00 P.M.

Monday—May 2, 1960

Registration—8:00 A.M. to 5:00 P.M.
Ladies Coffee Hour—9:00 to
10:00 A.M.
Technical Sessions—9:30 A.M.
Inspection Trips—10:00 A.M.
Welcoming Luncheon—12:30 P.M.
Ladies Luncheon & Cards—1:00 P.M.
Technical Sessions—2:00 P.M.
Inspection Trip—2:00 P.M.
Buffet Supper—6:30 P.M.

Tuesday—May 3, 1960

Student Counselors Breakfast—
7:30-8:30 A.M.
Registration—8:00 A.M. to 5:00 P.M.
Student Paper Competition—8:30
A.M. to 12:30 P.M.
Ladies Coffee Hour—9:00 to
10:00 A.M.
Technical Sessions—9:30 A.M.
Ladies Luncheon at Grist Mill—
12:00 noon.
Ladies Tour of R. I. School of
Design Museum—2:30 P.M.
General Luncheon—12:30 P.M.
Inspection Trip—1:30 P.M.
Student Chairmen Meeting—
2:00 P.M.
District #12 Executive Meeting—
2:00 P.M.
Technical Sessions—2:30 P.M.
“Dutch” Cocktail Party—6:00 P.M.
Dinner & Entertainment—7:00 P.M.

Wednesday—May 4, 1960

Registration—8:30 A.M. to
12:00 noon.
Ladies Coffee Hour—9:00 to
10:00 A.M.
Technical Sessions—9:00 A.M.
Ladies Tour of California Artificial
Flower-Factory & Showroom—
10:00 A.M.
General Luncheon—12:30 P.M.
Inspection Trip—1:30 P.M.
Technical Sessions—2:00 P.M.



City of Providence, Rhode Island

ELECTRICITY—KEY TO THE SIXTIES

The **AIEE Northeastern District Meeting** will be held at the Sheraton-Biltmore Hotel in downtown Providence, R. I. on Monday, Tuesday and Wednesday, May 2, 3 and 4, 1960.

The dominant role of electricity and the electrical engineering profession in our daily lives and the influence that it will have on our future as we cross the threshold of the new decade will be the theme of the meeting—“**Electricity—Key to the Sixties**”!

The broad spectrum of the **technical program** will include approximately 60 papers covering 13 basic subjects, including Transmission & Distribution, Insulated Conductors, Industrial and Commercial Power Systems, Space Heating, Communications, Aluminum Applications in the Electrical Industry, Computing Devices, Electronics, and Marine Engineering and Special Instruments.

An interesting schedule of **inspection trips** of both technical and general interest has been prepared as an adjunct to the technical sessions. These tours will offer an opportunity to inspect actual operations of precision tool manufacturing, wire fabrication, and a large naval operating base. A complete social program including ladies activities has also been arranged.

Featured speakers at the meeting include: J. H. Foote, President, AIEE, and E. G. Twohey, President, The Narragansett Electric Co. who will speak at the Welcoming Luncheon. Professor C. E. Smiley, Brown University will be the speaker at the Dinner on Tuesday.

The Providence Section extends the warm **welcome** of the City of Providence to Institute Members and their guests. Capital of the Nation's smallest State and second largest New England City, Providence is richly endowed in history, education, culture and industry. The City is an urban manufacturing center with a diversity of industries, notably metal and machine tools, jewelry, textiles and rubber goods. In addition, Providence now ranks as one of our largest ports of entry for petroleum products.

Continued on page 4

NORTHEASTERN DISTRICT MEETING

ADVANCE COPIES OF PAPERS

Members may obtain preprints of numbered papers at the uniform price of 50¢ each (\$1.00 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.

Note: The TRANSACTIONS papers will be printed in the bimonthly publications as follows:

- I COMMUNICATIONS AND ELECTRONICS.
- II APPLICATIONS AND INDUSTRY.
- III POWER APPARATUS AND SYSTEMS.

Monday, May 2

9:30 a.m.—Session 1—Insulated Conductors

Parlor A

Presiding Officer: L. E. FOGG, Kennebec Wire and Cable Division, The Okonite Company

- DP.* Cable Sheaths and Water Permeability. G. F. Todd, Collyer Insulated Wire Co.
- DP.* High-Temperature Coaxial Cable Developments. A. L. McKean, Phelps Dodge Copper Products Corp.
- DP.* Vulkene Cable, New Horizons for Polyethylene. B. J. Mulvey, General Electric Company.
- DP.* Polyethylene on High-Voltage Cables. R. S. Lovett, E. I. DuPont de Nemours & Company.

9:30 a.m.—Session 2—Transformers

Main Ballroom Foyer

Presiding Officer: R. SPENCE, Kaiser Aluminum & Chemical Corporation

- DP.* Why and How of Auto-Transformers. L. Reid, Allis-Chalmers Manufacturing Co.
- DP.* Parallel Operation of Regulators and Load-Tap Changing Transformers. R. F. Gilton, Allis-Chalmers Manufacturing Co.
- DP60-650. A New Arcing Contact Testing Device. J. H. Kuisti, and F. D. Martzloff, General Electric Co.
- DP.* Permalax—New Insulation System for Sealed Liquid Immersed Apparatus. E. L. Raab, General Electric Co.
- DP.* Practical Aspects of Theoretical Loadability of Distribution Transformers. J. O. Sweeney, General Electric Co.

9:30 a.m.—Session 3—Industrial and Commercial Power Systems

Garden Room

Presiding Officer: F. S. MEADUS, Department of Inspection (Providence)

- 60-651. Equations for Evaluating Short-Circuit Forces on Multiple-Strap Single-Phase and Polyphase Busses for Supplying Low-Frequency Induction Furnaces. T. H. Chin, Westinghouse Electric Corp. and T. J. Higgins, University of Wisconsin.
- DP.* Inspection Problems of Today's Modern Power Distribution System in Industrial Plants. J. St. Andre, Kaiser Aluminum & Chemical Corp.
- DP.* Finding Grounds on Three-Phase Ungrounded Systems. G. Cooper and R. Hurlburt, General Electric Co.
- DP.* Basic Elements of a Grounding System. E. C. Soares, Industrial Engineering Services.

2:00 p.m.—Session 4—Computing Devices (1)

Main Ballroom Foyer

Presiding Officer: T. M. MOTT, JR., Radio Corporation of America

- DP.* Recommended Symbols for Logical Design, Part I: Algebraic Symbols. T. W. Sze, University of Pittsburgh.

- DP.* Recommended Symbols for Logical Design, Part II: Symbols for Logic Diagrams. W. J. Smith, AFCRC and D. Drusdow, Radio Corporation of America.

- DP.* Recommended Symbols for Logical Design, Part III: Printed Graphical Symbols. R. J. Preiss, International Business Machines and T. C. Bartee, Massachusetts Institute of Technology.

- DP.* Recommended Symbols for Logical Design, Part IV: Glossary of Terms. E. J. Tanana, Western Electric Co. and R. Berlin, General Electric Co.

2:00 p.m.—Session 5—Substations

Garden Room

Presiding Officer: K. L. PARTRIDGE, Hartford Electric Light Co.

- DP.* Standardization of Structure Design for Distribution Substations. F. L. Hecht, Connecticut Light and Power Co.
- DP.* Ground Resistance Measurements of Large Substations. W. F. Fee, Hartford Electric Light Co.
- DP.* The Development of Voltage Control on the Central Maine Power System. B. Payne, Central Maine Power Co.
- DP.* Planning Substations to Avoid Noise Complaints. S. Lindgren, Allis-Chalmers Manufacturing Co.
- DP.* Designing Aluminum Busses. D. Sandell, Aluminum Company of America.

Tuesday, May 3

9:30 a.m.—Session 6—Space Heating

Main Ballroom

Presiding Officer: E. E. LINDEN, Narragansett Electric Company

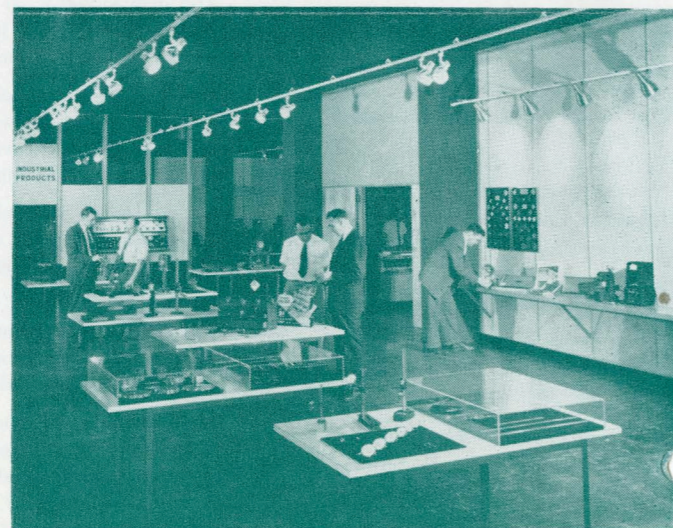
- DP.* How The Heat Pump is Used in New England Industry. J. W. Megley, Boston Edison Co.
- DP.* Industrial and Commercial Space Heating with Radiant Heat. J. Gialanella, Quartz Products Co.
- DP.* Resistance Heating—Commercial and Industrial Applications. C. M. Greer, Dittman and Greer, Inc.

9:30 a.m.—Session 7—Aluminum Applications in the Electrical Industry

Parlor A

Presiding Officer: A. L. KOLB, Kaiser Aluminum & Chemical Corporation

- DP60-652. Short Circuit Tests On Aluminum and Steel Conduit. L. F. Roehmann, Kaiser Aluminum & Chemical Corp.
- DP.* How To Connect Aluminum Welding Cable. R. A. Burkhardt, Kaiser Aluminum & Chemical Corp.
- DP.* Some Practical Aspects On Aluminum Strip Conductors. H. Adams, Reynolds Metals Co.
- DP.* Aluminum Equipment Terminals. C. G. Sorflaten, Ilseco Corporation (formerly with Kaiser Aluminum & Chemical Corp.)



Brown & Sharpe Mfg. Co.

TECHNICAL PROGRAM

2:00 p.m.—Session 8—Electronics

Main Ballroom Foyer

Presiding Officer: R. B. HANSON, Narragansett Electric Company

- DP60-653. A New Mode of Operation in Junction Transistors. N. C. Hekimian, Department of Defense.
- DP60-665. Electronic Load Control for a Small Public Utility Application and Operation Experience. H. W. Evers, Jr. and J. A. MacKinnon, Fitchburg Gas & Electric Light Co.
- DP.* Design Philosophies of DC High-Gain Low-Drift Transistorized Amplifiers. J. Kline, University of Rhode Island.
- DP.* The Synchronous Electronic Clock. I. A. Terry, General Electric Co.

2:00 p.m.—Session 9—Computing Devices (2)

Parlor A

Presiding Officer: P. H. ST. PIERRE, Narragansett Electric Company

- DP60-654. Error Correcting Codes for Correcting Bursts of Errors. J. E. Meggitt, IBM Research Laboratories.
- DP60-655. Design of a Low-Cost Analog-To-Digital Conversion System for Process Applications. A. E. Beecher, Massachusetts Institute of Technology.
- DP.* Prototype and Special Cams Using the Brown and Sharpe "Numerical" With Tapes Prepared on the IBM 610 Computer. G. N. Levesque, Brown and Sharpe Manufacturing Co.
- DP60-666. An Automatic Sheet Classifier. M. L. Matthews, Maxson Automatic Machinery Co.; G. L. Mathias, Westinghouse Electric Corp.; and E. Mojkowski, Westinghouse Electric Corp.
- DP.* Information Machines (sound film). R. Fagnoli, International Business Machines Corp.

2:00 p.m.—Session 10—Rotating Machinery and General Industrial Applications

Garden Room

Presiding Officer: R. S. WHITE, Leeson Corporation

- DP.* Determining DC Braking Requirements on Continuous Process Rubber Machines. H. R. Hughes, Ruberoid Corp. and H. M. Wall, Westinghouse Electric Corp.
- DP.* A New Adjustable Voltage Drive. M. J. Girard, Westinghouse Electric Corp.
- DP.* Detection of Shorted Turns in Magnetizing Coils. W. H. Dority, University of Maine.
- DP.* Safe Electrical Installations for Textile Plants. C. F. Hedlund, Factory Mutual Engineering Division.
- DP60-656. A New Look at Paper Mill Lighting. A. L. Guess, D. M. Fraser, Ltd.

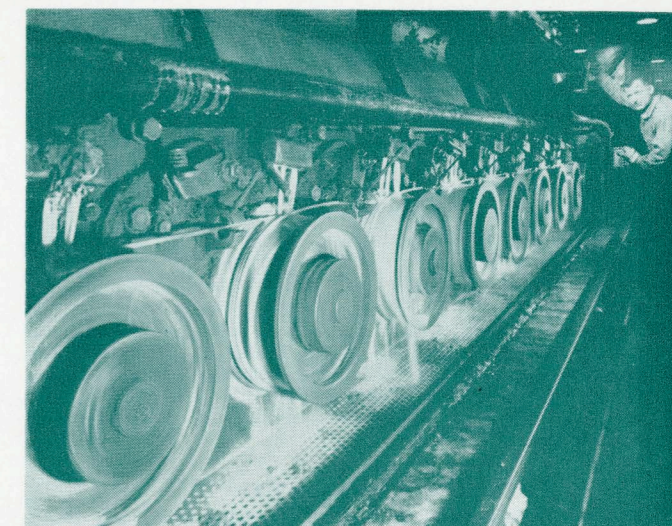
Wednesday, May 4

9:00 a.m.—Session 11—Communications

Main Ballroom Foyer

Presiding Officer: C. W. CUNNINGHAM, New England Telephone & Telegraph Co.

- DP.* Engineering Maintenance in Telephone Transmission. E. S. Campbell, New England Telephone and Telegraph Co.
- DP.* Chemical Brush Control. H. F. Hatch, Jr., New England Telephone and Telegraph Co.
- DP.* Modern Underground Telephone Facilities for New Residential Developments. G. A. Gardner, New England Telephone and Telegraph Co.
- DP.* Room-to-Room Dialing in a Multi-Story Hotel. H. N. Thornton and P. A. Lund, New England Telephone and Telegraph Co.



Kennebec Wire & Cable Div., The Okonite Co.

9:00 a.m.—Session 12—Transmission and Distribution

Garden Room

Presiding Officer: F. C. TAYLOR, Fall River Electric Light Company

- CP59-1087. Distribution System Conversion to 4160 Volts. L. H. Herendeen, Jackson and Moreland, Inc.
- DP.* Predetermination of Radio Influence Levels of Project EHV Configurations. J. J. LaForest and A. K. Abboushi, General Electric Co.
- 60-657. Determination of the Wave Front of Lightning-Stroke Currents from Field Measurements. C. F. Wagner, Westinghouse Electric Corp.
- 60-658. A New Approach to the Calculation of Lightning Performance of Transmission Lines—III, A Simplified Method. Stroke to Tower. C. F. Wagner and A. R. Hileman, Westinghouse Electric Corp.
- DP60-659. Phenomena at the Metal-Dielectric Junctions of High-Voltage Insulators in Vacuum and Magnetic Field. M. J. Kofoid, Boeing Airplane Co.

2:00 p.m.—Session 13—Special Instruments and Marine Engineering

Main Ballroom Foyer

Presiding Officer: I. G. EASTON, General Radio Company

- 60-660. Portable Dynamic Electronic Speed-Torque Indicator. H. R. I. Weed, Ohio State University.
- 60-661. The Kine-Klydonograph—A Transient Wave Form Recorder. III S. B. Griscom, Westinghouse Electric Corporation.
- DP60-662. Protection for Underwater Instruments. H. E. Edgerton, Massachusetts Institute of Technology and L. D. Hoadley, Woods Hole Oceanographic Institution.
- DP60-663. Factors in the Evolution of Sophisticated Fire Control Systems for Underwater Weapons. H. L. Haltermann, U. S. Naval Underwater Ordnance Station.
- DP60-664. The Submarine Threat and Electrical Engineering. G. G. Gould, U. S. Naval Underwater Ordnance Station.

2:00 p.m.—Session 14—Relays and Circuit-Breakers

Garden Room

Presiding Officer: I. C. FISK, Allis-Chalmers Manufacturing Company

- DP.* Static Overcurrent Trip Device for Low-Voltage Breakers. N. M. Russak, Allis-Chalmers Manufacturing Co.
- DP.* Backup Protection with an Inoperative Circuit-Breaker. F. B. Hunt, New England Electric System.
- DP.* A Combined Directional Comparison-Voltage Tripping Relay Scheme for a Weak Infeed Transmission Line Terminal. R. M. Rhoades, Central Maine Power Co.
- DP.* An Application of Transferred Tripping. G. S. Haralampu and E. Noorigian, New England Electric System.

NORTHEASTERN DISTRICT MEETING

CONTINUED FROM PAGE 1

"EARLY BIRD" RECEPTION

On **Sunday, May 1, 1960** from 5:00 to 8:00 P.M. a Reception will be held in the State Suite Room 1557, of the Sheraton-Biltmore, for members and wives as a general get-together and a welcome for early arrivals.

REGISTRATION

Your **registration cards** received in the mail should be filled out and returned promptly. This will save time in completing registration details upon arrival at the hotel and will permit the committee to make necessary arrangements for all inspection trips.

The **registration desk**, located in the upper lobby, will be open on Sunday from 5:00 P.M. to 8:00 P.M.—Monday and Tuesday from 8:00 A.M. to 5:00 P.M. and on Wednesday from 8:30 A.M. to 12 Noon. Registration fees are \$4.00 for members, \$7.00 for non-members and \$2.00 for ladies. No fees will be required for student members or families of members.

HOTEL RESERVATIONS

Blocks of rooms have been set aside at the Sheraton-Biltmore Hotel for members and guests attending this meeting. **Requests for reservations** using the enclosed card should be sent to the Sheraton-Biltmore Hotel, Providence 3, R. I., mentioning A.I.E.E. and giving date and approximate time of arrival and the date of departure. All reservations must be made by April 22, 1960.

The room rates are as follows:

Single Room:	\$6.85—\$8.50—\$9.85—\$11.00—\$12.50
Double Room:	\$10.85—\$12.50—\$13.85
Twin Bedrooms:	\$12.50—\$13.85—\$15.85—\$16.50
Rollaway Bed:	\$3.00 each

LUNCHEON

The **Welcoming Luncheon, Monday, May 2, 1960** in the Main Ballroom of the Sheraton-Biltmore Hotel will formally welcome the members and guests with Mr. Edward G. Twohey, President of The Narragansett Electric Company, Providence, Rhode Island as the main speaker. Tickets (\$2.50 per person) will be available at the Registration Desk.

General Luncheons will be held in the main Ballroom of the Sheraton-Biltmore Hotel on **Tuesday and Wednesday**. Tickets (\$2.50 per person) will be available at the Registration Desk.

LADIES PROGRAM

The **ladies' headquarters** will be in the Hospitality Room, which will be open Monday through Wednesday 9:00 A.M. to 5:00 P.M. Registration for ladies activities should be made in the Hospitality Room. The following ladies activities have been arranged:

Monday—9:00 A.M. to 10:00 A.M. rolls and coffee in Parlor C.
1:00 P.M. **Luncheon and Cards** State Suite Room 1557.

Tuesday—9:00 A.M. to 10:00 A.M. rolls and coffee in Parlor C.
12:00 Noon **Luncheon** at the Grist Mill (transportation provided). 2:30 P.M. Tour of R. I. School of **Design Museum** (transportation provided).

Wednesday—9:00 A.M. to 10:00 A.M. rolls and coffee in Parlor C.
10:00 A.M. Tour of **California Artificial Flower** Factory and Showroom (transportation provided).

STUDENT ACTIVITIES

The **Student Prize Paper Competition** will be held **Tuesday morning at 8:30 A.M.** in the Main Ballroom Foyer. The winning papers from the Student Branches within the District will be presented. The first prize is \$25.00 and an all expense trip to the Summer General Meeting at Atlantic City, New Jersey; second prize is \$25.00; third prize \$15.00. Student members are invited to participate in all general meetings, inspection trips, and to attend all social events at reduced rates.

EVENING AFFAIRS

Buffet Supper—**Monday evening May 2, 7:00 P.M.** in the Ballroom. Dress informal. Tickets (\$3.50 per person) will be available at Registration Desk.
A social hour in the Ballroom Foyer will precede the buffet supper.

Dinner—**Tuesday evening May 3, 7:00 P.M.** in the Ballroom. Dress informal. Speaker, Prof. Charles E. Smiley, Brown University "What's up in Space?" Tickets (\$5.50 per person) will be available at the Registration Desk.
A social hour in the Ballroom Foyer will precede the dinner.

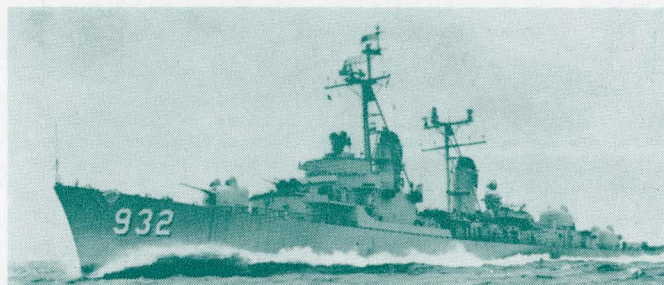
INSPECTION TRIPS

Brown & Sharpe Mfg. Co.—Monday, May 2, 10:00 A.M. This company is one of the Nation's oldest established manufacturers of hand tools, machine tools, pumps and precision measuring devices. Visitors will be escorted through the Company's Precision Center where an actual operating model of each type of precision device is on display.

The Okonite Co.—Kennecott Wire & Cable Div.—Monday, May 2, 2:00 P.M. Visitors on this tour will see a copper rolling mill where copper wirebars are reduced to rod form by a hot rolling process. The plant visit will also include wire drawing, annealing, stranding, insulating and sheathing operations. Various types of magnet wire will be seen under production. Busses will leave the Hotel at 2:00 P.M. Tickets—\$5.00.

Metals & Controls Corp., Div. of Texas Instruments, Inc.—Tuesday, May 3, 1:30 P.M. The Metals & Controls Division of Texas Instruments, located in neighboring Attleboro, Massachusetts, encompasses the operations of the General Plate Products, Spencer Products, and M & C Nuclear. Visitors will tour the first two operations and see an Exhibit of the Nuclear work involved in the third operation. Busses will leave the Hotel at 1:30 P.M. Tickets—\$5.00.

U. S. Navy—Atlantic Fleet Destroyer Force, Newport—Wednesday, May 4, 1:30 P.M. This tour will begin with a brief address of welcome and description of the latest type of electronic equipment now being installed on destroyers. Visitors will then inspect the electric shore supply facilities for ships berthed at the Destroyer Force's New Pier 2. A tour of the Destroyer Tender U.S.S. Cascade will follow, during which, the operation of the Tender will be explained. A tour aboard one of the destroyers will also be available for those interested. Busses will leave the Hotel at 1:30 P.M. Tickets—\$1.00.



USS John Paul Jones, Forrest Sherman class destroyer

COMMITTEE MEETINGS

Student Counselors Breakfast—Tuesday, May 3, 7:30 A.M. to 8:30 A.M. Parlor D. **District #12 Executive Committee**—Tuesday, May 3, 2:00 P.M. Parlor C. **Student Branch Chairmen**—Tuesday, May 3, 2:00 P.M. Parlor D (Meeting of Incoming and Outgoing Chairmen).

COMMITTEES

Members of the Northeastern District No. 12 Meeting Committee are: General Chairman, R. H. Taylor; Vice Chairman & Secretary, J. S. Kowalik; Treasurer, A. L. Graham; Technical Program, H. T. Knox; Hotel & Arrangements, D. Z. Breck; Trips & Transportation, E. M. Adams; Publicity, J. E. Fogerty; Entertainment, H. C. Rankin; Registration, H. B. Barlow, Jr.; Ladies Program, Mrs. R. E. Bescherer; Student Activities, J. F. Grove; Exhibits, R. C. Savage; Finance, S. M. Osthagen, H. P. Arnold, J. P. Patton; Providence Section Chairman, J. K. Andrews; District #12 Vice President, F. S. Bacon, Jr.

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