



National Technical Meeting

Cleveland, Ohio

June 21—25, 1943



Cleveland Terminal
Building and Hotel
Cleveland Meeting
Headquarters

Some Sessions and Conferences Which Aid the War Effort

1. Electrical Equipment for Military Aircraft
2. Resistance Welding and Power Supply Systems
3. Arc-Furnace Control and Transients
4. Wartime Emergency Loading of Conductors
5. Army and Navy Specialized Training Programs
6. Electronics in Industrial Power Applications
7. Teaching Ultrahigh Frequency
8. Induction Heating Conference
9. Conference on Safety
10. Overloading of Transformers

Eight Interim Reports developed as a wartime measure to conserve critical materials.
A guide for wartime conductor temperatures, prepared by an AEIC Subcommittee.

ADVANCE COPIES OF PAPERS

Preprints of technical papers may be obtained by mail by remitting price indicated to the A.I.E.E. Order Department, 33 West 39th Street, New York, N. Y.; if purchased at A.I.E.E. headquarters or at the meeting 5c less per copy. For convenience an order form is enclosed. Only numbered papers will be available in advance-copy form. 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 \$5.00 denominations are available for those who wish to avoid remittance by check or otherwise. Most of the papers ultimately will be published in *ELECTRICAL ENGINEERING* or the *TRANSACTIONS*.

Monday, June 21

9:00 a.m.—Registration

10:00 a.m.—Conference of Officers, Delegates, and Members

J. M. THOMSON, Vice-Chairman, Sections Committee, Presiding

Chairman's Opening Statement

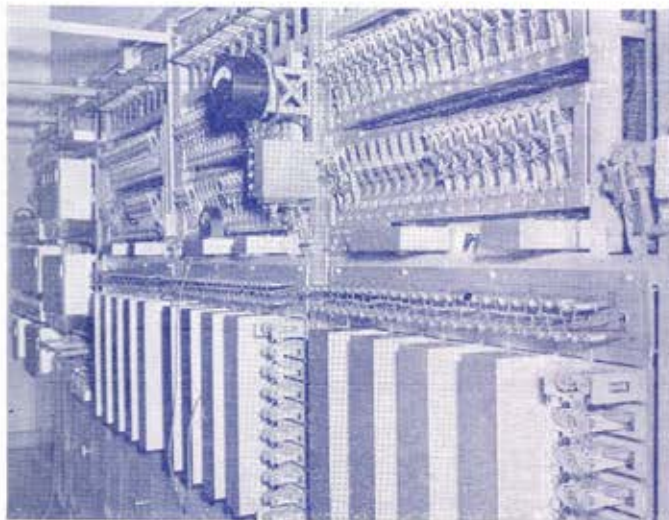
Address: "Impressions Obtained from My Visits to the Sections during the Past Year." Harold S. Osborne, President, AIEE

Address: "How the Institute Is Getting Along in Membership and Finances." H. H. Henline, National Secretary, AIEE

Report: "What the Sections Committee Has Been Doing in South America." Subcommittee, O. S. Brill, Chairman; M. S. Coover

Address: "How the Mexico Section Is Getting Along"

Address: "I Am an American." A. Boyajian, General Elec. Co.



One of the Subcenter Switching Systems for Teleprinter Tie Lines Which Speed the War Orders with Precision

Report: "Development of Subsections." Subcommittee, E. W. Schilling, Chairman; C. A. Faust

Report: "Other Activities of the Sections Committee during the Past Year." E. T. Mahood, Chairman, Sections Committee

2:00 p.m.—Clinic on Section Operation and Management of Larger Sections (more than 300 members)

G. W. BOWER, Presiding

Explanation of "Clinic" Plan and Introduction of Members of Sections Committee Present. R. M. Pfalzgraff, Vice-Chairman, Program Subcommittee

Discussion by Delegates

2:00 p.m.—Clinic on Section Operation and Management of Smaller Sections (less than 200 members)

W. J. GILSON, Vice-President-Elect, Canadian District, Presiding

Explanation of "Clinic" Plan and Introduction of Members of Sections Committee Present. J. M. Thomson, Program Subcommittee

Discussion by Delegates

Tuesday, June 22

10:00 a.m.—Annual Meeting

President HAROLD S. OSBORNE, Presiding

Address by H. W. Green

Board of Directors' Report (in abstract). H. H. Henline, National Secretary

National Treasurer's Report. W. I. Slichter

Committee of Tellers' Report on Election of Officers

Presentation of President's Badge and Response from President-Elect Nevin E. Funk

Presentation of Prizes for Papers

Presentation of Lamme Medal to Dr. Joseph Slepian

President's Address. Dr. Harold S. Osborne

2:00 p.m.—Conference on Civic Affairs

43-122. The Engineer's Interest in City Planning. Report of the Conference on City and Regional Planning at the North Eastern District Technical Meeting, Pittsfield, Mass., April 8. F. A. Cowan, Vice-Chairman, Technical Program Committee. 20 cents by mail.

Speakers: H. W. Green

J. T. Howard

2:00 p.m.—Power Generation

43-93. Interim Report on Emergency Measures to Increase Output of Generating Equipment and Systems. AIEE Committee on Power Generation. 65 cents by mail.

**CP. Tentative Specification for Speed Governing of Steam-Turbine Generators Rated Not Less Than 10,000 Kw. Report of Joint AIEE-ASME Committee on a Proposed Specification for Prime-Mover Speed Governing

NATIONAL TECHNICAL MEETING

2:00 p.m.—Conference on Resistance Welding and Its Associated Power Supply System

This conference will provide an opportunity to present problems arising from the extended use of resistance welders in industry today. Industrial engineers are to be encouraged to present their problems. Speakers will represent the manufacturers of resistance welders and control equipment, public utilities companies, and industrial users. Topics of discussion will be:

- †CP. Resistance Welders, Characteristics, Controls, and Auxiliary Equipment
- 43-121. Automatic Voltage Compensator for Resistance Welding Control. E. M. Callender and R. S. Phair, Edward G. Budd Mfg. Co. 20 cents by mail.
- †CP. Adequate Power Supply System for Resistance Welders, with discussion on such factors as low voltage, lighting flickers, low power factor, and load factor; also Various Methods of Correcting Load Characteristics
- †CP. Application of Series Capacitors to Resistance Welding Loads

2:00 p.m.—Conference on Safety

The objective of this conference is to emphasize the importance of properly organized safety programs not only in the large public utility and industrial organizations but also in the great multitude of smaller plants. Accidents from electrical causes are on the increase along with accidents from other causes. Any lost time accident today is a war man-power problem. After the presentation of the prepared papers ample time will be provided for open discussion.

- 43-94. Practical Accident Prevention in Small Groups. O. S. Hockaday, Texas Elec. Service Co. 15 cents by mail.
- Discussion by S. B. Taylor, Reliance Elec. & Engg. Co.
- Discussion by J. G. Jackson, Square D Co.

Wednesday, June 23

10:00 a.m.—General Session

It is planned to devote the general session to a consideration of Inter-American Affairs with particular emphasis on co-operation of engineers of this country with those of the Latin-American countries in the development of South America.

2:00 p.m.—Arc-Furnace Control and Transients

- 43-97. A Study of Voltage Transients in Arc-Furnace Circuits. J. B. Hodtum and J. B. Rice, Allis-Chalmers Mfg. Co. 25 cents by mail.
- 43-98. Practical Calculation of Electrical Transients on Power Systems. R. D. Evans and R. L. Witzke, Westinghouse Elec. & Mfg. Co. 25 cents by mail.
- 43-95. Arc-Furnace Control by Regulex Exciters. T. B. Montgomery and T. H. Bloodworth, Allis-Chalmers Mfg. Co. 15 cents by mail.
- 43-96. Rotating Regulator for Arc Furnaces. R. A. Geiselman, C. C. Levy, and W. R. Harris, Westinghouse Elec. & Mfg. Co. 15 cents by mail.

2:00 p.m.—Conference on "How Can the Institute Render Greater Service to Its Latin American Members?"

- †CP. International Electrical Standards. L. F. Adams, General Elec. Co.
- †CP. Relations between Latin American and United States Standardizing Bodies, with Particular Reference to Electrical Standards. Alberto Magno-Rodrigues, American Standards Association
- †CP. Informal talk by Major Carlos Berenhauer, Jr., National Steel Co. of Brazil

2:00 p.m.—Synchronous Machinery

- 43-76. Pole-Face Loss in Solid-Rotor Turbine Generators. W. W. Kuyper, General Elec. Co. 30 cents by mail.
- 43-89. The Quadrature Synchronous Reactance of Salient-Pole Synchronous Machines. R. V. Shepherd and C. E. Kilbourne, General Elec. Co. 20 cents by mail.
- 43-99. The Calculation of Unbalanced Magnetic Pull in Synchronous and Induction Motors. R. C. Robinson, Westinghouse Elec. & Mfg. Co. 20 cents by mail.

2:00 p.m.—Conference of Student Branch Counselors

This conference will deal with Student Branch Problems, particularly as related to postwar programs.

Thursday, June 24

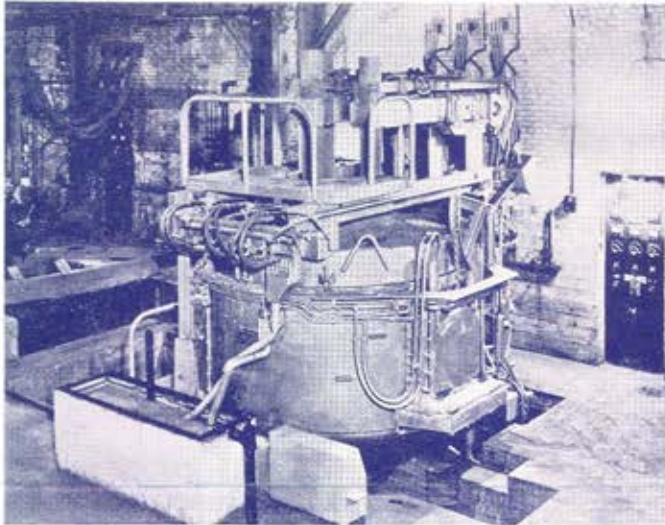
9:30 a.m.—Induction Machinery

- 43-83. A New Type of Adjustable-Speed Drive for Alternating-Current Systems—Part II. A. G. Conrad and P. F. Ordnung, Yale Univ., and S. T. Smith, Naval Research Lab. 15 cents by mail.
- 43-100. Distribution Factors and Pitch Factors of the Harmonics of a Fractional-Slot Winding. M. M. Liwschitz, Polytechnic Inst. of Brooklyn. 15 cents by mail.
- 43-82. Critical Material Conservation in Induction Motor Manufacture. H. M. Hobart, Consulting Engr. 15 cents by mail.
- †CP. Allowable Temperature Rise of Totally Enclosed Fractional Horsepower Motors

ASA Standard C50, covering American standards for rotating electrical machinery, has been revised and is being re-issued. As re-issued, this standard will recognize an allowable temperature rise for totally enclosed fractional horsepower motors 5°C higher than that recognized for integral horsepower motors. This difference is of definite concern to a number of design engineers. The purpose of the conference session is to encourage a full discussion of this matter.

9:30 a.m.—Switching Equipment and Supervisory Control

- 43-84. Interim Report on Application and Operation of Automatic Reclosing Equipment on Stub Feeders. Subcommittee on A-C Automatic Reclosing Equipment, AIEE Committee on Automatic Stations. 20 cents by mail.



Arc-Furnace Control Is an Essential to the Production of High-Quality Steel Required in War Orders—Papers will be presented on this subject Wednesday afternoon

- 43-101. Interim Report on Characteristics and Performance of Conductors for Supervisory Control and Telemetering. Subcommittee on characteristics and Performance of Conductors for Supervisory Control and Telemetering, AIEE Committee on Automatic Stations. 25 cents by mail.
- 43-102. The Cause and Control of Some Types of Switching Surges. T. W. Schroeder, General Elec. Co. 15 cents by mail.
- 43-86. Experience with Oil Circuit Reclosers on REA Systems. L. M. Moore and B. O. Watkins, REA. 20 cents by mail.
- 43-103. A New High-Interrupting-Capacity Fuse for Voltages through 138 Kv. H. H. Fahnoe, Westinghouse Elec. & Mfg. Co. 15 cents by mail.

9:30 a.m.—Conference on Agricultural Electrification

- †CP. The Farmer and His Electricity. Grover C. Neff, President, Wisconsin Pr. & Lt. Co.
- †CP. Evolution in Agriculture. Frank E. Watts, Farm Journal and Farmer's Wife
- †CP. Application Engineering—The Key to Increased Farm Production. George W. Kable, Editor, Electricity on the Farm
- †CP. Progress in Serving Oklahoma Farms. Roy E. Hayman, Oklahoma Gas and Electric Co.
- †CP. Chemurgy—Its Place in This War and After It. L. F. Livingston, E. I. du Pont de Nemours & Co. (Alternate subject—time permitting)
- †CP. The Care and Maintenance of Electric Farm Equipment. A. H. Hemker, General Elec. Co.

9:30 a.m.—Conference on Teaching Aids in Specialized Training

ROBIN BEACH, Presiding

- †CP. Learning, Teaching, and Efficiency in Accelerated Training Programs. Harvey H. Davis, Vice-President, The Ohio State Univ.
- †CP. Visual Teaching Aids. Charles E. Gus, New York Univ.
- †CP. Teaching Servo-Mechanisms in the ASTP. W. M. Knight, Aircraft Armament School, General Elec. Co.

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

Speakers: H. B. Osborn, Jr.
P. D. Zottu
W. E. Benninghoff

- †CP. The Field of Application of Electronic Heating. J. P. Jordan, General Elec. Co.

1:30 p.m.—Conference on Experiences and Problems in Military Specialized Training

Informal discussion of problems encountered in organizing and administering the Army and Navy Specialized Training Programs.

- †CP. Safety Engineering Instruction at Oklahoma A and M College. A. Naeter, Oklahoma A & M College

2:00 p.m.—Wartime Emergency Loading of Conductors

- 43-85. Safe Ratings for Overhead Line Conductors. L. M. Olmsted, Duquesne Light Co. 30 cents by mail.
- 43-104. Guide for Wartime Conductor Temperatures for Power Cables in Service. Subcommittee on Wartime Temperatures for Cable Circuits, AEIC Cable Engineering Section. 20 cents by mail.
- 43-105. Interim Report on Emergency Overloads on Overhead Conductors. Working Group on Towers, Poles, and Conductors, Transmission Subcommittee, AIEE Committee on Power Transmission and Distribution. 15 cents by mail.
- 43-77. The Effect of Corona on Coupling Factors between Ground Wires and Phase Conductors. G. D. McCann, Westinghouse Elec. & Mfg. Co. 20 cents by mail.

2:00 p.m.—Selected Subjects

- 43-120. Subcenter Switching Systems for Teleprinter Tie Lines. F. L. Currie, The Western Union Telegraph Co. 20 cents by mail.
- 43-81. A Capacitance Bridge for Determining the Ratio and Phase Angle of Potential Transformers. H. W. Bousman and R. L. Ten Broeck, General Elec. Co. 15 cents by mail.
- 43-106. Formulas for Calculating Short-Circuit Forces between Conductors of Structural Shape. T. J. Higgins, Illinois Inst. of Technology. 25 cents by mail.
- 43-107. A Method for Determining the Normal Modes of Foster's Reactance Networks. (Presentation by title.) W. R. LePage, RCA. 15 cents by mail.
- 43-108. A Method for Correlating Duty-Cycle Tests on Solenoids. J. E. Ryan, General Elec. Co. 15 cents by mail.

(Continued on Page 5)

NATIONAL TECHNICAL MEETING

(Continued from Page 4)

43-78. Adequate Electrical Maintenance Essential to Transportation. W. J. Clardy, Westinghouse Elec. & Mfg. Co. 15 cents by mail.

2:00 p.m.—Conference on Wartime Influences in Lighting

3:30 pm.—Conference on Teaching of Ultrahigh Frequency

Speakers: J. G. Brainerd
H. J. Reich
W. C. Osterbrock

7:00 p.m.—Dinner Conference—Jointly with Cleveland Section, IRE

Address: "Frequency Modulation Versus Amplitude Modulation at High Frequencies." Raymond Guy, Radio Facilities Engr., NBC

Friday, June 25

9:30 a.m.—Carrier Current and Miscellaneous Subjects

43-80. Application of Carrier to Power Lines. F. M. Rives, General Elec. Co. 30 cents by mail.

43-91. Carrier-Current Differential Protection for Transformer Banks. T. A. Cramer, General Elec. Co. 15 cents by mail.

43-110. A Simple Method for the Determination of Bushing Current Transformer Characteristics. S. D. Moreton, General Elec. Co. 20 cents by mail.

43-111. Report on Application of Lightning Protective Devices in Wartime. Lightning Arrester Subcommittee, AIEE Committee on Protective Devices. 15 cents by mail.

43-112. Frequency Modulation for Power-Line Carrier Current. E. W. Kenefake, General Elec. Co. 15 cents by mail.

9:30 a.m.—Electrical Equipment for Military Aircraft

43-123. Aircraft Electric Power Supply System. J. E. Yarmack, Int. Tel. & Radio Mfg. Corp. 15 cents by mail.

43-124. Characteristics and Applications of the General Electric Company Selenium Rectifier Cells. E. A. Harty, General Elec. Co. 20 cents by mail.

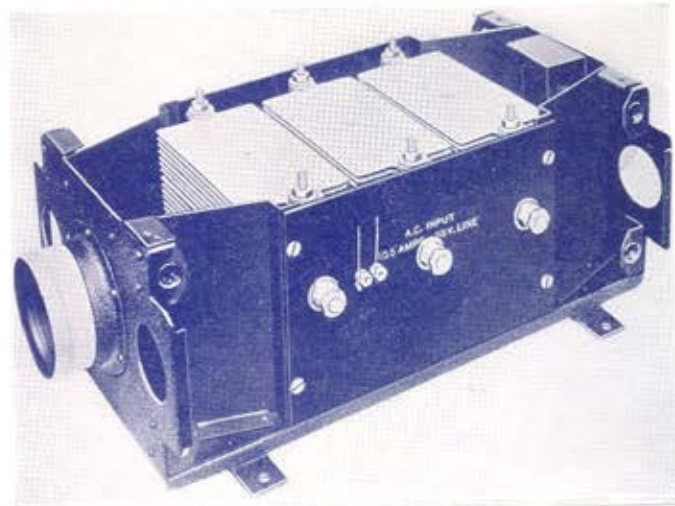
43-125. Fundamental Principles of Amplidyne Applications. F. E. Crever, General Elec. Co. 15 cents by mail.

43-126. Design Relationships for Direct-Current Generators for Use in Aircraft. S. R. Bergman, General Elec. Co. 15 cents by mail.

43-127. Aircraft Inverter Construction. C. T. Button, The Holtzer-Cabot Elec. Co. 15 cents by mail.

9:30 a.m.—Electronics in Industrial Power Applications

43-113. The Testing of Mercury-Arc Rectifiers. H. L. Kellogg and C. C. Herskind, General Elec. Co. 30 cents by mail.



One of the Light Compact Rectifiers for Military Aircraft

43-90. Theory of Rectifier—Direct-Current Motor Drive. E. H. Vedder and K. P. Puchlowski, Westinghouse Elec. & Mfg. Co. 30 cents by mail.

43-114. Operation of Nonsalient-Pole-Type Generators Supplying a Rectifier Load. M. D. Ross and J. W. Batchelor, Westinghouse Elec. & Mfg. Co. 15 cents by mail.

43-115. Load Pick-Up by a Group of Ignitron Rectifiers. L. W. Morton, General Elec. Co., and D. I. Bohm, Aluminum Co. of America. 15 cents by mail.

43-116. Thyatron Motor Control. E. E. Moyer and H. L. Palmer, General Elec. Co. 20 cents by mail.

9:30 a.m.—Transformers

43-88. High-Voltage Power-Transformer Design. M. B. Mallett, English Elec. Co. of Canada, Ltd. 20 cents by mail.

43-87. Interim Report on Overloading Distribution Transformers. Transformer Subcommittee, AIEE Committee on Electrical Machinery. 15 cents by mail.

43-109. Interim Report on Overloading Current-Limiting Reactors. Transformer Subcommittee, AIEE Committee on Electrical Machinery. 15 cents by mail.

†CP. Normal and Emergency Loading of Power Transformers. H. B. Keath and W. Godin, Wagner Elec. Corp.

2:00 p.m.—Relaying

43-117. A New High-Speed Balanced-Current Relay. V. N. Stewart, General Elec. Co. 15 cents by mail.

43-79. Pilot-Wire Relaying on a Metropolitan System. T. G. LeClair and E. L. Michelson, Commonwealth Edison Co. 20 cents by mail.

43-92. Distance Relay Protection for Subtransmission Lines Made Economical. L. J. Audlin, Central New York Pr. Corp., and A. R. vanC. Warrington, General Elec. Co. 15 cents by mail.

43-118. Relay Protection of Tapped Transmission Lines. M. A. Bostwick and E. L. Harder, Westinghouse Elec. & Mfg. Co. 15 cents by mail.

(Continued on Page 6)

NATIONAL TECHNICAL MEETING, CLEVELAND, JUNE 21-25, 1943

(Friday, continued)

43-119. Interim Report on Application and Operation of Out-of-Step Protection. Working Group on Out-of-Step Protection, Relay Subcommittee; AIEE Committee on Protective Devices. 20 cents by mail.

2:00 p.m.—Electrical Equipment for Military Aircraft

43-128. Aircraft Circuit Breakers. C. W. Kuhn, Cutler-Hammer, Inc. 15 cents by mail.

43-129. Principles of Aircraft Electric Motor Protection. V. G. Vaughan, Spencer Thermostat Co. 15 cents by mail.

43-130. Manual Switches for Aircraft. R. A. Millermaster, Cutler-Hammer, Inc. 15 cents by mail.

43-131. Aircraft Contactors. F. J. Russell and A. P. Charbonneau, Cutler-Hammer, Inc. 15 cents by mail.

43-132. Radio Noise Filters Applied to Aircraft. C. W. Frick and S. W. Zimmerman, General Elec. Co. 20 cents by mail.

2:00 p.m.—Conference on Mercury-Arc Rectifiers

The subject matter has been arranged for discussion as follows, and the primary interest will be centered on operating experience.

- Industrial Applications of Rectifiers at 250 volts
- Large Rectifier Stations
- Rectifier Cooling Systems
- Rectifier Harmonics

†CP.: Conference presentation; no advance copies available; not intended for publication in TRANSACTIONS.

**CP.: Conference presentation; copies available on request from M. J. Steinberg, Consolidated Edison Company of New York, Inc., 4 Irving Place, New York, N. Y.

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

The Program

To aid the war effort the program has been enlarged to 26 technical sessions and conferences, as compared with a maximum of 20 sessions and conferences for the previous year. In accordance with the AIEE wartime policies, as adopted by the Board of Directors, all programmed social activities have been omitted. However, there will be opportunity for informal get-togethers and members desiring to participate should inquire at the registration desk.

The Conference of Officers, Delegates, and Members will be held on Monday morning and continued in the afternoon, with two clinics on Section operation and management, one for the larger Sections of 300 or more members, the other for the smaller Sections of 200 or less members. The Annual Meeting will take place on Tuesday morning.

Inspection Trips

Because of wartime restrictions in the matter of transportation and plant protection, only two inspection trips are scheduled. These are directly associated with two of the technical conferences. It is necessary that firm commitments for transportation and plant protection identification must be made in advance and the Committee on Transportation and Trips requests that advance registrations for these trips should be made by writing Mr. J. J. Tessar, in care of



Republic P-47 Thunderbolt Produced for U. S. Army Air Forces, Equipped with 2000 hp. Pratt & Whitney Engine, Turbo-Supercharger and Many Electrical Devices

Cleveland Electric Illuminating Company, Cleveland, Ohio; Chairman, Trips and Transportation Committee. These inspection trips will be limited to United States citizens and those participating are reminded to have their birth certificates or other proof of citizenship with them. The Ohio Crankshaft Company will be visited and details relative to induction heating processes will be shown. Another trip will be to Nela Park, the Lighting Laboratory of General Electric Company.

Advance Registration

Please fill in and mail the Advance Registration Card promptly, if you will attend the meeting. This will permit the Registration Committee to have badges ready and prevent congestion at the registration desk. In accordance with regular practice a registration fee of \$2 will be charged all nonmembers, excepting Enrolled Students, and the immediate families of members.

Hotel Reservations

Hotel reservations should be made by writing directly to the hotel preferred. For convenience, a room registration card, with rates, for the Hotel Cleveland, meeting headquarters, is enclosed.

H. H. HENLINE, *National Secretary*

NATIONAL TECHNICAL MEETING COMMITTEE

WM. E. WICKENDEN, Chairman	B. W. DAVID, Secretary-Treasurer
G. R. CANNING, Vice-Chairman	D. RAMADANOFF, Secretary, Cleveland Section

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