

**AIEE WINTER
TECHNICAL MEETING**
January 24-28, 1944



PROGRAM



33 WEST 39TH STREET • NEW YORK, N. Y.
ENGINEERING SOCIETIES BUILDING

**American Institute of
Electrical Engineers**

**Winter Technical
Meeting**

January 24-28, 1944

PROGRAM

GENERAL INFORMATION

Directly related to the war effort are two feature addresses, one by Major General Roger B. Colton, Chief, Engineering and Technical Service, Signal Corps, U. S. Army, on the subject of "Enemy Army Communications Equipment," the other by Captain H. G. Rickover, Head of the Electrical Section, Bureau of Ships, U. S. Navy, on the subject of "Electricity on Shipboard." In connection with the former address a substantial amount of captured German, Italian, and Japanese telephone and radio equipment, as well as some American equipment, will be on display. In addition, there is a trip to the Brooklyn Navy Yard, Thursday noon, and a special meeting on Navy V-12 Programs on Friday morning, which are open only to a specially selected teaching personnel invited by the Navy Department. Two sessions on Thursday also pertain to research and the electrical systems for military aircraft.

Please register promptly on arrival at the meeting. A registration fee of \$2 will be charged all nonmembers, except Enrolled Students and the immediate families of members.

Information on all features of the meeting may be obtained at the registration desk. The Institute rooms and offices on the tenth floor of the Engineering Societies Building are open to members.

Efforts will be made to deliver telegrams and messages promptly. Any mail for members received during the meeting will be held at registration desk until called for; letters undelivered at the close of the meeting will be forwarded to latest mailing address.

Technical Sessions and Discussions are governed by the "Conduct of Technical Sessions" at the discretion of the chairman presiding. The Institute will appreciate your courtesy and cooperation in strictly abiding by the decisions of the chairman in all matters.

In general papers will be presented in abstract, 10 minutes being allowed for each presentation, unless otherwise arranged by the presiding officer.

Preference will be given to those who have explained in advance their intention to discuss papers. Usually 5 minutes are allowed to each discussor. Names and affiliations should be clearly announced from the platform. If discussions are intended for publication in the TRANSACTIONS they should be typewritten, double spaced (original and two carbon copies), and left with the chairman. Otherwise they should be sent to C. S. Rich, A.I.E.E., 33 West 39th Street, New York 18, N. Y., before February 11. Written discussions should be brief, without perfunctory commendations, and confined to individual papers rather than groups of papers.

Patent Exhibition. A catalog of some 45,000 United States patents and patent applications in the mechanical, electrical, and chemical fields, formerly enemy-owned or enemy-controlled, will be on exhibit during the meeting. These patents and patent applications are available for licensing under liberal terms, from Leo T. Crowley, Alien Property Custodian of the United States Government.

Postwar planning bulletins and related literature are available in the lobby through the courtesy of John F. Sinnott, Regional Manager, U. S. Department of Commerce, 500 Fifth Avenue, New York 18, N. Y.

Theatre Tickets. As an accommodation to our out-of-town members attending the meeting, a limited number of theatre tickets to popular shows are available for purchase. Tickets are for Wednesday evening, January 26. Tickets at \$4.40 each for the following shows have been reserved:

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|-------------------------|-----------------------|
| 1. "One Touch of Venus" | 3. "Ziegfeld Follies" |
| 2. "Winged Victory" | 4. "Carmen Jones" |

Winter Technical Meeting

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Monday, January 24

9:00 a.m.—Registration

9:30 a.m.—Transmission and Distribution

(Auditorium)

H. E. WULFING, Presiding

- 44-53. Current Rating of Cables As Affected by Mutual Heating in Air or Conduit. IPCEA Committee on Research. 25 cents (by mail 30 cents).
- 44-54. Calculation of Unbalanced Voltage Drops in Distribution Circuits with Particular Reference to Multi-grounded Neutrals. W. R. Bullard, H. L. Lowe, and H. W. Wahlquist, Ebasco Services, Inc. 10 cents (by mail 15 cents).
- 44-10. Transformer Magnetizing Inrush Currents and Influence on System Operation. L. F. Blume, G. Camilli, S. B. Farnham, H. A. Peterson, General Elec. Co. 25 cents (by mail 30 cents).
- 44-62. Costs Study of 69 to 345-Kv Overhead Power-Transmission Systems. John G. Holm, Boston Port of Embarkation. 25 cents (by mail 30 cents).

9:30 a.m.—Electrical Measuring Instruments

(Room 501—B and C)

C. L. DAWES, Presiding

- 44-21. A Multiplied-Deflection A-C Potentiometer. R. B. Marshall, Purdue Univ. 10 cents (by mail 15 cents).
- 44-4. An Instrument for the Measurement of Large Alternating Currents. Walther Richter, Allis-Chalmers Mfg. Co. 10 cents (by mail 15 cents).
- 44-33. Crossed-Coil Power-Factor Meters. N. P. Millar, General Elec. Co. 20 cents (by mail 25 cents).
- 44-31. Influence of Improved Magnetic Alloys on Design Trends of Electrical Instruments. M. S. Wilson, J. M. Whittenton, General Elec. Co. 10 cents (by mail 15 cents).

Advance Copies of Technical Papers may be purchased at the registration desk or at Institute headquarters at prices indicated. Only numbered papers are available. 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** and the **TRANSACTIONS**.

Winter Technical Meeting

2:00 p.m.—Power Generation, Transmission, and Distribution

(Auditorium)

A. C. MONTIETH and H. E. WULFING, Presiding

- 44-15. Regulation of A-C Generators with Suddenly Applied Loads. E. L. Harder, R. C. Cheek, Westinghouse Elec. & Mfg. Co. 25 cents (by mail 30 cents).
- 44-12. Steady-State Stability of Synchronous Machines As Affected by Voltage Regulator Characteristics. C. Concordia, General Elec. Co. 20 cents (by mail 25 cents).
- 44-17. Lightning Protection for Rotating Machines. G. D. McCann, E. Beck, L. A. Finzi, Westinghouse Elec. & Mfg. Co. 25 cents (by mail 30 cents).
- 44-23. The Effect of Kilovar Supply on the Design of Systems for Load Growth. T. W. Schroeder, J. W. Butler, N. H. Meyers, General Elec. Co. 10 cents (by mail 15 cents).

2:00 p.m.—Applications of Electrical Measurements and Basic Sciences

(Room 501—B and C)

R. W. AGER and T. S. GRAY, Presiding

- 44-55. The Accuracy of Measurements in Lumped R-C Cable Circuits As Used in the Study of Transient Heat Flow. Victor Paschkis, Michael P. Heisler, Columbia Univ. 15 cents (by mail 20 cents).
- 44-9. Polarized Light Servo-System. T. M. Berry, General Elec. Co. 10 cents (by mail 15 cents).
- 44-16. A New Differential Analyzer. H. P. Kuehni, H. A. Peterson, General Elec. Co. 20 cents (by mail 25 cents).
- 44-24. Symmetrical-Components Analysis of the Four-Phase System. A. Boyajian, General Elec. Co. 10 cents (by mail 15 cents).
- 44-45. Some Aspects of Inductance When Iron Is Present. L. T. Rader, E. C. Litscher, General Elec. Co. 25 cents (by mail 30 cents).

Tuesday, January 25

9:30 a.m.—Transmission and Protective Devices (Auditorium)

J. B. MacNEILL and R. J. WISEMAN, Presiding

- 44-13. Transmission and Relaying Problems on the Fort Peck Project. Erik Floor, Harza Engg. Co.; H. N. Muller, S. L. Goldsborough, Westinghouse Elec. & Mfg. Co. 15 cents (by mail 20 cents).
- 44-52. Fusing Practices on Distribution Systems. John S. Parsons, J. M. Wallace, Westinghouse Elec. & Mfg. Co. 10 cents (by mail 15 cents).
- 44-30. Reclosing of Single Tie Lines between Systems. W. W. Parker, H. A. Travers, Westinghouse Elec. & Mfg. Co. 10 cents (by mail 15 cents).
- 44-50. An Eight-Year Investigation of Lightning Currents and Preventive Lightning Protection on a Transmission System. E. Hansson, S. K. Waldorf, Penna. Water & Pr. Co. 20 cents (by mail 25 cents).

9:30 a.m.—Conference on Turbogenerator Characteristics

(Room 501-B)

M. S. OLDACRE, Presiding

This conference is sponsored by the Committee on Power Generation and the Standards Committee to develop information that is required in the standardization of turbogenerator characteristics. The work is being carried on by the AIEE-ASME Joint Committee on Turbogenerators. The committee is concerned with units of 10,000-kw capacity and above but at present is confining its work to 3600-rpm units for which the ASME group has recommended 12,500, 20,000, 30,000, 40,000, and 60,000-kw ratings. The conference will include results of a survey of present-day practice in loading and the power-factor rating of generators. The effect of changing of generator characteristics, such as power-factor rating, short-circuit ratio, temperature rise, etc., on the weight of active material required in the generators will be discussed. While a part of the material will be presented by the AIEE group of the Turbogenerator Committee, a major portion of the conference time will be available for general discussion, and it is hoped that as many members will participate as possible.

9:30 a.m.—Conference on Measurement of Temperature Rise in Continuous-Duty Machines

(Room 501-A)

C. E. KILBOURNE, Presiding

The 1943 edition of A.S.A. Standard C-50 recognizes the resistance method of temperature determination of d-c machines only to the extent of establishing standards for shunt field windings. Mr. P. L. Alger, Chairman of AIEE Coordinating Committee No. 4, has issued a "Memorandum on Addendum to A.S.A. Standard C-50, American Standard Rotating Electrical Machinery, Approved March 29, 1943," in which he proposes standards of permissible temperature

Winter Technical Meeting

TUESDAY—Continued

rise by resistance for all windings of d-c machines, including revisions of present standards for shunt field windings.

The purpose of the conference session is to develop factual information through the presentation of several conference papers, which may form the basis of reaching conclusions concerning the adoption and revision of standards of permissible rise by resistance of the windings of continuous duty machines, primarily d-c.

2:00 p.m.—Circuit Breakers

(Auditorium)

J. B. MacNEILL, Presiding

- 44-44. The Geometry of Arc Interruption—II—Current Zero Phenomena. E. W. Boehne, General Elec. Co. 25 cents (by mail 30 cents).
- 44-56. A 500,000-Kva 7.5-Kv Air Circuit Breaker for Steel Mill Service. R. C. Dickinson, Westinghouse Elec. & Mfg. Co. 10 cents (by mail 15 cents).
- 44-37. High-Voltage Oil Circuit Breakers for Rapid Reclosing Duty. A. W. Hill, W. M. Leeds, Westinghouse Elec. & Mfg. Co. 15 cents (by mail 20 cents).
- 44-47. A Magnetic-Type Air Circuit Breaker for 15,000-Volt Services. L. J. Linde, B. W. Wyman, General Elec. Co. 10 cents (by mail 15 cents).
- 44-48. A New Three-Element Current-Limiting Power Fuse. H. L. Rawlins, H. H. Fahnoe, Westinghouse Elec. & Mfg. Co. 10 cents (by mail 15 cents).

2:00 p.m.—Land Transportation

(Room 501-B)

A. G. OEHLER, Presiding

- 44-20. Electrification of Large Open-Pit Copper Mines. L. W. Birch, Ohio Brass Co. 10 cents (by mail 15 cents).
- 44-28. Modern Electric Locomotives in Open-Pit Mine Haulage. J. E. Borland, L. G. Riley, Westinghouse Elec. & Mfg. Co. 10 cents (by mail 15 cents).
"Open-Pit Copper Mining"—a motion picture, by courtesy of the General Elec. Co.
- 44-25. Diesel Features of Generators for Diesel-Electric Switcher Locomotives. C. A. Atwell, Westinghouse Elec. & Mfg. Co. 10 cents (by mail 15 cents).
- 44-27. Diesel-Electric Switching Locomotive Application by Means of Nomographic Charts. A. P. Millan, T. F. Perkinson, General Elec. Co. 10 cents (by mail 15 cents).
- 44-26. Gear Ratio and Its Effect on Traction Motors. G. M. Woods, Westinghouse Elec. & Mfg. Co. 10 cents (by mail 15 cents).
- CP.* Rail Transportation's Role in War Production. A. H. Candee, Westinghouse Elec. & Mfg. Co.

over

TUESDAY—Continued

2:00 p.m.—Conference on Permissible Temperature Rise of Short-Time Rated Machines

(Room 501-A)

J. F. CALVERT, Presiding

Mr. P. L. Alger, Chairman of AIEE Co-ordinating Committee No. 4, has issued a "Memorandum on Addendum to A.S.A. Standard C-50, American Standard Rotating Electrical Machinery, Approved March 29, 1943," in which he proposes revision of present standards and addition of new standards for permissible temperature rise by resistance on intermittent rated machines, both a-c and d-c, and including fractional and integral horsepower sizes.

The purpose of the conference session is to develop information through the presentation of several conference papers which may form the basis, at a later date, of reaching conclusions concerning standards for permissible temperature rise by resistance of intermittent rated machines.

2:00 p.m.—Conference on Speed Relaying

(Room 501-C)

E. L. HARDER, Presiding

- CP.* Effect of Relaying Time on Damage to Equipment and Lines. H. R. Paxson, Philadelphia Elec. Co.
- CP.* Effect of Speed of Relaying on System Stability. R. C. R. Schulze, Public Serv. Elec. & Gas Co.
- CP.* Influence of High-Speed Relaying and Reclosing on Overall-System Performance. C. E. Parks, Public Serv. Co. of Ind.

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

6:30 p.m.—Smoker at the Hotel Commodore

(Grand Ballroom)

5:30 p.m.—Cocktail hour

6:30 p.m.—Dinner

8:00 p.m.—Floor Show

9:15 p.m.—Get-together

Tickets 5.00 per person. All seats reserved—tables for ten.

Wednesday, January 26

10:00 a.m.—General Session

(Auditorium)

President N. E. FUNK, Presiding

Edison Medal Presentation to Dr. Vannevar Bush

The History of the Edison Medal

Dr. W. B. Kouwenhoven

Chairman, Edison Medal Committee

Address: Dr. Frank B. Jewett

Presentation of Medal: President Funk

Response: Dr. Vannevar Bush

Address: "The Engineer in America's Business Future." Colonel Willard Chevalier, Publisher, Business Week; Vice-President, McGraw-Hill Publishing Co.

2:00 p.m.—Conference on Lighting

(Auditorium)

W. C. KALB, Presiding

Address: "Progress in Light Sources." Preston S. Millar, President, Elec'l Testing Labs.

Address: "Seeing Things"—illustrated by motion pictures. S. G. Hibben, Director of Applied Lighting, Westinghouse Elec. & Mfg. Co.

2:00 p.m.—Relays

(Room 501-B)

J. B. MacNEILL, Presiding

- 44-46. The MHO-Carrier Relaying Scheme. R. E. Cordray, A. R. vanC. Warrington, General Elec. Co.
20 cents (by mail 25 cents).
- 44-51. The Functions of Ground Preference in Carrier-Current Relay Schemes. S. C. Leyland, S. L. Goldsborough, Westinghouse Elec. & Mfg. Co.
10 cents (by mail 15 cents).
- 44-68. System Voltages and Fault Currents Determined Easily on D-C Board. C. E. Asbury, Illinois Pr. Co.
15 cents (by mail 20 cents).
- 44-34. A Versatile Power-Line Carrier System. H. W. Lensner, J. B. Singel, Westinghouse Elec. & Mfg. Co.
10 cents (by mail 15 cents).

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

(Room 501-C)

E. H. ALEXANDER, Presiding

- CP.* Performance Standards for Industrial Control Devices. L. T. Rader, General Elec. Co.
- CP.* Short-Circuit Protection of A-C Controllers. E. H. Alexander, General Elec. Co.



over

WEDNESDAY—Continued

- CP.* Overload Protective Devices for A-C Motors. G. A. Moffett, General Elec. Co.
- CP.* The Behavior of Rectifier Circuits Supplying Industrial Control. E. E. Moyer, P. T. Chin, General Elec. Co.

2:00 p.m.—Conference on Civic Affairs and Co-operation with Other Organizations

(Room 501-A)

H. W. BIBBER, Presiding

A conference arranged by the Civic Affairs Subcommittee of the Technical Program Committee for a general discussion of existence, effectiveness, and adequacy of the co-operation among engineering societies in connection with the war effort and in other activities. Should other societies be included? Should types of existing co-operation be changed?

2:00 p.m.—Meeting of Safety Committee

(Room 1101)

W. R. SMITH, Chairman

Anyone interested in the following paper or general matters that come before the Safety Committee is welcome to attend this meeting.

- 44-22. Study of Artificial Respiration on Anesthetized Men. W. B. Kouwenhoven, D. R. Hooker, J. A. York, The Johns Hopkins Univ. 10 cents (by mail 15 cents).

Thursday, January 27

9:30 a.m.—Air Transportation

(Auditorium)

Lt.-Col. T. B. HOLLIDAY, Presiding

- 44-32. Present D-C Aircraft Electrical Supply Systems. H. C. Anderson, Jr., S. B. Crary, N. R. Schultz, General Elec. Co. 15 cents (by mail 20 cents).
- 44-38. Electric-Circuit Fault-Protective Principles As Applied to D-C Aircraft Systems. R. H. Kaufmann, General Elec. Co. 25 cents (by mail 30 cents).
- 44-36. Basic Considerations in Selection of Electrical Systems for Large Aircraft. W. K. Boice, L. G. Levoy, Jr., General Elec. Co. 25 cents (by mail 30 cents).
- 44-43. Testing Aircraft Generators. H. E. Keneipp, Westinghouse E. & M. Co. 10 cents (by mail 15 cents).
- 44-7. Electric Circuits and the Magnetic Compass. R. C. Burt, H. R. Beck, Lockheed Aircraft Corp. *Presentation by title.* 10 cents (by mail 15 cents).

9:30 a.m.—Conference on Domestic and Commercial Applications

(Room 503)

W. F. OGDEN, Presiding

- 44-69. The Vibration of Electrical Contacts. M. N. Russell, Saul Keilien, Pass & Seymour, Inc. 10 cents (by mail 15 cents).

Winter Technical Meeting

THURSDAY—Continued

- CP.* Protective Devices. Stephen Jones, Heinemann Circuit Breaker Co.
- CP.* Some Peculiar Features of Nickel Chromium Alloys. W. A. Gatward, Hoskins Mfg. Co.
- CP.* Data on Electric Loads of Wartime Projects. O. B. Falls, Jr., General Elec. Co.
- CP.* Design Procedure for Low-Temperature Panel Space Heating. B. F. Raber, F. W. Hutchinson, University of California.

9:30 a.m.—Conference on Industrial Power Applications

(Room 501-A)

HERBERT SPEIGHT, Presiding

- 44-18. Inverter Action on Reversing of Thyatron-Motor Control. H. L. Palmer, H. H. Leigh, General Elec. Co. 20 cents (by mail 25 cents).
- CP.* Experience with Short Circuits and Breakers, with Emphasis on Co-ordination between Fuses and Breakers. L. C. Peterman, Ford, Bacon, and Davis.
- CP.* Lightning Protection for Industrial Equipment Operating at Line Potential. A. C. Muir, Berwind-White Coal Mining Co.
- CP.* Plant Distribution Systems. C. E. Smith, New York Shipbuilding Corp.
- CP.* Dodge Chicago Plant's Distribution Scheme with Airplane Engine Power Recovery Circuits. E. L. Bailey, Chrysler Corp.
- CP.* Induction Heating Applications. Howard E. Somes, Budd Induction Heating, Inc.
- CP.* Electricity as an Aid in Wartime Industry. J. W. Tracht, Penna. Salt Mfg. Co.

12:15 p.m.—Trip to Brooklyn Navy Yard, under the direction of Captain H. G. Rickover, and *open only to a specially selected and invited teaching personnel* from the colleges in which Navy Specialized Training Programs are conducted. *An oath will be administered, 4:30 p.m., Wed., Jan. 26, in ASCE Board Room, 15th floor.*

2:00 p.m.—Air Transportation

(Auditorium)

Lt.-Col. T. B. HOLLIDAY, Presiding

- 44-57. Effect of Altitude on Electrical Breakdown and Flashover of Aircraft Insulation. L. J. Berberich, G. L. Moses, A. M. Stiles, C. G. Veinott, Westinghouse Elec. & Mfg. Co. 25 cents (by mail 30 cents).
- 44-58. Electrical Circuit Burning Clear and Damage Phenomena on Aircraft Structures. C. M. Foust, J. G. Hutton, General Elec. Co. 15 cents (by mail 20 cents).

over

THURSDAY—Continued

- 44-29. Potential Breakdown of Small Gaps under Simulated High-Altitude Conditions. M. J. DeLerno, General Elec. Co. 10 cents (by mail 15 cents).
- 44-59. Corona in Aircraft Electric Systems As a Function of Altitude. W. R. Wilson, General Elec. Co. 15 cents (by mail 20 cents).
- 44-5. Aircraft Signal Systems. Raymond A. Rugge, Curtiss-Wright Corp. 10 cents (by mail 15 cents).
- 44-70. Electrically Driven Gyroscopes for Aircraft. H. M. Witherow, Albert Hansen, Jr., General Elec. Co. 10 cents (by mail 15 cents).

2:00 p.m.—Communication and Electronics

(Room 503)

H. A. AFFEL and S. B. INGRAM, Presiding

- 44-42. Crossbar Toll Switching System. L. G. Abraham, A. J. Busch, F. F. Shipley, Bell Tel. Labs., Inc. 20 cents (by mail 25 cents).
- 44-49. Automatic Ticketing of Telephone Calls. O. A. Friend, Bell Tel. Labs., Inc. 20 cents (by mail 25 cents).
- 44-14. A Short-Cut Method of Estimating TIF of Power Systems with Rectifier Load. C. W. Frick, General Elec. Co. 15 cents (by mail 20 cents).
- 44-41. Rectifier Circuit Duty. C. C. Herskind, General Elec. Co. 15 cents (by mail 20 cents).
- 44-8. Electronically Controlled Dry-Disc Rectifier. Allen Rosenstein, H. N. Barnett, Signal Engg. Prod. Co. 10 cents (by mail 15 cents).

1:15 p.m.—“Oil for War”

(Auditorium)

A colored motion picture by courtesy of the Barrett Division, Allied Chemical and Dye Corp.

2:00 p.m.—Industrial Power Applications

(Room 501-A)

HERBERT SPEIGHT, Presiding

- 44-60. Heating of Nonmagnetic Electrical Conductors by Magnetic Induction—Longitudinal Flux. R. M. Baker, Westinghouse Elec. & Mfg. Co. 25 cents (by mail 30 cents).
- 44-19. A New Electric Hoist Drive for Cranes. M. A. Whiting, General Elec. Co. 10 cents (by mail 15 cents).
- 44-39. Supervisory Control for the World's Most Modern Steel Mill. P. B. Garrett, M. E. Reagan, Westinghouse Elec. & Mfg. Co. 10 cents (by mail 15 cents).

Winter Technical Meeting

THURSDAY—Continued

- 44-61. Electrical Equipment for the War Emergency Pipeline Projects. E. E. Thomas, W. G. Taylor, General Elec. Co.; Oscar Wolfe, War Emergency Pipelines, Inc. 20 cents (by mail 25 cents).
- 44-40. The Capacitor—An Aid to Electric Power Service for Pipe Lines. M. A. Hyde, R. E. Marbury, Westinghouse Elec. & Mfg. Co. 20 cents (by mail 25 cents).

8:00 p.m.—Joint IRE-AIEE Session

(Auditorium)

H. A. AFFEL, Presiding

Address: "Enemy Army Communications Equipment." Major General Roger B. Colton, Chief, Engineering and Technical Service, Signal Corps, United States Army.

Captured enemy equipment and U. S. Signal Corps action photographs will be on display in Room 501 from Thursday afternoon until Saturday afternoon. Included in the captured equipment are the following:

- Italian Ducati Radio Set
- Japanese Radio Direction Finder
- German Radio Tank Set
- Telephone Switchboards
- Samples of Tubes
- Radio Components and Field Wire

Certain American military instruments will be shown for comparison and include the following:

- Lip and Throat Microphones
- Sound-Powered Telephones
- Under-Helmet Receivers
- Complete Radio Command Set for a Bomber

A separate exhibit of Signal Corps photographs will be on display in the main floor lobby all week.

Friday, January 28

9:15 a.m.—Special Meeting on Navy V-12 Program

(Room 503)

ROBIN BEACH, Presiding

A special talk on "Power Aspects of the Electrical Circuit and Electrical Machinery Courses in the Navy V-12 Program," by Captain H. G. Rickover, Head, Electrical Section, Bureau of Ships, United States Navy. This talk is *open only to specially selected and invited teaching personnel* from the colleges in which the Navy V-12 specialized training programs are conducted. *An oath will be administered, 4:30 p.m., Wed., Jan. 26, in ASCE Board Room, 15th floor.*

over

FRIDAY—Continued

9:30 a.m.—Electrical Machinery

(Auditorium)

C. P. POTTER, Presiding

- 44-35. The Asymmetrical Stator As a Means of Starting Single-Phase Induction Motors. John L. Baum, Chillicothe, Ohio. 20 cents (by mail 25 cents).
- 44-1. Design of Starting Windings for Split-Phase Motors. T. C. Lloyd, Robbins and Myers, Inc.; J. H. Karr, Purdue Univ. 10 cents (by mail 15 cents).
- 44-2. Some Aspects of Electric Motor Design, Part I—Polyphase Induction Motor Design to Meet Fixed Specifications. T. C. Lloyd, Robbins and Myers, Inc. 25 cents (by mail 30 cents).
- 44-63. A Design Method for D-C Machines. M. I. Beers, Robbins and Myers, Inc.; J. H. Karr, Purdue Univ. 15 cents (by mail 20 cents).
- 44-64. Starting Windings for Single-Phase Induction Motors. C. G. Veinott, Westinghouse Elec. & Mfg. Co. 25 cents (by mail 30 cents).

2:00 p.m.—Transformers

(Room 503)

M. S. OLDACRE, Presiding

- 44-6. Asymmetrical Loading of Three-Phase, Three-Winding Transformer Banks. P. K. Denissov, Academy of Science of the U.S.S.R. 10 cents (by mail 15 cents).
- 44-65. Thermal Protection of Transformers under Overload Conditions. V. M. Montsinger, G. Camilli, General Elec. Co. 15 cents (by mail 20 cents).
- 44-66. Overloading of Transformers—Cases Not Covered by the General Rules. W. C. Sealey, J. B. Hodtum, Allis-Chalmers Mfg. Co. 10 cents (by mail 15 cents).
- 44-67. Effect of Altitude on Impulse and 60-Cycle Strength of Electrical Apparatus. P. L. Bellaschi, Paul Evans, Jr., Westinghouse Elec. & Mfg. Co. 15 cents (by mail 20 cents).

2:00 p.m.—Conference on Administrative Problems in Army and Navy Specialized Training Programs

(Auditorium)

ROBIN BEACH, Presiding

- 44-3. Cultural Training of the Engineer. A. Boyajian, General Elec. Co. 10 cents (by mail 15 cents).

8:15 p.m.—Teaching Aids for Navy Specialized Training Programs

(Auditorium)

ROBIN BEACH, Presiding

Address: "Electricity on Shipboard." Captain H. G. Rickover, Head, Electrical Section, Bureau of Ships, United States Navy.

I.R.E. PROGRAM

Hotel Commodore

Friday, January 28

8:30 a.m.—Registration

10:00 a.m.—Opening of Meeting

B. E. Shackelford, Chairman, 1944 Winter Technical Meeting Committee

Ceremony of "Passing the Gavel" from Retiring President Wheeler to Incoming President Turner

10:10 a.m.—Technical Session

L. P. WHEELER, Presiding

Electronic Tin Fusion. H. C. Humphrey, Westinghouse Elec. & Mfg. Co.

The Amplidyne System of Control. E. F. W. Alexanderson, M. A. Edwards, K. K. Bowman, General Elec. Co.

11:00 a.m.—Annual Meeting of I.R.E.

President H. M. TURNER, Presiding

11:15 a.m.—Technical Session

L. P. WHEELER, Presiding

A New Studio Transmitter Antenna. M. W. Scheldorf, General Elec. Co.

Orthocon Cameras in Television Studio Work. H. R. Lubcke, Don Lee Broadcasting System.

11:15 a.m.—Technical Session

F. S. BARTON, Presiding

The Limitations Imposed by Quantum Theory on Resonator Control of Electrons. L. P. Smith, Cornell University, (RCA Temporary Consultant).

The Piston Attenuator. H. A. Wheeler, Hazeltine Electronic Corp.

Equivalent Circuits for Discontinuities in Transmission Lines. J. R. Whinnery, General Elec. Co.

12:30 p.m.—President's Luncheon

2:00 p.m.—Technical Session

HARADEN PRATT, Presiding

The Modification of Noise by Certain Non-Linear Devices. D. O. North, RCA.

Some Experiments Relating to the Statistical Theory of Noise. C. M. Burrill, RCA.

over

FRIDAY—Continued

2:00 p.m.—Technical Session

R. A. HACKBUSH, Presiding

Transmission Line Analogies of Plane Electromagnetic Waves. A. B. Bronwell, Northwestern Univ.

Equivalent Circuit of the Field Equations of Maxwell. J. F. McAllister, Jr., Gabriel Kron, General Elec. Co.

A New Approach to the Solution of High-Frequency Field Problems. J. F. McAllister, Jr., J. R. Whinnery, Simon Ramo, General Elec. Co.

A-C Network Analyzer Studies of Electromagnetic Cavity Resonators. J. F. McAllister, Jr., J. R. Whinnery, C. Concordia, W. Ridgway, Gabriel Kron, General Elec. Co.

3:00 p.m.—Symposium on Work of the Radio Technical Planning Board

HARADEN PRATT, Presiding

Speakers:

W. R. G. Baker, Chm., Radio Technical Planning Board.

Spectrum Utilization. A. N. Goldsmith, Chm., Panel 1.

Frequency Allocation. C. B. Jolliffe, Chm., Panel 2.

High-Frequency Generation. R. M. Wise, Chm., Panel 3.

Standard Broadcasting. H. S. Frazier, Chm., Panel 4.

VHF Broadcasting. C. M. Jansky, Vice-Chm., Panel 5.

Television. D. B. Smith, Chm., Panel 6.

Facsimile. J. V. L. Hogan, Chm., Panel 7.

Radio Communication. Haraden Pratt, Chm., Panel 8.

Relay Systems. E. W. Engstrom, Chm., Panel 9.

Radio Range, Direction, and Recognition. W. P. Hilliard, Chm., Panel 10.

Aeronautical Radio. D. W. Rentzel, Chm., Panel 11.

Industrial, Scientific and Medical Equipment. C. V. Aggers, Chm., Panel 12.

Portable, Mobile and Emergency Service Communications. D. E. Noble, Chm., Panel 13.

1944 Winter Technical Meeting

7:00 p.m.—Banquet (informal)

George Lewis, Master of Ceremonies

Presentation of Awards by President Turner

1943 Medal of Honor—to Haraden Pratt

1943 Morris Liebmann Memorial Prize—to W. L. Barrow

1943 Fellowship Awards—to S. L. Bailey, C. R. Burrows, M. G. Crosby, Harry Diamond, C. B. Feldman, Keith Henney, D. O. North, K. A. Norton, S. W. Seeley, D. B. Sinclair, Leo Young

Annual Address of Retiring President L. P. Wheeler

Address: "Operations and Communications in Various Battle Zones," Commander, J. J. Raby, U.S.N.

Saturday, January 29

9:45 a.m.—Technical Session

H. M. TURNER, Presiding

Design Technique *versus* Service Requirements.
I. W. Stanton, RCA.

A. Stringer, National Association of Broadcasting.
Speaker and subject to be announced.

10:30 am.—Symposium on Engineering Work of the Federal Communications Commis- sion

H. M. TURNER, Presiding

Engineering Work of the FCC. E. K. Jett, Ch. Engr.,
FCC

Timely Broadcast Matters. G. P. Adair, Ass't Ch.
Engr., FCC

Police Aviation and Maritime Services. W. N. Krebs,
Cf. of Safety and Special Serv. Div., FCC

International Point-to-Point and Allocation Problems.
P. F. Siling, Ch. of Internatl. Div., FCC Engg. Dept.

12:30 p.m.—Students' Luncheon

2:30 p.m.—Technical Session

L. ESPENSCHIED, Presiding

Organization of Radio Research, Development and
Production in Great Britain. F. S. Barton, British
Air Commission.

Peace, War, and Future Application of Radio in
China. T. M. Liang, Chinese Supply Mission.

Standardization of Service Equipment. Commander,
A. B. Chamberlain, U. S. Navy.

Adjournment—4:30 p.m.

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Winter Technical Meeting

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Theatre Tickets

W. S. Hill, Chairman

W. A. Clark

H. H. Heins

COMMITTEE MEETINGS

Monday, January 24

| | Room |
|--|-----------------------------------|
| 10:00 a.m.—Lightning Arresters Subcommittee | 1001 |
| 10:00 a.m.—Insulation Resistance Subcommittee | 1101 |
| 2:00 p.m.—Sections | 1001 |
| 2:00 p.m.—Joint Subcommittee on Power System Applications of Carrier Current | 903 |
| 4:00 p.m.—Protective Devices Subcommittee Chairmen | ASCE President's Room, 15th Floor |

Tuesday, January 25

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|---|---|
| 10:00 a.m.—National Nominating | 1001 |
| 10:00 a.m.—Land Transportation | ASCE Board Room, 15th Floor |
| Noon —Power Generation | Engineers' Club |
| 12:30 p.m.—Electrical Machinery | Columbia University Club, 4 West 43rd Street |
| 2:00 p.m.—Lamme Medal | 1001 |
| 2:00 p.m.—Visiting Committee, Dept. of Elec. Engg., Massachusetts Institute of Technology | Alcove, 10th Floor |
| 2:00 p.m.—Membership | 903 |
| 2:00 p.m.—Lightning and Insulator Working Group | ASCE President's Room, 15th Floor |
| 2:00 p.m.—Subcommittee on Electrical Hazards to Farm Animals | ASCE Board Room, 15th Floor |

Wednesday, January 26

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|---|--------------------------------------|
| 8:30 a.m.—Standards Coordinating Committee No. 4 | 1001 |
| Noon —Subcommittee on Industrial Control | |
| 2:00 p.m.—Communication | 1001 |
| 2:00 p.m.—Safety | 1101 |
| 2:00 p.m.—Subcommittee on Industrial Distribution Systems Guide | 903 |
| 2:00 p.m.—E.C.P.D. Executive Committee | ASCE President's Room, 15th Floor |
| 7:30 p.m.—Standards | 1001 |

Thursday, January 27

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|---|-----------------------------------|
| 9:30 a.m.—Automatic Stations | 1101 |
| 10:00 a.m.—Electronics | ASCE President's Room, 15th Floor |
| 10:00 a.m.—Subcommittee on Voltage Transients in Arc Furnace Circuits | 903 |
| 1:00 p.m.—Domestic and Commercial Applications | Engineers' Club |
| 2:00 p.m.—Board of Directors | 1001 |
| 2:00 p.m.—Electrochemistry and Electrometallurgy | 1101 |
| 2:15 p.m.—Engineering Foundation-AIEE Research Project on Insulating Oils and Cable Saturants | 903 |

Friday, January 28

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|-----------------------------------|-----------------------------|
| 9:30 a.m.—Electric Welding | 1001 |
| 9:30 a.m.—Student Branches | ASCE Board Room, 15th Floor |
| 10:00 a.m.—Working Group on Fuses | 903 |
| 5:00 p.m.—Education | 1001 |