



Winter General Meeting

January 21-25, 1952

Headquarters

Hotel Statler

7th Avenue and 33rd Street, New York, N. Y.

MEETING FEATURES

The AIEE Winter General Meeting to be held at the Hotel Statler in New York, N. Y., January 21-25, will feature a well diversified program of technical and social activities. The technical program is one of the largest in the history of the Institute with all available meeting rooms in constant use. A group of inspection trips has also been arranged closely allied with the technical sessions and conferences.

Charles E. Wilson, Director, Office of Defense Mobilization, will deliver the keynote address at the general session to be held at 2:00 p.m., Monday, January 21, 1952. Mr. Wilson, a dynamic speaker and organizer, will talk on a subject most timely in this fast-moving period of national and world events. At this session also the Edison Medal will be presented to C. F. Wagner and the Institute Prize Paper awards will be made. President F. O. MacMilan will open the general session with an address to the members assembled.

On the social side, there will be a dinner-dance, a smoker, theater tickets for out-of-town members, and special entertainment for the ladies.

In connection with the presentation of his paper "Mapping Techniques Applied to Fluid Mapper Patterns," Professor A. D. Moore of the University of Michigan will give a lecture-demonstration of a fluid mapper. In a fluid mapper the fluid flows in streamline fashion. The flow pattern is made visual by dye lines formed by potassium permanganate crystals. These flow patterns simulate electrostatic, magnetic, heat flow, and other fields and can lead to their solution. A dental stone slab for a mapper will be cast, finished and operated in a fluid mapper. A tilted mirror enables the audience to follow every step. Color slides of many fluid mapper patterns will be shown.

INSPECTION TRIPS: A program of inspection trips of technical and general interest has been arranged for those attending the Winter General Meeting. A schedule and brief description are given below. Since the number who may be accommodated in most of these trips is limited, members are urged to make arrangements for trips immediately upon registering at meeting Headquarters. Advance registration by mail for inspection trips cannot be accepted. It will be necessary to comply with such security regulations as are in force at the time of each trip.

Radio City Music Hall, New York, N. Y.—Tuesday Morning, January 22, 1952—This is a repeat performance by popular request. Famous for entertainment quality and notable for achieving the spectacular, Radio City Music Hall is foremost in applying engineering development to the entertainment field. Revolving and sectionalized stages, elevating orchestra pits, motorized curtains, fantastic lighting and a multitude of mechanical and electrical controls are shown and described on this trip. The magnitude of these operations is indicated by the connected load of 5,500 horsepower in motors and 3,500 kilowatts of lighting.

Steinway and Sons, New York, N. Y.—Tuesday Afternoon, January 22, 1952—A famous institution in the world of music will permit a limited number of AIEE members to visit the home of the Steinway piano and see skilled craftsmen assembling and finishing instruments which are world renown. This unusual trip will be found most interesting by those appreciating the work of a master artisan.

International Business Machine Company, New York, N. Y.—Tuesday Afternoon, January 22, 1952—The International Business Machine Company, a pioneer in the manufacture of labor-saving devices will demonstrate and explain the operation of their Selective Sequence Electronic Calculator. This Calculator has recently received considerable publicity in technical journals. It combines the speed of the electric circuit with the memory capacity of 400,000 digits for obtaining the answer to many complex problems of science and industry. In addition, numerous other electronic devices will be exhibited and the operation explained by technical personnel.

Westinghouse Electric Corporation, Hillsdale, N. J.—Wednesday Morning, January 23, 1952—In order to provide prompt and efficient service for its customers in this area, the Westinghouse Electric Corporation recently completed a modern plant at Hillsdale, N. J., for the manufacture and assembly of switchboards and many items of switchgear. Facilities for the maintenance and repair of practically all the power equipment of Westinghouse are found at this plant in addition to the many manufacturing processes in progress there.

U. S. Signal Corps Photographic Center, New York, N. Y.—Wednesday Morning, January 23, 1952—During World War II, expansion of the photographic function of the Signal Corps necessitated a larger plant and new facilities to quickly carry out its program. To this end it acquired the Famous Players-Lasky Studio in New York. This studio is now used for training personnel and for the practical application of photography to Signal Corps activities. The present staff is composed of approximately 300 officers and enlisted men, and 1,000 civilian employees. Here scripts are written, casting performed, stages set and film exposed, developed, edited and synchronized with sound.

Harbor Radar Installation of the Port of New York Authority, Fort Wadsworth, Staten Island, N. Y.—Wednesday Morning, January 23, 1952—A limited number of AIEE members will be permitted to view the equipment and attend a demonstration of the operation of the Radar installation installed for the identification and control of ship traffic in New York Harbor.

New York Curb Exchange, New York, N. Y.—Wednesday Afternoon, January 23, 1952—This nationally known financial institution will present AIEE visitors with an opportunity to see the Exchange in operation and to hear an explanation of its functions. The intricate communications system, the elaborate lighting, the air conditioning system and other features of the Exchange will also be seen on this trip.

Bell Telephone Laboratories, Murray Hill, N. J.—Wednesday Afternoon, January 23, 1952—Research in all fields of basic science is conducted at the Bell Telephone Laboratories. The program proposed for this trip is a visit to the Microwave Laboratories, the Digital Computer, the Piezoelectric Crystal Growing Laboratory, the Metallurgical Laboratories, the Free Space Room, the New Telephone Instrument Laboratories, and demonstrations of Acoustic and Microwave lens, and of the Carrier Telephone System.

Sewaren Generating Station, Sewaren, N. J.—Wednesday Afternoon, January 23, 1952—Sewaren Generating Station of Public Service Electric and Gas Company, first placed in service in November, 1948, now contains four turbine generators and four semi-outdoor boilers having an aggregate capacity of 455,000 Kw. The fourth unit, placed in operation last summer, is a 125,000 Kw reheat unit operating on 1500 psi 1050 F initial steam conditions and 1000 F reheat temperature. The station is arranged to burn bituminous coal, fuel oil, and natural gas. The outdoor substation facilities include 132-Kv and 26-Kv transformers. Station auxiliaries are supplied from the auxiliary generator of each unit, with station power transformers available for emergency back-up and starting.

International Business Machine Company, New York, N. Y.—Thursday Morning, January 24, 1952—This repeat trip is arranged to accommodate members unable to attend the Tuesday demonstration.

New Port of New York Authority Bus Terminal, New York, N. Y.—Thursday Morning, January 24, 1952—The most recent addition to the transportation facilities of New York City is the world's largest and most heavily used bus terminal designed for handling both commuter and long distance travel. The inspection

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of the terminal will include the ventilating system, escalators, lighting, power distribution, and other points of interest in this unique building.

Metropolitan Museum of Art, New York, N. Y.—Thursday Afternoon, January 24, 1952—Although this trip was arranged primarily for members to inspect features of the Special Lighting Research conducted by the Metropolitan Museum of Art, visitors may take this opportunity to view and admire the many notable works of art on exhibit there.

The Okonite Company, Passaic, N. J.—Thursday Afternoon, January 24, 1952—On this trip to the largest of the three Okonite factories, members will have an opportunity to see modern methods of manufacturing insulated electric cable of all types and designs. This factory is especially interesting in that cables for specific conditions and of individual designs are fabricated here. All production steps from drawing of the wire to the final sheathing of the cable will be demonstrated.

Dow Corning Corporation Exposition—Governor Clinton Hotel, New York, N. Y.—Daily 10:00 a.m. to 8:00 p.m.—January 21 through January 25, 1952—This is a special display of hundreds of component parts and assemblies, and over 20 working models designed to indicate the properties that distinguish silicones from other materials. The ability to withstand extreme temperatures, moisture, voltages, and other operating conditions is demonstrated by this extraordinary new material in the many exhibits to be seen at the exposition.

THEATER TICKETS: It is expected that tickets for the following shows will be available to out-of-town AIEE members during the week of the meeting. Prices listed are for orchestra seats Monday, January 21, through Thursday, January 24, evenings:

Affairs of State	\$4.80
Call Me Madam	7.20
Guys and Dolls	6.60
South Pacific	6.00
The King and I	*8.40
Two on the Aisle	6.00

*These tickets are not available to use from the box office and must be obtained through brokers. The price shown includes broker's fee. It may become necessary to classify additional shows in this category.

Requests should include checks payable to "American Institute of Electrical Engineers," first and second choice of both name and date of show, and should be sent to Theater Ticket Committee, AIEE Headquarters, 33 West 39th Street, New York 18, N. Y. Preference will be given to requests for seats in blocks of pairs and the committee reserves the right to reduce requests to sell-out shows to two tickets and will refund all money which may be received for unsatisfied requests.

HOTEL RESERVATIONS: Blocks of rooms have been set aside at the Hotel Statler (meeting headquarters) and nearby hotels for members and guests attending. To be sure of hotel accommodations, reservations should be made prior to January 10, and sent directly to the hotel of choice, and to only one hotel. Mention AIEE in your request and send a copy to Mr. W. G. Vieth, Vice-Chairman, Hotel Accommodations Committee, c/o Western Union Telegraph Company, 60 Hudson Street, New York 13, N. Y. A second and third choice should be noted on this copy. If the accommodations are not available at the hotel requested, the Hotel Accommodations Committee will transfer the request to one of the other hotels.

Hotel Rooms have been reserved at the following hotels, and all rates are subject to a 5 per cent New York City hotel room tax. Hotel Statler (meeting headquarters), 7th Avenue, 32nd to 33rd Sts.

Single room with bath	\$ 5.00 to \$ 8.50
Double room, double bed	8.00 to 10.50
Double room, twin beds	9.00 to 15.00
Parlor suites	22.00 to 24.00

Hotel Governor Clinton, 7th Avenue at 31st Street

Single room with bath	\$ 5.00 to \$ 7.00
Double room, double bed	8.00 to 9.50
Double room, twin beds	9.00 to 11.00

Hotel McAlpin, Broadway and 34th Street

Single room with bath	\$ 5.00 to \$ 9.00
Double room, double bed	8.00 to 12.00
Double room, twin beds	9.00 to 13.00

Hotel New Yorker, 34th Street and 8th Avenue

Single room, tub and shower	\$ 5.00 to \$ 8.00
Double room, double bed	8.00 to 13.00
Double room, twin beds	9.50 to 14.00

Hotel Martinique, Broadway and 32nd Street

Single room with bath	\$ 4.00 to \$ 6.00
Double room, double bed	6.50 to 10.00
Double room, twin beds	7.50 to 10.00

Hotel Commodore, 42nd Street at Lexington Avenue

Single room with bath	\$ 5.50 to \$10.00
Double room, double bed	9.00 to 11.00
Double room, twin beds	10.00 to 13.00

Hotel Roosevelt, Madison Avenue at 45th Street

Single room with bath	\$ 6.50 to \$10.00
Double room, double bed	12.50 to 16.00
Double room, twin beds	13.50 to 17.00

DINNER-DANCE: The dinner-dance promises to be the usual outstanding social event for the convention delegates and their ladies. It will be held Thursday, January 24, in the main ballroom of the Hotel Statler. Formal dress is requested. Music and general arrangements will be the same as those which proved so enjoyable last year. Begin to plan for your table of ten for this popular event of the Winter General Meeting social activities. Reservations at \$12.00 per plate will be accepted by the Dinner-Dance Committee, AIEE Headquarters, 33 West 39th Street, New York 18, N. Y. Checks should be made payable to "Special Account, Secretary, AIEE." The committee is under the chairmanship of J. G. Derse.

SMOKER: The Smoker Committee, under the chairmanship of D. M. Quick, announces that the Smoker will be held at the Hotel Commodore on Tuesday evening, January 22. Reservations should be sent to the Smoker Committee, AIEE Headquarters, 33 West 39th Street, New York 18, N. Y., at an early date. Tables for ten persons will be available and the price of tickets will be \$9.00 per person. Checks should be made payable to "Special Account, Secretary, AIEE." Reservations received after January 8 will not be honored.

ETA KAPPA NU AWARD DINNER: One of the highlights of the Winter General Meeting will be the Annual Recognition Dinner of the Eta Kappa Nu Association, electrical engineering honor society, to be held Monday evening, January 21, 1952. At this dinner, the Eta Kappa Nu Plaque designating the Most Outstanding Young Electrical Engineer for 1951 will be awarded and men receiving honorable mention cited. The Recognition was created to emphasize among electrical engineers that their service to mankind is manifested not only by achievements in purely technical pursuits, but also by contributions to his profession, community and church and by cultural attainments. This year's winners were selected by a Jury of Award consisting of Mr. S. H. Mortensen, Chief Electrical Engineer, Allis Chalmers Manufacturing Company, Dr. J. O. Perrine, former editor of the Bell System Technical Journal, Mr. Frank E. Sanford, Assistant Chief Engineer, Commonwealth Services, Inc., Mr. Philip Sporn, President, American Gas and Electric Service Corp., Dean Eric A. Walker, School of Engineering, the Pennsylvania State College, and Dean Ovid W. Eshbach, the Technological Institute, Northwestern University, President of Eta Kappa Nu. Information concerning place and time of the dinner or any additional details can be obtained by contacting Mr. Elies Elvove, Chairman, EKN Award Organization Committee, c/o McConaughy and Elvove, 22 East 17th Street, New York, N. Y.

LADIES' ENTERTAINMENT: The Ladies' Entertainment Committee, under the chairmanship of Mrs. R. F. Brower, has arranged an interesting program for the week of January 21. A Get Acquainted Tea will be held on Monday afternoon, January 21, in the Ladies Headquarters at the Hotel Statler. Arrangements can be made to visit the Hayden Planetarium in the evening. On Tuesday evening there will be cocktails, dinner and entertainment at the Hotel Statler. Tickets will be \$5.00 per person and reservations should be made as early as possible with the Ladies Committee. The deadline for reservations is Tuesday morning, January 22. On Wednesday there will be a conducted tour of the city, and on Thursday afternoon there will be a luncheon and fashion show at Sherry's and there will be door prizes. Broadcast and theater tickets will be available during the week.

WINTER GENERAL MEETING COMMITTEE: The members of the 1952 Winter General Meeting Committee are: G. J. Lowell, Chairman; C. T. Hatcher, Vice-Chairman; J. J. Anderson, Secretary; W. J. Barrett, Budget Co-ordinator; C. S. Purnell, Vice-President, District 3, AIEE; M. M. Brandon, Technical Program; J. P. Neubauer, D. W. Taylor, J. D. Tebo, D. T. Braymer, General Session; R. T. Weil, Monitors; G. T. Minasian, J. B. Harris, Jr., Publicity; C. N. Metcalf, Hotel Accommodations; E. R. Thomas, Registration; D. M. Quick, Smoker; Mrs. R. F. Brower, Ladies' Entertainment; J. G. Derse, Dinner-Dance; F. P. Jossion, Inspection Trips; J. G. Aldworth; Theater-Radio.

TECHNICAL PROGRAM

ADVANCE COPIES OF PAPERS

Members may obtain preprints of numbered papers at the uniform price of 30c each (60c each to nonmembers), by sending enclosed order form and remittance to the AIEE Order Department, 33 West 39th Street, New York 18, N. Y. Mail orders (particularly from out-of-town members) are advisable, inasmuch as an adequate supply of each paper at the meeting cannot be assured. Coupon books in \$9 denominations are available for those who wish to avoid remittance by check or otherwise. Most of the papers ultimately will be published as AIEE Proceedings and in the Transactions. Conference Papers denoted by CP.** are intended for presentation only, and are not available.

Monday, January 21

9:30 a.m.—Carrier Current

- 52-96. Proposed Definitions Relating to Power Line Carrier. Carrier Current Project Committee. Presentation by title only for discussion.
- 52-97. A Power Line Carrier System for Maximum Channel Utilization. J. A. Doremus, Motorola Inc.
- 52-98. Carrier-Frequency Characteristics of Power Transformers. T. R. Specht, R. C. Check, Westinghouse Electric Corp.
- 52-99. Input Filter Design for Frequency Modulated Power Line Carrier Receivers. R. L. Fillmore, University of Minnesota.

9:30 a.m.—Conference on Protective Devices

- 51-285. Lightning Arrester Application Guide—Preliminary Working ACO.* Group Report. Project Committee on Application Guide of Methods for Lightning Protection of Substations.
- NOTE: Advance pamphlet copies of this paper are not available for sale as the previous supply has been exhausted.

9:30 a.m.—Substations

- 52-21. Basic Structural Design for Transmission Substations Including Light Metals. Substation Committee Project No. 8.
- CP.** Outdoor Substation Standardization Saves Critical Engineering Time. A. H. Powell and C. B. Hinton
- CP.** Substation Grounding Practices. Committee on Substations Working Group.
- 52-22. Automatic Phase Angle and Voltage Control of Unattended Marcus Hook Substation. W. A. Derr, Westinghouse Electric Corp.; F. H. Travers, Philadelphia Electric Co.; R. M. Jolly, City Public Service Board of San Antonio.

9:30 a.m.—Land Transportation

- 52-23. A New Electric Locomotive for the Pennsylvania Railroad. F. D. Gowans, B. A. Widell, A. Bredenberg, General Electric Co.
- 52-24. The Pennsylvania Railroad Ignitron-Rectifier Locomotive. C. C. Whittaker, W. M. Hutchison, Westinghouse Electric Corp.
- CP.** Progress of Electrification in Europe with Special Emphasis on the ANNECY Conference. H. F. Brown, New York, New Haven & Hartford Railroad.
- CP.** Impressions of European Electrification Including the New Single-Phase 50-Cycle System in France and Possible Bearing on U.S. Electrification. J. C. Aydelott, General Electric Co.
- 52-18. Railway Power Contracts. T. M. C. Martin, Bonneville Power Administration.
- 52-25. Railway Electrification, Diesel-Electric Locomotives and Some Future Aspects of Electric Traction. G. Huldshimer, College of City of New York.

9:30 a.m.—Industrial Control

- CP.** Fundamental Considerations in the Use of Feedback Control. O. W. Livingston.
- CP.** Regulators from the Electronic Point of View. E. H. Vedder, Westinghouse Electric Corp.
- CP.** Rotating Regulator Applications in the Steel Industry. W. R. Harris, Westinghouse Electric Corp.
- CP.** Synthesizing the Armature Circuit of a D.C. Shunt Motor Supplied by Half Wave Rectifiers. W. S. Kupfer, Jr., E. E. Moyer.

9:30 a.m.—Electric Space Heating and Heat Pumps

- CP.** Experiences with Compression-Type Electric Water Heaters. M. S. Oldacre, Utilities Research Commission.
- CP.** Residential Heat Pump Experiments in Philadelphia—Installation and Operating Experience. J. H. Harlow, G. E. Klapper, Philadelphia Electric Co.
- CP.** Residential Heat Pump Experiments in Philadelphia—Earth as a Heat Source. A. H. Kidder, J. H. Neher, Philadelphia Electric Co.
- CP.** Residential Heat Pump Experiments in Philadelphia—Suggested Possibilities for Practical Applications. Constantine Bary, Philadelphia Electric Co.
- CP.** A New Packaged Heat Pump. H. G. Fifield, C. I. Bacheller, General Electric Co.
- 52-69. Application of Motors to Household Refrigeration Compressors. L. C. Packer, Westinghouse Electric Corp. Presentation by title only for discussion.

9:30 a.m.—Switchgear

- 52-27. Short Circuit Ratings of Power Circuit Breakers. R. C. Van Sickle, Westinghouse Electric Corporation.
- 52-11. Consideration in Testing, Rating, and Application of Power Circuit Breakers. Byron Evans, C. L. Killgore, Bureau of Reclamation.
- 52-17. Correlation of Interrupting Rating and Application of Power Circuit Breakers. J. A. Elzi, Commonwealth Services, Inc.
- 52-28. The Effect of Current Asymmetry on Circuit Interruption. W. F. Skeats, General Electric Company.
- 52-29. Considerations in the Rating and Testing of Power Circuit Breakers. H. P. St. Clair, Otto Naef, American Gas & Electric Service Corp.

2:30 p.m.—General Session

Address: President F. O. MacMillan
 Presentation of the Edison Medal to C. F. Wagner.
 Presentation of the Alfred Noble Prize to Eldo C. Koenig.
 Presentation of Institute Prizes.
 Address: Charles E. Wilson, Director, Office of Defense Mobilization.
 ASCE Centennial of Engineering 1952—Announcement.

Tuesday, January 22

9:30 a.m.—Switchgear

- 52-20. New High-Capacity Switchgear Testing Laboratory. V. L. Cox, General Electric Co.
- 52-10. High-Speed Multiple Reclosing Oil Circuit Breaker for 161 Kv 10,000,000 KVA. B. P. Baker, G. B. Cushing, Westinghouse Electric Corp.
- 52-30. High Voltage Circuit Breakers in the Bonneville Power System. O. A. Demuth, A. Dvojikov, Bonneville Power Administration.

52-31. Ultra-High Capacity Field Tests on 230-Kv Air-Blast Circuit Breaker at Grand Coulee Power Plant. A. C. Conger, C. L. Killgore, Bureau of Reclamation; Dr. William Wanger, Brown, Boveri & Co., Baden, Switzerland.

52-16. Out-of-Phase Switching Voltages and Their Effect on High-Voltage Circuit Breaker Performance. W. M. Leeds, D. J. Povejsil, Westinghouse Electric Corp.

9:30 a.m.—Power Generation, Excitation Systems

52-33. Selection of Characteristics for Turbine-Generator Motor-Driven Exciters. H. G. Frus, Duquesne Light Co.; F. N. McClure, W. H. Ferguson, Westinghouse Electric Corp.

52-34. Experience with Automatic Voltage Regulation on a 115 MW Turbogenerator. H. A. Cornelius, W. F. Cawson, Public Service Co. of Northern Illinois; H. W. Cory, Allis-Chalmers Mfg. Co.

CP.** Static Stability Considerations for Proposed Turbine-Generator Ratings. R. F. Lawrence, A. A. Johnson, Westinghouse Electric Corp.

CP.** Power Generation Equipment for the Future. W. A. Hirt.

9:30 a.m.—Conference on Dielectrics

CP.** Interpretation of the Dielectric Behavior of Solid Long-Chain Derivatives. J. D. Hoffman, General Electric Co.

CP.** Lanosterol—A New High Dielectric Constant Dielectric. W. McMahon, G. T. Kohman, Bell Telephone Labs., Inc.

CP.** Electrical and Physical Properties of IN-420—A New Chlorinated Liquid Dielectric. A. J. Warner, Federal Telecommunication Labs.

CP.** Impulse Dielectric Strength Characteristics of Liquid Impregnated Pressboard. T. W. Dakin, C. N. Works, Westinghouse Electric Corp.

CP.** The Effect of Increasing Frequencies on Dielectric Strength of Electrical Insulators. J. J. Chapman, Johns Hopkins University.

9:30 a.m.—Electronics in Industry

CP.** Electronics in Textiles. F. D. Snyder and L. T. Jester.

CP.** Electronic Control of Machine Tools. J. M. Delfs.

CP.** The Use of Electronics for Material Handling Systems. J. C. Webb.

52-101. Theory of Electric Spark Machining. E. M. Williams, Carnegie Institute of Technology.

52-1. Tests of Electrostatic Controls for Hazardous Industrial Applications. Robin Beach, Engineers Associated. Presentation by title only for discussion.

9:30 a.m.—Electronic Instruments

CP.** Over-Temperature Monitor for Multiple Thermocouple Systems. F. H. Bayhi, Jr., M. L. Greenough, M. Martens, National Bureau of Standards.

CP.** An Electronic Peak Reading Kilovoltmeter. R. E. Brueckmann, National Bureau of Standards.

CP.** An Elliptical Polarization Synthesizer. G. H. Friedman.

CP.** A System for Measuring Change of Phase Path of Pulsed Radio Signals Vertically Incident on the Lower Ionosphere. R. E. Jones.

CP.** Measurement of High Frequency Speed Variation in Rotating Equipment. E. G. Manning.

9:30 a.m.—Metallic Rectifiers

CP.** Comparative Characteristics of Metallic Rectifiers. E. A. Harty, General Electric Co.

52-100. Automatic Regulation of Metallic Rectifiers by Electronic ACO.* Control. J. A. Potter, Reeves Instrument Corp.

CP.** Recent Applications of Selenium Rectifiers. O. S. Aikman, Fansteel Metallurgical Corp.

CP.** High Voltage Selenium Rectifiers. I. R. Smith, Westinghouse Electric Corp.

CP.** Capacitor Loading of Metallic Rectifiers. C. E. Hamann, General Electric Co.

52-102. Automatic Regulation of Metallic Rectifiers by Magnetic Control. D. H. Smith, Bell Telephone Labs., Inc.

9:30 a.m.—Land Transportation

52-35. A New Wheel-Slip Protective Scheme. R. M. Smith, General Electric Co.

CP.** The Theory and Practice of Wheel Control. C. L. Eksergian, The Budd Co.

52-36. Coordinated Transportation for Large Metropolitan Communities. E. E. Kearns, General Electric Co.

52-37. New Series Type Motor for Trolley Coaches. G. M. Woods, C. R. Steen, Westinghouse Electric Corp.

52-38. A New Control for Trolley Coaches. N. H. Willby, Westinghouse Electric Corp.

9:30 a.m.—Communication Switching Systems

CP.** European Switching Systems. H. H. Schneekloth.

CP.** European Switching Apparatus. A. C. Keller.

CP.** Survey of Telephone Switching in Alaska. D. L. Solomon.

CP.** Development of REA Requirements for Switching Equipment in the U.S.A. R. S. Neikirk.

2:00 p.m.—Switchgear

52-39. Switching Capacitive KVA With Power Circuit Breakers. N. E. Dillow, I. B. Johnson, N. R. Schultz, A. E. Were, General Electric Co.

52-40. New Design Concepts Applied to a Side Break Outdoor Disconnecting Switch. H. R. Harrison, General Electric Co.

52-41. Refinements in Dual Selective Overcurrent Trip Design. Carl ACO.* Thumin, I-T-E Circuit Breaker Company.

52-42. A New Design of Metal Clad Switchgear. J. G. Torbit, General ACO.* Electric Co.

52-15. A New Line of Magnetic-Type Power Circuit Breakers for ACO.* Metal Clad Switchgear. R. B. Shores, E. T. McCurry, General Electric Co.

2:00 p.m.—Power Generation, Hydroelectric Systems

52-43. Performance of a New Magnetic Amplifier Type Voltage Regulator for Large Hydroelectric Generators. G. K. Kallenbach, Niagara Mohawk Power Corp.; F. S. Rothe, H. F. Storm, General Electric Co.; P. L. Dandeno, Hydro-Electric Power Comm. of Ontario.

52-44. Application of Hydrostatic Lubrication to Vertical Water Wheel Generator Thrust Bearings. J. E. Housley, T. L. Corey, Aluminum Co. of America; G. E. Peterson, Westinghouse Electric Corp.

CP.** Experience in Operation of Hydroelectric Generator Bearings. J. P. Fraser, British Columbia Electric Co., Ltd.

CP.** Experience with Bearings on Hydro-Electric Generating Units. J. M. Sharpe, A. L. Hough, Shawinigan Water & Power Co.

2:00 p.m.—Conference on Dielectrics

CP.** The Electrical, Physical and Chemical Properties of MYLAR Polyester Film. R. C. Krueger, A. B. Ness, E. I. du Pont de Nemours & Co.

CP.** Polyethylene Terephthalate—Its Use As A Capacitor Dielectric. M. C. Wooley, G. T. Kohman, W. C. McMahon, Bell Telephone Labs., Inc.

CP.** Corona Studies on Silicone Rubber. S. I. Reynolds, General Electric Co.

CP.** The Electrical Properties of Glass-Fiber Paper. R. T. Lucas, T. D. Callinan, Naval Research Lab.

CP.** Manufacture and Processing of Mica Paper for Use in Electrical Insulation. R. L. Griffith, E. R. Younglove, Mica Insulator Co.

2:00 p.m.—Instruments and Measurements

52-7. Overload Protection of Alternating Current Instruments. Wilson Pritchett, Elazar Trau, University of California.

52-46. A 10 Cycle to 10 Megacycle Gain and Phase Angle Measuring ACO.* Set. F. B. Anderson, Bell Telephone Labs., Inc.

CP.** A Barium Titanate Accelerometer. L. T. Fleming, National Bureau of Standards.

CP.** Shore-Based Radar for Harbor Surveillance. E. J. Isbister, W. R. Griswold, Sperry Gyroscope Co.

CP.** Quantitative Microwave Spectroscopy. D. K. Coles, Westinghouse Research Labs.

2:00 p.m.—The Mechanism of Communication

CP.** Humanizing the Technical Speech. O. J. Drake, New York University.

CP.** Writing Visually. E. L. McAdam, Jr., New York University.

CP.** Exploitation of Message Statistics. B. M. Oliver, Bell Telephone Labs., Inc.

2:00 p.m.—Conference on Management

CP.** Science of Leadership. M. J. Evans, Melvin J. Evans Co.

CP.** Rotation of Assignment for Executive Development. D. S. Sargent, Consolidated Edison Co. of N. Y., Inc.

2:00 p.m.—Sections Committee

Wednesday, January 23

9:30 a.m.—Distribution

52-13. Progress Report on Coordination of Construction and Protection of Distribution Circuits Based on Operating Data for Year 1949. Joint AIEE-EEI Working Group on Coordination of Construction and Protection of Distribution Circuits.

CP.** Changing Concepts of Weatherproof Wire Use and Protection. L. L. Carter, Anaconda Wire & Cable Co.

CP.** Advantages and Disadvantages of Electric Distribution about 5000 Volts. W. R. Bullard, Ebasco Services, Inc.

9:30 a.m.—Synchronous

52-32. Supercharged Hydrogen Cooling of Generators. Sterling Beckwith, Allis-Chalmers Mfg. Co.

52-47. Improved Cooling of Turbine-Generator Windings. R. A. Baudry, P. R. Heller, H. K. Reamey, Jr., Westinghouse Electric Corp.

51-363. Equivalent Circuits of Reluctance Machines. Chi-Yung Lin, Shanghai, China. Presentation by title only for discussion.

52-60. Exciter Polarity Reversals in Voltage-Regulated Aircraft Alternators. R. P. Judkins, Westinghouse Electric Corporation; H. M. McConnell, Carnegie Inst. of Technology.

52-83. Induction Motor Damping and Synchronizing Torques. Charles Concordia, General Electric Co.

9:30 a.m.—Relays and Carrier Current

52-51. Protective Relaying over Microwave Channels. H. W. Lensner, Westinghouse Electric Corp.

52-52. A Phase-Comparison Carrier-Current Relaying System for Broader Application. N. O. Rice, J. S. Smith, General Electric Co.

52-2. Considerations in Selecting a Carrier Relaying System. R. C. Cheek, J. L. Blackburn, Westinghouse Electric Corp.

9:30 a.m.—Basic Sciences

CP.** Self-Generated Oscillations in the D.C. Carbon Arc. B. H. List, T. B. Jones, Johns Hopkins University.

52-84. The Calculation of the Magnetizing Force. A. A. Halacsy, Dominica, B. W. I.

52-3. Mapping Techniques Applied to Fluid Mapper Patterns. A. D. Moore, University of Michigan.

52-45. Electromechanical Analogies of a Separately-Excited D.C. Machine. R. E. Vowels, W. G. Forte, The University of Adelaide.

52-114. Equations for the Inductance and Short-Circuit Forces of Buses Comprised of Double Channel Conductors. C. M. Siegel, University of Virginia; T. J. Higgins, University of Wisconsin.

52-85. Wave Filter Characteristics by a Direct Method. R. C. Taylor, Mrs. C. U. Watts, Western Union Telegraph Co.

9:30 a.m.—Recent Developments in Electron Emitters

CP.** The Nickel Base Indirectly Heated Barium Oxide Cathode. A. M. Bounds, P. N. Hambleton, Superior Tube Co.

52-53. Characteristic Shifts in Oxide Cathode Tubes. W. P. Bartley, J. E. White, General Electric Co.

CP.** Lanthanum Boride Cathodes. J. M. Lafferty, General Electric Research Lab.

CP.** Further Developments in the Structure and Methods of Fabricating L-Cathodes. R. Levi, O. G. Koppius, J. Lambertson, Philips Labs., Inc.

9:30 a.m.—Instruments and Measurements

52-54. A High-Speed Direct-Writing Oscillograph. A. R. Eckels, North Carolina State College; I. S. Blumenthal, Manhattan Beach, Calif.

52-55. A High-Sensitivity Ratio Instrument for Industrial Resistance Thermometers. E. W. Clark, General Electric Co.

52-56. Methods and Apparatus Employed in the Testing of Single-Phase A.C. Watthour Meters. F. C. Holtz, Sangamo Electric Co.

CP.** Winding Hot Spot Temperature Equipment for Transformers. G. Camilli, A. R. Kimball, H. A. Fohrhalt, General Electric Co.

9:30 a.m.—Safety

CP.** Organizing for Effective Accident Prevention. H. J. Crisick, Cleveland Electric Illuminating Co.

CP.** Some Fundamental Principles for Safe Electrical Design of Appliances. G. E. Schall, Jr., Underwriters Labs., Inc.

CP.** Brief Review of European Electrical Safety Requirements. Frank Thornton, Jr., Consulting Engineer, Pittsburgh, Pa.

CP.** Report on Trends in the Revisions of the National Electrical Code. H. H. Watson, General Electric Co.

CP.** Progress Report on Electrical Defibrillation. W. B. Kouwenhoven, Johns Hopkins University.

9:30 a.m.—New Techniques in Facsimile

CP.** General Aspects and Problems of Military Facsimile. C. K. Clauer, Bureau of Ships.

CP.** Military Design Requirements. H. F. Burkhard, Signal Corps Engg. Labs.

CP.** Automatic Controls on a Facsimile Weather Service Network. K. R. McConnell, P. R. Marzan, Times Facsimile Corp.

CP.** A Facsimile System having Response Linear with Optical Density. J. V. L. Hogan, F. A. Hester, Hogan Labs., Inc.

2:00 p.m.—Transmission and Distribution

52-104. Sixty-Cycle and Impulse Sparkover of Large Gap Spacings. H. J. Hagenguth, A. F. Rohlf, W. J. Degnan, General Electric Co.

52-105. Impulse Corona—Detection, Measurement of Intensity and Damage Produced. J. H. Hagenguth, T. W. Liao, General Electric Co.

52-106. Investigation of Radio Noise as it Pertains to the Design of High Voltage Transmission Lines. H. L. Borden, R. S. Gens, Bonneville Power Administration.

52-107. Lightning Protection in Extra High Voltage Stations—Analysis, Anacom Study, and Results. I. W. Gross, American Gas & Electric Corp.; T. J. Bliss, J. K. Dillard, Westinghouse Electric Corp.

2:00 p.m.—Insulation

52-57. Functional Evaluation of Motor Insulation Systems. G. A. Cypher, R. Harrington, General Electric Co.

52-58. Aging of Small Motor Insulation. K. N. Mathes, General Electric Co.

52-59. Diagnoses of A-C Generator Insulation Condition by Non-Destructive Tests. A. W. W. Cameron, The Hydro-Electric Power Comm. of Ontario.

CP.** The Re-examination of Insulation Temperature Standards. G. L. Moses, Westinghouse Electric Corp.

2:00 p.m.—Conference on Fundamental Processes in Gas Discharge Tubes

CP.** Physics of Gas Discharges. S. C. Brown, Massachusetts Inst. of Technology.

CP.** Drift Velocities of Charged Particles in Gases. J. A. Hornbeck, Bell Telephone Labs., Inc.

CP.** The Electron-Ion Recombination Process in Gases. S. Borowitz, New York University.

CP.** Studies of Hot Cathode Arcs and Their Engineering Consequences. L. Malter, Radio Corp. of America.

2:00 p.m.—Color Tubes for Television

CP.** A Three Gun Shadow Mask Color Kinescope. D. W. Epstein, R.C.A. Laboratories.

CP.** Color Phosphors for Television. A. Steadman, Allen B. Dumont Labs., Inc.

CP.** The Chromatron—A Single or MultiGun Cathode Ray Tube. Robert Dressler, Chromatic Television Labs., Inc.

CP.** Colorimetry in Television. F. J. Bingley, Philco Corp.

2:00 p.m.—Education

CP.** The Objectives of Graduate Engineering Education—An Employer's View. William Oncken, Jr., Bureau of Ordnance.

CP.** Objectives of Graduate Education as Seen by the Public Utility. E. R. Gaty, Philadelphia Electric Co.

CP.** Specific Objectives of Electrical Engineering Curricula. E. A. Walker, Pennsylvania State College.

52-9. A Water Rheostat Using Untreated Water. J. F. Engle, Oregon State College. Presentation by title only for discussion.

2:00 p.m.—System Engineering

52-12. Evaluation of Capacity Differences in the Economic Comparison of Alternative Facilities. P. H. Jaynes, Public Service Electric & Gas Co.

52-61. Investment Costs for Use in the Economic Comparison of Alternative Facilities. F. L. Lawton, Aluminum Labs., Ltd. Presentation by title only for discussion.

CP.** Current Expansion, with ECA Sponsorship, of Italy's Thermoelectric Generating Capacity. Fremont Felix, International General Electric Co.

52-62. A Power System Analog and Network Computer. E. A. Baldini, A. P. Fugill, The Detroit Edison Co.

52-14. Calculating Machine Simplifies Power Plant Performance Calculations. E. Daniele, L. J. Parsons, G. R. Baiter, Consolidated Edison Co. of N. Y., Inc.

52-63. Planning a Metropolitan Transmission and Sub Transmission ACO.* System. D. C. Vaughan, Potomac Electric Power Co.

2:00 p.m.—New Techniques in Facsimile

CP.** Some of the Aspects of High Speed Facsimile Design. M. Alden, Alden Products, Co.

52-103. A High-Speed Direct-Scanning Facsimile System. C. R. Deibert, F. T. Turner, R. H. Snider, The Western Union Telegraph Co.

CP.** A High Speed Facsimile Recorder. D. M. Zabriskie, Western Union Telegraph Co.

CP.** A High Speed Facsimile Transmitter. L. G. Pollard, Western Union Telegraph Co.

CP.** An Improved Desk-Fax Transceiver. G. H. Ridings, R. J. Wise, Western Union Telegraph Co.

Thursday, January 24

9:30 a.m.—Conference on Sleet Melting Practices

CP.** 35 Years Experience Combating Sleet Accumulations. A. N. Shealy, K. L. Althouse, R. N. Youtz.

CP.** Sleet Thawing Practices on New England Electric System. C. P. Corey, H. R. Selfridge, H. R. Tomlinson.

CP.** Sleet Melting Practices Niagara Mohawk System. H. B. Smith, W. D. Wilder.

CP.** Sleet Melting on the American Gas and Electric System. S. C. Bartlett, C. A. Imburgia, G. H. McDaniel.

CP.** The Detroit Edison Company Method of De-Icing Its 120-Kv Lines. D. D. Chase.

CP.** Ice Melting and Prevention Practices on Transmission Lines. V. L. Davies, L. C. St. Pierre.

9:30 a.m.—Electric Couplings

52-64. Magnetic Revolving Field Couplings. Giovanni Silva, Compagnia Nazionale Imprese Elettriche.

52-65. Performance Calculations on Electric Couplings. P. H. Trickey, Vickers Inc.

CP.** Reluctance-Type Magnetic Couplings. F. W. Suhr, General Electric Co.

CP.** Magnetic Automotive Fan Drives. R. L. Jaeschke, Eaton Mfg. Co.

CP.** New Uses for Magnetic Friction Couplings. J. A. Mason.

9:30 a.m.—Permanent Magnets

CP.** Introduction to Permanent Magnets. W. E. Ruder, General Electric Co.

CP.** Present Problems in the Production of Permanent Magnets. A. D. Plamondon, Jr., Indiana Steel Products Co.

CP.** Some Theoretical Aspects of Iron Powder Magnets. B. Kopelman, Sylvania Electric Products, Inc.

CP.** A New Permanent Magnet of Non-Strategic Material. F. G. Brockman, Philips Labs.

CP.** Magnetic Structures of Alnico 5. E. A. Nesbitt, Bell Telephone Labs., Inc.

CP.** Permanent Magnetism of Ordered Structures. D. L. Martin, A. H. Geisler, General Electric Co.

9:30 a.m.—Electron Tubes

52-66. Tubes for Dielectric Heating at 915 MC. R. B. Nelson, General Electric Research Lab. Presentation by title only for discussion.

CP.** A New Rectifier Tube for Extremely High Power and Voltage Levels. T. H. Rogers, Machlett Labs., Inc.

CP.** High Power Industrial Vacuum Tubes with Thoriated Tungsten Filaments. R. B. Ayer.

CP.** The Influence of a Transverse Magnetic Field on an Unconfined Glow Discharge. W. D. McBee, W. G. Dow, University of Michigan.

CP.** Electron Tube Experience in Computing Equipment. J. A. Goetz, A. W. Brooke.

9:30 a.m.—Wire and Radio Telegraph Systems

CP.** A Carrier Telegraph System for Short Haul Applications. J. L. Hysko, W. T. Rea, L. C. Roberts.

CP.** Recent Developments in Multiplex Radio Telegraphy. C. Buff.

CP.** RCA Electronic Time Division Multiplex Equipment. A. Kahn, E. R. Shenk.

52-75. Characteristic Impedance of Rectangular Coaxial Transmission Lines. C. F. Miller, Johns Hopkins University; Y. A. Omar, Ports & Lighthouses Adm., Alexandria, Egypt.

9:30 a.m.—Electrical Applications in Pipe Line Transportation

CP.** Development of Pipe Lines. H. H. Anderson, Shell Pipe Line Corp.

CP.** Construction of the Ozark Pipe Line. Technicolor-sound Film. Shell Pipe Line Corp.

CP.** Electrical Design of Pipeline Pumping Stations for Safety under Hazardous Atmospheric Conditions. M. A. Hyde, Westinghouse Electric Corp.

CP.** Centralized Control of Oil Pipe Line Pumping Stations. C. B. Lester, Mid-Valley Pipeline Co.

9:30 a.m.—Electric Heating

52-68. Bus Bar Design for High-Frequency Induction Heating. J. W. Williamson, The Ohio Crankshaft Co.

CP.** Characteristics of Single Conductor Electric Cable at High Frequency. J. T. Sabol, The Ohio Crankshaft Co.

52-4. Induction Preheating of Electrolytic Tin Plate for Flow Brightening with High Frequency Rotating Equipment. W. T. Thomas, General Electric Co. Presentation by title only for discussion.

9:30 a.m.—Digital Computers—New Storage Developments and Application of Transistors

CP.** Three-Dimensional Magnetic Storage. J. W. Forrester, Massachusetts Inst. of Technology.

CP.** Ferroelectric Materials as Storage Elements for Digital Computers and Switching Systems. J. R. Anderson, Bell Telephone Labs., Inc.

CP.** An Improved Cathode-Ray Tube for Application in Williams Memory Systems. W. E. Mutter, International Business Machines Corp.

CP.** Catalog of Digital Computer Designs. J. H. Felker, Bell Telephone Labs., Inc.

2:00 p.m.—Transmission and Distribution

52-6. Report of Joint AIEE-EEI Subject Committee on Line Outages.

CP.** Recovery Voltage Characteristics of Distribution Circuits. General Systems Subcommittee Report.

52-108. Guides for Short-Time 60-Cycle Overvoltage Operation of Power Capacitors. Working Group of the Capacitor Subcommittee.

52-109. General Circuit Constants—Their Formation and Use. R. D. Goodrich, Jr., Bureau of Reclamation.

2:00 p.m.—D-C Machinery

52-70. A Simple, Effective Method of Representing the Load Current of a D.C. Machine. G. L. Hall, General Electric Co.

52-71. Rate of Rise of Short Circuit Current of D-C Motors and Generators. Subcommittee on D-C Machinery. Presentation by title only for discussion.

52-72. Commutation of Large Direct Current Motors and Generators. T. M. Linville, G. M. Rosenberry, General Electric Co.

52-73. Test Code for Carbon Brushes. Joint Subcommittee on Carbon ACO.* Brushes. Presentation by W. W. Walker.

CP.** Contact Thermocouple for Measuring Commutator Temperatures. A. T. McClinton, Naval Research Lab.

52-74. Increased Losses in a DC Motor When Operated from Grid-Controlled Rectifiers. C. R. Reiter, Shell Oil Co.; C. R. Ammerman, The Pennsylvania State College.

2:00 p.m.—High Permeability Magnetic Materials

CP.** Dynamic Hysteresis Loops. H. Lord, General Electric Co.

CP.** Mathematical Description of Core Losses. F. H. Richardson, Westinghouse Electric Corp.; J. W. Hale, Allegheny Ludlum Research Lab.

CP.** Problems in the Application of Oriented Nickel-Iron Alloys. A. C. Beiler, Westinghouse Electric Corp.

CP.** Magnetic Properties of Ferrite Materials. Frank Gelbard, H. A. Goldsmith, General Ceramics and Steatite Corp.

2:00 p.m.—Mobile Radio Systems

CP.** Lightning Protection of Base Stations in the Mobile Radio Service. Report by Committee on Radio Communications Systems.

52-67. A Radio Dispatching System for Large Taxicab Fleet Operation. ACO.* A. R. Vallarino, S. W. Lewinter, Federal Telecommunications Labs., Inc.

CP.** Radio Communication Equipment AN/GRC-3 thru 8. J. H. Durrer, David Talley.

2:00 p.m.—Electrical Applications in Pipe Line Transportation

CP.** Automatic Control of Gas Turbines for Natural Gas Pipeline Pumping. C. R. Ingemanson, Arne Loft, H. J. Wilt, General Electric Co.

CP.** Remote Operation of Pipeline Stations by Supervisory Control. Clyde Hepler, Pan American Pipe Line Co.; W. A. Derr, L. B. Eddy, Westinghouse Electric Corp.

CP.** New Electric Pressure Instrumentation on Petroleum Pipelines. M. J. Dabney, Plantation Pipeline Co.

CP.** Microwave Radio for Pipe Line Use. C. D. Campbell, Humble Pipe Line Co.

2:00 p.m.—Symposium on Heating Application Data

2:00 p.m.—Small Digital Computers

CP.** The USAF-Fairchild Computer. J. J. Stone, Oak Ridge National Lab.

CP.** The MADDIDA—Its Operation and Mathematics. C. B. Dennis, Northrup Aircraft Corp.

CP.** The JAINCOMP Computer. D. H. Jacobs, Jacobs Instrument Corp.

CP.** The CADAC. W. E. Dobbins, Computer Research Corp.

2:00 p.m.—Conference on Energy Sources

CP.** Magnetic Storms. O. B. Jacobs, J. J. Gilbert.

CP.** Sunspots and Planetary Effects Upon Radio Signals. J. H. Nelson.

Friday, January 25

9:30 a.m.—Transformers

52-76. The Impulse Testing of Low Voltage High KVA Transformer Windings. L. C. Aicher, Allis-Chalmers Mfg. Co.

52-77. The Impulse Generator and Its Uses. J. H. Chiles, Jr., W. L. Teague, Westinghouse Electric Corp.

CP.** Impulse Testing of Power Transformers. J. R. Meador, J. H. Hagenguth, General Electric Co.

52-78. Gaseous Insulation for High Voltage Transformers. G. Camilli, R. E. Plump, General Electric Co.; G. S. Gordon, Skillman, N. J.

52-79. Recent Improvements in Theory and Practice of Vacuum Plastic-Filled Insulation for Voltage Transformers. E. C. Wentz, F. B. Colby, Westinghouse Electric Corp.

9:30 a.m.—Station and Control Cable Symposium

CP.** Economy and Reliability of Control Cable Installations. U. S. Sherman, Philadelphia Electric Co.

WINTER GENERAL MEETING, NEW YORK JAN. 21-25, 1952

CP.** Auxiliary Power and Control Cables. E. E. McIlveen, R. C. Waldron, The Okonite Co.

CP.** Airport Cable Installations. C. R. Johnson, Port of N. Y. Authority.

CP.** Effect of Environment and DC Potentials on Non Metallic Sheath Control Cables. G. J. Crowdes, Simplex Wire & Cable Co.

9:30 a.m.—Transmission and Distribution

51-110. Power System Stability Criteria for Design. W. A. Morgan, Bureau of Reclamation.

CP.** An Analogue of a Synchronous Machine for Use in Transient Stability Studies. J. E. Van Ness, Northwestern University.

52-111. Tensorial Analysis of Integrated Transmission Systems, Part II—Off Nominal Turn Ratios. Gabriel Kron, General Electric Co.

52-112. Evaluation of Methods of Coordinating Incremental Fuel Costs and Incremental Transmission Losses. L. K. Kirchmayer, General Electric Co.; G. W. Stagg, American Gas & Electric Service Corp.

9:30 a.m.—Materials

CP.** Report of the Materials Subcommittee of the Magnetic Amplifier Committee.

CP.** Magnetic Properties of Ultra-Thin Magnetic Alloys—Manufacture. M. F. Littmann.

CP.** Magnetic Properties of Ultra-Thin Magnetic Alloys—Application. J. G. Miles.

52-26. The Effect of Core Materials on Magnetic Amplifier Circuits. L. J. Johnson, Naval Research Laboratory.

9:30 a.m.—Industrial Power Systems

52-80. Electric Power Supply for a Large Chemical Plant. A. C. Friel, The Dow Chemical Co.; J. P. Smith, General Electric Co.

CP.** Electrical Systems in the Port Authority Bus Terminal. W. Henschel, H. W. Wenson, Jr., Port of N. Y. Authority.

CP.** Electrical Systems for the United Nations Headquarters. F. B. Graham, Syska & Hennessy, Inc.

9:30 a.m.—Feedback Control Systems

52-81. The Writing of Closed-Loop Control System Transfer Function by Inspection. J. B. Flanagan, Sperry Gyroscope Co.; H. S. Kirschbaum, Ohio State University.

52-82. Synthesis of Closed Loop Systems Using Curvilinear Squares to Predict Root Location. D. W. Russell, Arnold Engg. Development Center; C. H. Weaver, The University of Tennessee.

CP.** Additions to the Stability Theory and Design of Servomechanisms. J. F. Koenig.

9:30 a.m.—Single Phase and Fractional Horsepower

52-48. Toward An Accurate Evaluation of Single-Phase Induction-Motor Constants. F. W. Suhr, General Electric Co.

52-49. A Quadrature-Phase-Shift Voltage Transformer Device and Its Applications. R. L. Hupp, F. W. Suhr, General Electric Co.

52-50. Moneca—A New Network Calculator for Motor Performance Calculations. C. G. Veinott, Westinghouse Electric Corp.

52-86. An Equivalent Cantilever Circuit for Polyphase Induction Motor for Practical Calculations. T. C. Tsao, Consolidated Edison Co. of N. Y., Inc.; N. F. Tsang, University of Arkansas.

2:00 p.m.—Transformers

52-87. Field Tests on Power Transformers Equipped with Thermosiphon Oil Filters. E. W. Tipton, Westinghouse Electric Corp.

52-88. Controlled Temperature and Insulation Protection in the Operation of Power Transformers. W. W. Satterlee, Westinghouse Electric Corp.

CP.** Winding Hot Spot Temperature Equipment for Transformers. G. Camilli, A. R. Kimball, H. A. Forhaltz, General Electric Co.

52-89. The Economics of High-Temperature Dry-Type Transformers. L. C. Whitman, General Electric Co.

52-90. Characteristics of Overlapping Joints in Magnetic Circuits. T. D. Gordy, General Electric Co.; H. L. Garbarino, Armour Research Foundation.

52-115. A New Concept of Insulating Oil Life Characteristics. Frank C. Doble, Doble Engineering Co.

2:00 p.m.—Insulated Conductors

52-91. A-C Resistance of Pipe-Cable Systems with Segmental Conductors. AIEE Working Group of Cable Characteristics Subcommittee.

52-92. Auxiliary Power and Control Cables for Steam Electric Generating Stations. F. V. Smith, E. G. Norell, Sargent & Lundy.

52-93. Generator Lead Practice. M. J. Lowenberg, Stone & Webster ACO.* Engg. Corp.

2:00 p.m.—Circuits

52-94. Series-Connected Magnetic Amplifier with Inductive Loading. T. G. Wilson, Naval Research Lab.

52-5. Compensating for the Quiescent Current in Multi-Stage Magnetic Amplifiers. A. S. FitzGerald, San Francisco, Calif.

CP.** Effects of Leakage of Feedback Rectifiers. L. A. Finzi, Carnegie Inst. of Technology.

2:00 p.m.—Industrial Power Systems and Relays

CP.** Power Distribution at New York International Airport. C. R. Johnson, Port of N. Y. Authority; V. P. Brodsky, A. B. Henderson, Consolidated Edison Co. of N. Y., Inc.

CP.** Selection of Protective Device Settings for Industrial Plants. F. P. Brightman, General Electric Co.

CP.** Some Considerations of the Relay Protection Problem of Industrial Distribution Systems. W. A. Frankenfield, Detroit Edison Co.

2:00 p.m.—Symposium on Germanium Rectifiers and Transistors.

CP.** A-B-C of Germanium. J. P. Jordan, General Electric Co.

CP.** Conduction Properties of Germanium Single Crystals. W. C. Dunlap, Jr., General Electric Co.

CP.** The N-P-N Junction Transistor. J. A. Morton, Bell Telephone Labs., Inc.

CP.** Circuits for Junction Transistors. R. L. Wallace, Bell Telephone Labs., Inc.

CP.** Recovery of Germanium from Factory Waste. V. Ozerow, General Electric Co.

CP.** A New Germanium Power Rectifier. F. J. Lingel, General Electric Co.

2:00 p.m.—Feedback Control Systems

52-95. A New Parallel Type Compensation Network. G. F. Warnke, ACO.* V. H. Disney, Armour Research Foundation.

CP.** Stabilization Templates for Servomechanisms. O. J. M. Smith, University of California.

52-8. An Electronic Apparatus for the Study of the Human Operator in a One-Dimensional, Closed-loop, Continuous Pursuit Task. C. E. Warren, P. M. Fitts, J. R. Clark, Ohio State University.

CP.** The Figure of Merit of Direct Current Rotating Power Amplifiers. J. T. Carleton, Westinghouse Electric Corp.

2:00 p.m.—A-C Network Calculator Designs and Experience

52-19. A New Principle is Employed for 60-Cycle A-C Network Analyzers. E. B. Philips, University of Kansas.

CP.** Operating Experience with a 10-KC Network Analyzer. W. B. Boast, Iowa State College.

CP.** Design Improvements in the 10,000-Cycle Network Analyzer. J. D. Ryder, University of Illinois.

52-113. A Compact, Inexpensive A-C Network Analyzer. E. W. Kimbark, Instituto Tecnológico de Aeronáutica; J. H. Starr, LaGrange, Ill.; J. E. Van Ness, Northwestern University.

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

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