Winter General Meeting

February 2-7, 1958

Headquarters
Hotel Statler

The AIEE Winter General Meeting, to be held at the Hotel Statler (meeting headquarters) and the Hotel Sheraton-McAlpin, New York, N. Y., February 2-7, 1958, will feature the largest technical program in the history of the Institute. The social activities, for which the Winter General Meeting is well known, will again be outstanding. A group of varied and interesting inspection trips has been arranged closely allied with the technical sessions.

GENERAL SESSION: The featured speaker at the General Session on Monday afternoon, February 3rd, will be Thomas J. Watson, Jr., Chairman of the Board of Directors, The International Business Machines Corporation. During this session, The Edison Medal will be awarded to John K. Hodnette, Vice-President and General Manager, Westinghouse Electric Corporation. The AIEE Prize Paper Awards will also be presented at this time. President Walter J. Barrett will open the session with his report to the members of the Institute.

INFORMAL TEA: This social gathering before the formal program begins has been enjoyed by more and more people each year. Make it a point to attend this year—Sunday afternoon, February 2, from 4 to 6 p.m., in the Georgian Room of the Statler. There will be no charge.

During this period the registration facilities will be open for those wishing to avoid the Monday morning rush.

HOTEL RESERVATIONS: Blocks of rooms have been set aside at the Statler and nearby hotels for members and guests attending the meeting. Requests for reservations should be sent to the hotel of your choice, specifically referring to the AIEE meeting in your letter. Please do not write to more than one hotel. If your request cannot be filled, the hotel will automatically refer your request to the Hotel Accommodations Committee whose duty it is to obtain a similar reservation at another of the convention hotels for you. The hotel will confirm directly to you. No guarantee that you will be housed satisfactorily can be made if your request is received after January 13, 1958.

Because of the crowded conditions in New York hotels, it is suggested that your reservation be made for arrival on Sunday, February 2, 1958, thereby avoiding delays in registration or unavailability of rooms in the early morning of subsequent days. It is also suggested that a request for reservation prior to Christmas is more likely to be filled at the hotel of your choice.

Rooms have been allotted for our use by the following hotels at the daily rates indicated below:

HOTEL STATLER (Meeting headquarters)—7th Avenue, 32nd to 33rd Streets

Single Room	$ 8.00 to $14.00
Double Room	11.00 to 18.00
Twin Bedroom	15.00 to 22.00
Suites	36.00 to 37.00

HOTEL SHERATON-McALPIN—Broadway and 34th Street (also used for meetings)

Single Room	$ 6.85 to $14.85
Double Room	10.35 to 17.85
Twin Bedroom	13.35 to 18.85
Suites	25.00 to 32.00

HOTEL NEW YORKER—8th Avenue at 34th Street

Single Room	$ 8.00 to $13.00
Double Room	11.50 to 16.50
Twin Bedroom	14.50 to 19.50
Suites	24.00 and up

HOTEL MARTINIQUE—Broadway and 32nd Street

Single Room	$ 6.50 to $11.00
Double Room	9.50 to 14.50
Twin Bedroom	9.50 to 14.50

HOTEL COMMODORE—Lexington Avenue and 42nd Street

Single Room	$ 7.00 to $14.00
Double Room	12.00 to 17.00
Twin Bedroom	12.00 to 18.00

HOTEL ROOSEVELT—Madison Avenue and 45th Street

Single Room	$10.50 to $13.50
Double Room	16.00 to 19.00
Twin Bedroom	18.50 to 21.50

All rooms have private bath and the rates quoted are subject to a 5 percent New York City hotel room tax.

SMOKER: A highlight of the Winter General Meeting will be the Smoker to be held Tuesday evening, February 4, 1958. Good food, good fellowship, and top quality entertainment will be the feature of this event which will take place in the Hotel Statler.

Attendance will be limited for the comfort of guests. Ticket requests should be mailed at an early date. The price will be $11 per ticket and requests should be addressed to "AIEE Smoker Committee," 33 West 39th St., New York 18, N. Y., accompanied by checks made payable to "Special Account, Secretary, AIEE."

DINNER-DANCE: A Dinner-Dance will be held Thursday evening February 6, in the Grand Ballroom of the Hotel Statler. General arrangements will be the same as those which proved enjoyable last year. Dress will be formal. Write soon for reservations for tables for 10. The price this year is $12.50 per ticket and requests should be sent to "AIEE Dinner-Dance Committee," at 33 West 39th St., New York 18, N. Y., accompanied by checks made payable to "Special Account, Secretary, AIEE."

ETA KAPPA NU: The search for the outstanding young electrical engineer each year is conducted by the Eta Kappa Nu Association, the national electrical engineering honor society. On Monday evening, February 3, 1958, electrical engineers will gather to honor Robert P. Crago of IBM, recipient of the 1957 Outstanding Young Electrical Engineer Award as well as Dr. Walter R. Beam of RCA Princeton, and Glenn W. Stagg of American Gas and Electric, who received Honorable Mention in this year's selection.

The annual banquet will be held at the Cornish Arms Hotel on 23rd Street near 8th Avenue. The banquet itself will commence at 7:00 p.m. although it will be preceded by a cocktail hour. There will be opportunities to renew friendships with your colleagues in the profession as well as to become acquainted with some of the leaders in electrical engineering. Reservations for the banquet should be mailed to W. B. Groth, Bell Telephone Laboratories, 463 West Street, New York 14, N. Y. For reservations received by January 31, 1958 the cost of the banquet will be $5.00 per person. All later reservations will cost $6.00 per person. Checks or money orders should be made payable to the New York Alumni Chapter, Eta Kappa Nu.

INSPECTION TRIPS: A program of inspection trips of both technical and general interest has been arranged for those attending the Winter General Meeting. Since the number of persons who may be accommodated on each of these trips is limited, members who are interested are urged to make arrangements and obtain full details at the Inspection Trips desk immediately after registering.

On some of the trips proof of U.S. Citizenship will be required, and members should be prepared to comply with such security regulations as may be in force at the time of the trip.

Radio City Music Hall, New York, N. Y. (Tuesday morning). This ever popular trip has been scheduled again. Spectacular stage shows distinguished by unique lighting effects have made the Radio City Music Hall an outstanding attraction for visitors from all over the world. Members will see the backstage facilities as well as unusual features, such as the revolving sectionalized stage, elevating orchestra pit, motorized curtains and the multitude of electric and mechanical controls required for the special stage and lighting effects.

East River Generating Station, Consolidated Edison Company of New York, Inc., New York, N. Y. (Tuesday morning and afternoon). The East River Station of the Consolidated Edison Company is located at East 14th Street and East River Drive. Arrangements for the trip will include a short bus ride from the Statler Hotel to the Generating Station.

This will be a guided tour of New York City's second largest generating station located adjacent to a modern residential center which imposes stringent requirements on noise and smoke abatement. Since 1951 four 60-cycle units have been placed in service, each one rated 150,000 kilowatts or more. The tour will highlight these new units and their associated boilers and auxiliaries as well as the newest in 69 kv and 138 kv transformers, metal-clad bus and switchgear.

New Ticket Bureau—Pennsylvania Station, New York (Tuesday, Wednesday and Thursday — several tours throughout day). The Pennsylvania Railroad's new Ticket Sales and Service Bureau at Pennsylvania Station, New York, combines a startling variety of electronic and mechanical devices designed to help make reservations, sell and deliver tickets, and give information more efficiently and more quickly than ever before attempted. An assembly of some 500 communication devices, including closed-circuit television systems, facsimile machines, longhand-writing reproducers, and other more conventional apparatus, has been arranged to provide fast and error-free handling of space reservations, ticket sales, and allied

services in connection with railroad passenger travel. The equipment provides means for facilitating these services not only over the counter at the main ticket bureau but also at nine outlying branch offices, including Newark and Trenton, N. J.; at a number of subscribers to a facsimile connecting system; and to those who wish to make preliminary arrangements by telephone. The workings of the system must be seen to be believed.

International Business Machines Corp., New York, N. Y. (Tuesday morning, Wednesday and Thursday afternoons). The International Business Machines Corporation will conduct a program consisting of a discussion of medium and large-scale computers. Following this will be a tour of the data processing center covering the Type 705 Electronic Data Processing Machine and a demonstration of the 305 RAMAC.

Ford Motor Company, Mahwah, N. J. (Tuesday afternoon). This tour of the largest automobile and truck assembly plant in the world, offers an excellent opportunity to see all the interesting work that goes into the assembly of an automobile. On 1,714,050 square feet of manufacturing space, 45 freight carloads of auto parts are converted daily, using 10 miles of conveyor lines and a 1,025 foot final car-assembly line, into completed cars and trucks. The plant is capable of turning out 1,216 cars and trucks when operating on a two-shift, 16-hour day.

Bell Telephone Laboratories, Murray Hill, N. J. (Tuesday afternoon). Assembly will be in the Arnold Auditorium at 2 P.M. There will be a talk by A. R. Brooks, Publication Manager for New Jersey, describing the Laboratories, its place in the Bell System and its method of operation. Following this, a description of recent developments in solid state electronics will be given.

Groups will visit a cross-section of different laboratories, to give a broad picture of the scope and fields of science that are studied at Murray Hill.

Aliens are not excluded but must indicate their status on their reservations.

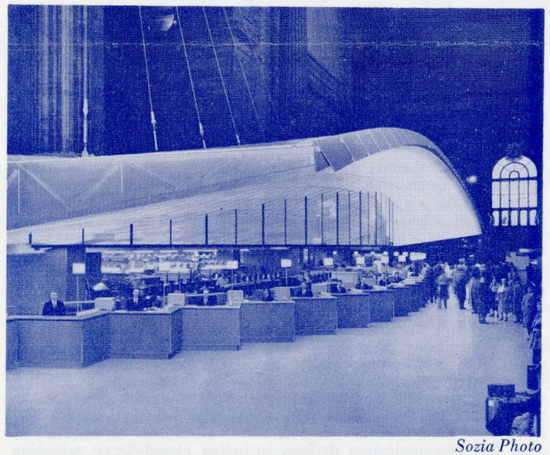
Bus leaves Statler 12:45 P.M., returns 5:15 P.M.

Reservations $2.00.

Federal Pacific Electric Company, Newark, N. J. (Tuesday afternoon). This trip will consist of a general inspection of Federal Pacific's extensive facilities for the production of Stab-lok circuit breakers, AB and AB-I circuit breakers and industrial motor control. Visitors will tour the plastic molding and small parts departments, quality control stations, powdered metallurgy facilities and assembly departments. Guides will explain the various sub-assembly operations, calibration and inspection, and other general manufacturing procedures. The plant, covering 156,000 square feet, produces circuit breakers at the approximate rate of ten million per year.

Sikorsky Aircraft, Div. of United Aircraft Corp., Stratford, Conn. (Wednesday—all day trip). Sikorsky's new Stratford Plant, opened in 1955, covers 830,000 square feet of floor space, plus surrounding acreage for flight line and air operations. A 500,000 square foot engineering and research addition scheduled for completion in 1958 is now in construction.

Located just north of Stratford (northeast of Bridgeport), the plant is adjacent to the Housatonic River crossing of the Merritt Parkway.



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Ticket Sales and Service Bureau, Pennsylvania Station, New York

The inspection tour will cover all unrestricted manufacturing facilities here, including sub-assembly and main-assembly of the world's largest production helicopter. Completed units will be available for inspection and, weather permitting, actual flight test operations will be witnessed.

Citizenship required—no cameras.

Bethlehem Steel Company, Shipbuilding Division, Hoboken Yards, N. J. (Wednesday morning). The Hoboken Yard, advantageously situated on the New Jersey side close to the North River Piers is one of the largest and most modern and efficient repair yards in the nation. With a 1,500 foot river frontage and an area of close to 40 acres it can handle 16 to 20 average-sized vessels at the same time within the confines of the yard and an even greater number at outside piers and anchorages.

Expanded and renovated through a long-range program this yard has an unusually complete range of modern shops and facilities. The machine shop is equipped with several hundred machine tools including a double-end lathe with a 50-inch swing and 54 feet between centers and a planer with a 9 x 31-foot table and a 54-foot bed length. The yard has available 4 drydocks of the floating type with two of them having lifting capacities of 20,000 tons each.

The tour will permit a thorough view of Yard facilities including piers and drydocks and encompassing a trip through the newest and most modern shore-based oil tank cleaning facilities in the country and through the machine shop.

Only United States male citizens are permitted.

Reaction Motors, Denville, N. J. (Wednesday afternoon). Reaction Motors manufacture rocket engines and their controls. The tour will be a two-hour inspection of their test facilities including a static test stand which is the largest in the East and their underground observation facilities and instrumentation. A missile type rocket will be set up in the test stand at the time of the tour.

Bus leaves Statler 12:30 P.M. Reservation $1.75.

Westinghouse Lamp Works, Bloomfield, N. J. (Wednesday afternoon). This is the largest manufacturing facility for the production of mercury lamps and special incandescent lamps. Visitors will be able to see development activities of Westinghouse Lamp Engineering Laboratories as well as the extensive assembly line manufacturing set up. Also on display are the latest laboratory models of new sources of panelescent lighting and research department samples of lamp products for the future.

Edward F. Barrett Power Station, Long Island Lighting Co., Island Park, L. I., N. Y. (Wednesday afternoon). The 128-acre site of reclaimed marsh land now houses one of an ultimate of six generating units. The guided tour features 185,000 kw generator, single boiler, tandem compound turbine. The outdoor turbine and semi-outdoor boiler are unusual in this latitude. Rail coal delivery facilities, unified control center and the 310,000 kva 138-69-33 kv substation will also be shown as part of the tour.

Brookhaven National Laboratory, Upton, New York (Thursday morning). The facilities of this location are operated by Associated Universities, Inc., under contract with the Atomic Energy Commission, and constitute the Northeastern Center for nuclear research and development in the fields of physics, chemistry, isology, medicine and engineering. Among the important exhibits which our members will see are the atomic pile, hot laboratory and the cosmotron. A complete tour has been arranged and competent guides, engineers and scientists will be on hand to explain fully the extensive facilities and exhibits which have been erected at this vast site. U. S. citizens only.

Bus leaves Statler 8:00 A.M., returns 5:30 P.M.

Reservation $5.25 includes bus and lunch.

Linden Generating Station, Linden, New Jersey (Thursday morning and afternoon). Public Service Electric and Gas Company's new Linden Generating Station is one of the company's chain of eight generating stations now in service or under construction. This station, which has an initial capacity of 450,000 kilowatts in two units, is unique in its extremely high efficiency which can only be obtained by utilizing the heat in the steam in industrial processes following its passage through the turbines. The steam, up to a maximum of 1,550,000 pounds per hour, is supplied to the Bayway Refinery of Esso Standard Oil Company, which adjoins the new station. In return for the steam, Esso furnished fuel oil and water.

Western Electric Company, Kearney, New Jersey. (Thursday—all day trip). This is one of the largest manufacturing plants of this supply organization for the Bell System. Included in this tour will be the multiconductor cable shop, relay blade manufactur-

Continued on page 12

ADVANCED COPIES OF PAPERS

Members may obtain preprints of numbered papers at the uniform price of 40c each (80c each to nonmembers), by sending enclosed order form and remittance to the AIEE Order Department, 33 West 39th Street, New York 18, N. Y. Mail orders (particularly from out-of-town members) are advisable, inasmuch as an adequate supply of each paper at the meeting cannot be assured. Coupon books in $10 denominations are available for those who wish to avoid remittance by check or otherwise. The Transactions Papers will also be published in the bimonthly publicatons.

Note: Unnumbered Conference Papers (CP.*) may be available at or after the meeting, if copies are provided by the author. They are not intended for publication in the Transactions and are not presently scheduled for reproduction in any form by the Institute.

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

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

Monday, February 3

9:00 a.m.—Instrumentation for Electric Welding

CP.* Progress in Development of Recommended Practices for Resistance Welding. R. P. C. Rasmusen.

CP58-210. A Recommended Program for Resistance Welding Instrumentation. A. Dixon, Westinghouse Electric Co.

CP.* A Parallel-Type Pickup Coil for Resistance Welding Current Measurements. William Kolb.

9:00 a.m.—Mining and Metal Industry

CP.* Recent Advances in Control Systems for Continuous Processing Lines. C. P. Brooks and J. T. Bradford, General Electric Company.

CP.* Motor Field Control for Large Reversing Mill Motors. L. R. Hulls, Canadian Westinghouse Co.

CP.* Some Experiences With Magnetic Amplifier Applications. J. A. B. Pinney, Alan Wood Steel Co.

CP.* The Application of Electrode Positioning Controls for Vacuum Arc Melting Furnaces. E. J. Borrebach, Westinghouse Electric Corp.

9:00 a.m.—Refining and Chemical Processes

CP.* Static Electricity in the Petroleum Industry. J. C. Howard, Standard Oil Co. (Indiana).

58-227. II Cypak and its Application in the Petroleum and Chemical Industries. P. G. Hanna and C. R. Olson, Westinghouse Electric Corp.

CP58-228. Electrical Safety in the Chemical Industry. E. J. Meyers, E. I. DuPont de Nemours and Co., Inc.

CP.* Selection and Installation of Equipment for Conduit Wiring Systems in Corrosive Locations. R. P. Northup and D. J. Smith, Crouse-Hinds Co.

9:00 a.m.—Microwave Channel Requirements for Protective Relaying

Symposium Moderator: T. A. Cramer.

Introduction: G. E. Farmer, TVA.

CP.* H. W. Lensner, Westinghouse Electric Corp.

CP.* L. G. Walker, Motorola, Inc.

CP.* I. T. Corbell, General Electric Co.

CP.* K. O. Sten, Boston Edison Co.

CP.* E. W. Downer, The Cleveland Electric Illuminating Co.

9:00 a.m.—Protective Devices

58-69. III Lightning Protection of Equipment With Remotely Mounted Arresters. A. H. Knable, Allis-Chalmers Mfg. Co.

57-575. III Expanding System Requirements Indicate Need For More Severe Arrester Tests. G. Fred Lincks, General Electric Co.

58-160. III Lightning Arrester Field Tests. H. Linck, The Hydro-Electric Power Commission of Ontario.

CP58-56. The Frequency Spectrum in Impulse Testing. William J. McKune, Georgia Institute of Technology.

58-94. III An Experience with Breaker Restriking and Arrester Destruction on the Pennsylvania Power and Light Co. 220 KV System. M. C. Galiyano, C. A. MacArthur and W. F. Mackenzie, Pennsylvania Power and Light Co.

9:00 a.m.—Industrial Power Rectifiers

CP58-216. Performance of Pumpless Ignitron Rectifiers. W. L. Blatz and E. J. Remscheid, General Electric Co.

58-137. II Superposition Applied to Mechanical Rectifier Contacts. I. K. Dortort, I-T-E Circuit Breaker Co.

CP58-217. Transformer Equipment For Rectifier Substations Serving Electrochemical Plants. W. R. Hodgson and R. D. Morris, Westinghouse Electric Corp.

58-218. II Analysis of Ignitron Rectifiers For Reversing Mill Drives. C. G. Hagensick and E. J. Cham, Westinghouse Electric Corp. (Re-presented for discussion).

CP.* Report of the Working Group on Revision of ASA C-34 Standards. H. Winograd, Allis-Chalmers Mfg. Co.

9:00 a.m.—Gaseous Dielectrics

CP.* Recent Progress on Gaseous Dielectrics. J. J. Chapman and L. J. Frisco, The Johns Hopkins University.

CP.* On the Electric Strengths of Gases at High Pressures I, Nitrogen. P. K. Watson and A. H. Sharbaugh, General Electric Co.

CP.* Current Pulse Shapes of Discharges in Air Gaps Limited by Series Dielectrics. J. C. Devins, General Electric Co.

CP.* Ionization in Gas Switching Tubes. David J. Rose, Bell Telephone Labs.

CP.* Experience With the AIEE Subcommittee Test Cell for Gaseous Dielectrics. M. L. Manning, Pennsylvania Transformer Company.

9:00 a.m.—Electronic Transformers

CP.* Computer Design of Small Electronic Transformers. Wade Etchison, M. B. Meunier and Reuben Lee, Westinghouse Electric Corp.

CP.* Reliability of Transformers for Electronic Applications. O. L. Angevine, Caledonia Electronics and Transformer Corp.

58-209. I An Experimental Study of Magnetic Materials For Use In Ultra High Temperature Electronic Transformers. H. B. Harms, General Electric Co.

CP58-208. Ultra High Temperature Electronic Transformers. G. E. Walter, J. F. Rippin, Jr. and H. B. Harms, General Electric Company.

9:00 a.m.—Magnetic Amplifiers

58-120. I Magnetic Saturable Core Timing Device. John L. Lowrance, Bendix Aviation Corp.

57-921. I II Core-Reset Functions in Magnetic Amplifier Analysis Part II—Determination of Amplifier Performance. G. C. Feth, General Electric Co.

58-96. I Self-Balancing Flux-Gate Magnetometers. W. A. Geyger, U. S. Naval Ordnance Lab.

CP58-173. Volt-Second Transfer Efficiency In Fast Response Magnetic Amplifiers. Part II: N^2/R As A Design Parameter. T. J. Pula, G. E. Lynn, and J. E. Ringelman, Westinghouse Electric Corp.

9:00 a.m.—Digital Differential Analyzers

CP.* What is a DDA? R. Goldman, Bendix Computer Division.

CP.* Evaluation of DDA Techniques. Robert C. Minnick, Burroughs Corp.

CP.* Future Developments in Incremental Techniques. M. Palevsky, Packard-Bell Computer Corp.

9:00 a.m.—Recording and Controlling Instrumentation

CP58-15. Digital Systems in the Aircraft Industry. W. P. Hamilton, Leeds and Northrup Co.

58-29. I Digital and Pictorial Photographic Electronic Recorder. R. G. McPherson and I. A. Sonderby, The Magnavox Research Labs.

CP.* Problems in the Design of a Family of Automatic Null-Balancing Electrical Measuring Instruments. L. E. Jewett, Leeds and Northrup Co.

CP.* Design Considerations for Miniature Automatic Null-Balancing Electrical Measuring Instruments. D. A. Narducci, Jr., The Bristol Co.

9:00 a.m.—Indicating and Integrating Instruments

58-145. I Watthour Meter for Two Phases of a 4-Wire Y 3-Phase System. A. M. McQuarrie, General Electric Co.

58-146. New Printing Demand Meter. P. V. Terry, General Electric Co.

CP58-241. High Impulse Rate Demand Contact Device. William A. Cavagnaro and Edwin B. Judd, General Electric Co.

CP.* Evaluation of Single-Phase Metering Practices Based on Meter Performance and Load Characteristics. J. M. Vanderleck, The Hydro-Electric Power Commission of Ontario.

2:00 p.m.—General Session

Address: President Walter J. Barrett.

Presentation of the Institute Prize Paper Awards.

Presentation of the Edison Medal to John K. Hodnette, Vice President and General Manager, Westinghouse Electric Corporation.

Address: Thomas J. Watson, Jr., Chairman of the Board of Directors, International Business Machines Corporation.

7:30 p.m.—Theory and Design of Magnetic Amplifiers

Tuesday, February 4

9:00 a.m.—Section Representatives

9:00 a.m.—Developments In Closed Circuit Television

CP.* A New Industrial TV Camera System. J. E. Dilley and G. A. Senior, RCA.

CP.* Dial Selective TV System for Ticket Reservation Facilities. Joseph W. Alinsky, Thompson Products, Inc.

CP.* Unusual Applications of Closed Circuit Television. C. L. Ellis, General Electric Co.

CP.* Wiring a Town for Closed Circuit Movie Distribution. Harry J. McMains, Southwestern Bell Telephone Co.

9:00 a.m.—Electric Space Heating and Heat Pumps

CP.* The Challenging Aspects of Electric Space Heating. W. T. Richards, Indianapolis Power and Light Co.

58-64. II Heat Pump and Heating Cables Installed in the Same Residence: First Year of Comparative Operation. C. W. Jones and E. E. Linden, The Narragansett Electric Co.

CP.* Operating Cost Calculations and Experience of Air-to-Air Heat Pumps. H. N. Eanes, Alabama Power Co.

CP.* Large Heat Pumps. H. E. Rex, Carrier Corp.

CP.* Compound Air Source Heat Pump. R. G. Werden, York Corp.

9:00 a.m.—Industrial Power Rectifiers and Metallic Rectifiers

58-219. I Current Balancing Reactors For Semi-Conductor Rectifiers. I. K. Dortort, I-T-E Circuit Breaker Co.

58-220. II Rectifier Power Factor. A. Schmidt, Jr., General Electric Company.

CP58-221. Semiconductor Rectifiers — Present and Future — For Electrochemical Loads. R. M. Crenshaw and A. L. Munn, General Electric Co.

CP58-222. Design Considerations for Large Industrial Semiconductor Rectifiers. G. J. Bowar, General Electric Co.

CP.* Trip Report on Rectifier Developments in Russia. L. W. Morton, General Electric Co.

9:00 a.m.—Insulated Conductors

58-72. III Control of the Thermal Environment of Buried Cable Systems—II. L. H. Fink and J. J. Smerke II, Philadelphia Electric Co.

CP58-242. Forced Cooling of Underground Cables. O. Nigol and G. H. West, The Hydro-Electric Power Commission of Ontario.

58-73. III 69 KV Stop Joint for Connecting Pipe Type Cable to Oil-Filled Cable. R. H. Bolling, Jr., Philadelphia Electric Co.

58-74. III Aluminum Conductor Aluminum Sheathed, Triplex Cable Installation. J. F. Gillespie, Philadelphia Electric Co.

9:00 a.m.—Power Generation

58-93. III Switchgear With Stored Energy Mechanism Applied To Steam Station Auxiliary Transfer Arrangements. P. G. Brown, J. J. Heagerty, D. G. Lewis and E. M. Smith, General Electric Co.

58-53. III Electrical Control Features of the Avon Supercritical Pressure Unit. R. F. Willett, The Cleveland Electric Illuminating Co.

CP58-163. Design and Operation of Gas Turbine Operating Stations. A. W. Barstow and W. D. Marsh, General Electric Co.

58-164. III Large Gas Turbines For Central Station Application. Z. Stanley Stys, Brown Boveri Corp.

9:00 a.m.—Substations

58-98. III Voltage Gradients Through the Ground Under Fault Conditions. AIEE Working Group 56.1, Chairman, Richard F. Stevens, Bonneville Power Administration.

58-33. III The Economic Advantages of Standard Substations. B. T. Payne, Central Maine Power Co.

58-7. III Working Group Report On Mobile Substations—Their Use, and the Design of Distribution Substations to Facilitate Their Use. AIEE Committee on Substations Working Group—Project 53.2, Chairman, H. H. Marsh, Jr.

CP58-99. Design and Utilization of Mobile Substations. M. R. Wallin, Union Electric Co.

9:00 a.m.—Applied Mathematics

CP.* Generalized Recurrence Relations in the Analysis of Physical Nonlinear Systems. A. A. Wolf, University of Pennsylvania.

CP.* Transient Response of a Saturating Control System. J. H. Dietz and A. A. Wolf, University of Pennsylvania.

58-66. I Matrix Programming of Electronic Analogue Computers. R. E. Horn, Westinghouse Electric Corp., and P. M. Honnell, Washington University.

CP58-67. Solutions of the Stout Nonlinear Equations and the Lewis Nonlinear Equation by Number Series. J. R. Eckel, Jr., University of Wisconsin and C. H. Weaver, University of Tennessee.

9:00 a.m.—High-Temperature Insulation

58-115. I Properties of Electrical Insulation at Ultra High Temperatures. G. I. Duncan and M. M. Felger, General Electric Co.

58-116. I Dielectric Sample Holder For Thin Sheet Insulation To 600°C. M. C. Halleck, General Electric Co.

CP58-117. Magnet Wire For Ultra High Temperature Transformers. W. W. Wareham, General Electric Co.

CP58-118. Terminal Spacings For High Altitude And Ultra High Temperature Electronic Transformer Applications. G. I. Duncan and W. A. Rectanus, General Electric Co.

58-119. I Insulation Aging In Pure Oxygen And In A Vacuum. L. C. Whitman, General Electric Co.

9:00 a.m.—Electron Tube Developments

CP58-187. Low-Mu Triodes With Improved Electrode Geometry. C. V. Weden, Machlett Labs., Inc.

CP.* High Temperature Ceramic Voltage Regulators and Reference Tubes. J. M. Lafferty, General Electric Research Lab.

CP58-188. Ceramic Hydrogen Thyratons. H. N. Price and A. W. Coolidge, General Electric Co.

CP.* A Rugged, Tunable, Thermally Stable X-Band Beacon Magnetron. C. J. Orlebeke, Raytheon Mfg. Co. Presented by A. J. Ferri, Raytheon Mfg. Co.

9:00 a.m.—Magnetic Amplifiers

58-39. I Magnetic Amplifier Design (Part II—The Windings). R. E. Anderson, General Electric Co.

58-77. I High Efficiency Push-Pull Magnetic Amplifiers With Transistors As Switched Rectifiers. A. G. Milnes, Carnegie Institute of Technology.

58-175. I Proposed Standard Terms and Definitions For Magnetic Amplifiers. AIEE M. A. Definitions Subcommittee, D. Feldman, Chairman.

58-71. I Proposed Standards For Core Test Methods For Toroidal Magnetic Amplifier Cores. AIEE Committee Report by Core Matching and Grading Working Group. V. J. Louden, Chairman.

9:00 a.m.—Computing Devices and System Engineering

58-133. III Computer Analysis of Transmission System Capability During Generator Outages. H. B. Seeley, R. E. Briesemeister and J. T. Garbarini, Consolidated Edison Co. of New York, Inc.

58-134. III The Use of A Digital Computer in A Generator Reserve Requirement Study. H. E. Brown, Commonwealth Edison Co.

CP58-136. Digital Fault Calculations. C. F. Evert and W. M. Lampe, University of Cincinnati.

CP.* Experience In Computation of Load Flow Studies Using High Speed Computer. H. P. St. Clair and G. W. Stagg.

CP58-243. Preliminary Report On Survey of Electric Utility Applications of Digital Computers. S. E. Computer Application and C. D. Applications Subcommittees. L. B. LeVesconte and F. J. Maginniss, Chairmen.

9:00 a.m.—Recording and Controlling Instrumentation

TOPIC: ASA Specifications (C39.4-1956) for Automatic Null-Balancing Electrical Measuring Instruments.

PRESENTATION: Members of the ASA Subcommittee C39.4 responsible for this new standard will review the reasoning on which it was based and will respond to questions concerning it.

PARTICIPANTS:
Chairman: E. A. Weiss, Sun Oil Co.
Panel Members: H. C. Koenig, Electrical Testing Labs.
G. L. Broomell, Jr., Leeds and Northrup Co.
R. C. Langford, Weston Electrical Instrument Corp.
J. W. Percy, U. S. Steel Corp.
W. H. Brand, Conoflow Corp.

2:00 p.m.—Section Representatives

2:00 p.m.—Television Broadcasting

CP.* A New Vidicon Camera for Live Pickup. F. W. Millspaugh and J. H. Roe, RCA.

CP.* Effects of Local Conditions on TV Receiver Design. Ernest Freeland, Philco Corp.

CP.* Engineering for Off-the-Air Television Service in Southern California. E. Dale Barcus, Pacific Telephone and Telegraph Company.

2:00 p.m.—Marine Transportation

58-135. II Metallic Rectifiers for Shipboard Electrical Systems. C. L. Straub, Dept. of the Navy and H. G. Wiest, General Electric Company.

58-132. II Overcurrent Protection In Large Capacity Shipboard Electrical Systems. J. R. Cole, Dept of the Navy.

CP58-161. Recommendations For Electrical Installations In Ships. (I.E.C. Publication 92.) A. R. Gatewood, American Bureau of Shipping.

2:00 p.m.—Industrial Power Systems and Transmission and Distribution

CP.* Alternate Methods of Tying With Utilities. Terrell W. Haymes and Robert B. Thompson.

CP58-63. Electrical Problems Resulting From the Interconnection of a Steel Plant Power System and a Utility. Edmond J. McClure, Bethlehem Steel Co.

CP.* AC Network Analyzer Studies of Interconnected Utility and Industrial Power Systems. Clifford C. Young and J. Dunki-Jacobs.

57-642. II The Tie Between a Utility and an Industrial When the Industrial Has Generation. D. V. Fawcett, Canadian Westinghouse Co., Ltd. (Re-presented for discussion).

2:00 p.m.—Insulated Conductors

58-75. III Corrugated Metallic Cable Sheath. K. Andresen, Hackethal Draht-und Kabel-Werke AG and F. Dias and N. D. Kenney, Simplex Wire and Cable Co.

58-76. III Electromagnetic Field Phenomena in Shielded Aerial Cables Under Surge Conditions. J. K. Delson, General Electric Co.

58-51. III Dielectric Strength and Voltage Life of Polyethylene. G. H. Hunt, M. J. Koulopoulos and P. H. Ware, Simplex Wire and Cable Co.

CP.* Operating Experience With Thermoplastic Insulated Wire and Cable in Chemical Plants. M. M. Gilbert and J. R. Perkins, E. I. duPont deNemours & Co.

2:00 p.m.—Power Generation

CP.* Recommended AIEE Excitation Systems Definitions for Synchronous Systems. Excitation Systems Subcommittee. P. L. Dandeno, Chairman.

57-904. III Transient Performance of Excitation Systems. R. L. Krahn, U. S. Army Corps of Engineers.

CP.* A Static Annunciator System. W. H. Baker, Public Service Electric and Gas Co. and E. A. Sagan, Westinghouse Electric Corp.

2:00 p.m.—Substations

CP58-100. Advantages of Conventional Substation Construction. P. R. Harris, Southwestern Gas & Electric Co.

CP58-244. Virginia Electric & Power Company Prefers Conventional Substations. A. H. Thiermann, Jr., Virginia Electric & Power Co.

CP.* Single Circuit Unit Substations. J. F. Jones, Baltimore Gas & Electric Co.

CP58-101. The Hartford Electric Light Company Prefers Unit Substations. D. C. Switzer, Hartford Electric Light Co. and H. B. Wortman, Westinghouse Electric Corp.

2:00 p.m.—Electric Circuit Theory

58-52. I Certain Applications of Matrics to Circuit Theory. L. A. Pipes, University of California.

58-60. I A Circuit Theory Approach to Finite Difference Stability. W. J. Karplus, University of California.

58-65. I Accurate Determination of Capacitance By Conjoining Analytical and Analog Techniques. J. D. Horgan and J. A. Pesavento, Marquette University.

2:00 p.m.—Thermal Stability of Insulation

CP.* Problems in Evaluating Long Term Degradation of Insulation. K. N. Mathes, General Electric Co.

CP.* Thermal Life of Enameled Magnet Wire, Report by Working Group on Enamel Magnet Wire, Committee on Dielectrics. J. F. Dexter, Chairman.

CP.* The Evaluation of Enameled Magnet Wire. H. L. Saums and W. W. Pendelton, Anaconda Wire and Cable Co.

CP.* The Effect of Varying the Electrode Curvature in Testing the Thermal Flex Life of Insulating Varnishes. R. L. Bowman, Minnesota Mining and Mfg. Co.

CP.* The Statistical Evaluation of Life Test Data by a 650 Digital Computer. L. P. Mahon, Canadian General Electric Co.

2:00 p.m.—Electron Tube Evaluation Program

CP.* Evaluation of Control Grid Current in Radio Tubes. Lawrence T. May, Tung-Sol Electric, Inc.

CP.* Electron Tube Evaluation for Guided Missile Applications. Herbert G. Chandler, Diamond Ordnance Fuze Labs.

CP.* The Role of Customer-Vender Agreements in the Maintenance of Electron Tube Quality Levels. A Warsher, Bendix Aviation Corp; A. J. Heitmer, Sylvania Electric Products, Inc.

CP.* Field Failure Analysis and Its Effect on Electron Tube Reliability. Norman E. Nitschke, IBM Corp.

CP.* Improvement of Electron Tube Quality Through Receiving Inspection and Failure Analysis. M. Swadow, Westinghouse Electric Corp.

2:00 p.m.—Magnetic Amplifiers

58-177. I Introducing Young Engineers To The Appreciation of Magnetic Amplifier Problems. L. A. Finzi, Carnegie Institute of Technology.

58-178. I The Transactor, A Self Saturating Transformer, Part I. A. B. Rosenstein, Los Angeles, Calif.

58-180. I Applications of Non-Linear Magnetics. H. F. Storm, General Electric Co.

2:00 p.m.—The Engineering Foundation and University Research

CP.* The Aims and Activities of the Engineering Foundation. E. I. Green, Bell Telephone Labs.

CP.* The Role of the Universities in Engineering Research. W. L. Everitt, University of Illinois.

CP.* 345 Kv Power Cable Research; An Example of University and Industry Cooperative Research. Report of AEIC-EEI Steering Committee for the Project.

2:00 p.m.—Techniques for Dielectric Tests

58-110. I Surge Measurement Errors Introduced By Coaxial Cables. J. H. Park, National Bureau of Standards.

58-18. I Measurements of Steep-Front Impulse Waves With an Isolated Screen Room Installation. C. J. Miller, Jr. and J. F. Wittibschlager, The Ohio Brass Co.

58-37. I Transient Response of Impulse Voltage Dividers. F. A. Fisher, General Electric Co.

58-27. The Influence of Water Resistivity and Precipitation Rate I Upon Sixty-Cycle Wet Flashover Voltage. AIEE Working Group on Rain Tests, Chairman, C. J. Miller, Jr.

Wednesday, February 5

9:00 a.m.—Radio Communications and Television and Aural Broadcasting

CP.* Mobile Dialing. Charles H. Willyard, Motorola, Inc.

58-179. Wideband UHF Over-The-Horizon Equipment. R. A. Felsen-I held, H. Havstad, J. L. Jatlow, D. J. LeVine and L. Pollack, Federal Telecommunication Labs.

58-154. The Miami-Havana Radio System and Its Integration into the I Telephone Networks. K. P. Stiles, F. G. Hollins, E. T. Fruhner and W. D. Siddall, American Telephone and Telegraph Co.

CP.* Factors Affecting the Use of Over-The-Horizon Links in Telecommunication Networks. Charles A. Parry, Page Communications Engineers.

CP.* Beyond Horizon Radio—Tailored For Alaska. R. B. Stecker, Western Electric Co.

9:00 a.m.—Industrial Control

CP58-62. The Bode Diagram—An Approach to Regulating System Stability Fundamentals. L. A. Koenig, Clark Controller Co.

58-42. A Method of Scaling and Checking Computer Circuits. L. J. II Lane, General Electric Co.

58-40. Characteristics of Phase-Controlled Bridge Rectifiers with II DC Shunt Motor Load. R. W. Pfaff, Reliance Electric and Engineering Co.

CP58-79. A Computer Study of a High Speed Repetitive Positioning Drive. E. G. Anger, Square D Co.

9:00 a.m.—Insulated Conductors

58-17. Cable Installations on Bridges. E. W. Scheirer and L. Winit-III sky, Philadelphia Electric Co.

58-78. The St. Lawrence River High Voltage Submarine Cable III Crossing—Part I, Basic Data and Design. D. M. Farnham, Quebec Hydro Electric Commission; G. B. Shanklin, Schenectady, N. Y.; S. H. Cunha, Quebec Hydro Electric Commission and H. D. Short, Canada Wire and Cable Co. Ltd. (Represented for discussion.)

CP.* The St. Lawrence River High Voltage Submarine Cable Crossing—Part II, Experimental Program and Cable Manufacture. D. M. Farnham, Quebec Hydro Electric Commission; G. B. Shanklin, Schenectady, N. Y.; S. H. Cunha, Quebec Hydro Electric Commission and H. D. Short, Canada Wire and Cable Co. Ltd.

CP.* The St. Lawrence River High Voltage Submarine Cable Crossing—Part III, Installation. D. M. Farnham, Quebec Hydro Electric Commission; G. B. Shanklin, Schenectady, N. Y.; S. H. Cunha, Quebec Hydro Electric Commission and H. D. Short, Canada Wire and Cable Co. Ltd.

CP.* The St. Lawrence River High Voltage Submarine Cable Crossing—Part IV, Final Tests and Field Data. D. M. Farnham, Quebec Hydro Electric Commission; G. B. Shanklin, Schenectady, N. Y.; S. H. Cunha, Quebec Hydro Electric Commission and H. D. Short, Canada Wire and Cable Co. Ltd.

9:00 a.m.—Power Generation and System Engineering

58-126. Determination of Reserve Generating Capability. H. Hal-III perin and H. A. Adler, Commonwealth Edison Co.

58-139. Determination of Reserve and Interconnection Requirements. III H. D. Limmer, Public Service Electric and Gas Co.

58-140. Details of Outage Probability Calculations. A. L. Miller, The II Cleveland Electric Illuminating Co.

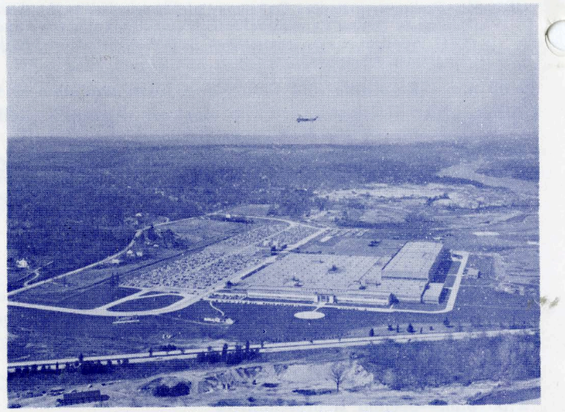
56-635. Probability Calculations for System Generation Reserves. III Carl Kist and G. J. Thomas, Los Angeles Dept. of Water and Power.

9:00 a.m.—Substations and Switchgear

58-28. Welded Aluminum Conductors in Isolated Phase Bus. N. III Swerdlow and K. N. Smith, General Electric Co.

CP58-245. Power Tests Prove Single Insulator Isolated Phase Aluminum Bus. A. H. Powell and N. Swerdlow, General Electric Co.

CP58-124. Application of Aluminum in Switchgear Apparatus. R. H. Rutter and L. E. Keck, Westinghouse Electric Corp.



Sikorsky Aircraft, United Aircraft Corp.

CP58-125. Training and Qualification of Welders for Aluminum Bus Welding. G. Allen, Kaiser Aluminum Chemical Co.

CP.* Design Concepts in the Development of Bolted Aluminum Power Connectors. J. R. Warren, Royal Electric Mfg. Co., Inc.

9:00 a.m.—Relays

58-25. Relaying Tapped Substations for Faults on High Voltage III Transmission Lines. R. W. World, C. L. Rose and J. E. Skuderna, Bureau of Reclamation.

58-26. Compensator Distance Relaying I—General Principles of Op-III eration. W. K. Sonnemann and H. W. Lensner, Westinghouse Electric Corp.

58-20. Compensator Distance Relaying II—Design and Performance. III W. E. Rich and H. J. Calhoun, Westinghouse Electric Corp.

58-19. Compensator Distance Relaying III—Carrier Control System. III H. W. Lensner, P. J. Schwanenflugel and W. L. Hinman, Westinghouse Electric Corp.

9:00 a.m.—New Synthetic Insulating Materials

CP.* Properties of Octofluorocyclobutane—A Dielectric Gas. Frederick B. Hill, E. I. duPont deNemours & Co., Inc.

CP.* A New High Temperature Perfluorocarbon Resin for Conventional Thermoplastic Processing. R. S. Lovett and Miles Powell, Jr., E. I. duPont deNemours & Co., Inc.

CP.* A Versatile New Acetal Resin for Engineering Use. E. F. Hamilton, Jr., E. I. duPont deNemours & Co., Inc.

CP.* Acrylic Resin Insulation. P. F. Sanders, V. R. Huntsberger and R. R. Storrow, E. I. duPont deNemours & Co., Inc.

9:00 a.m.—Linear Transistor Applications

58-192. Temperature Stabilization of D.C. and Switching Transistor Amplifiers. Louis Depian, George Washington University and Richard E. Smith, Carnegie Institute of Technology.

CP.* An Analog Frequency Measuring Circuit Accurate to 0.1%. Jonathan Mitchell, Link Aviation, Inc.

CP.* Transistor Phase Locked Oscillator. D. J. Brady, K. A. Edwards and O. Golubjatnikov, General Electric Co.

CP.* Active Filters and Their Use in Radar Range Gate Systems. Harold Gruen, Philco Corp.

CP.* Transistor Bias Design and r/b 1 Measurement From Thermal Incremental Properties. L. M. Vallese, Polytechnic Institute of Brooklyn.

CP.* D-C Kilo-Ammeter Using Hall Generator. B. Christensen and T. J. Marcus, Westinghouse Electric Corp.

9:00 a.m.—Auxiliary Devices for Computers

CP.* Recognition of Magnetic Characters. E. C. Greenius, IBM Corp.

CP.* A New Output Printer-Whippet. G. Harris and H. Epstein, Burroughs Corp.

CP.* A Photo-Electric Analogue-to-Digital Converter Using a Complementary Code Pattern. B. Darby Merrill and R. Mugni, Electronic Corp. of America.

CP58-230. A Simulation of the Card Programmed Calculator on the IBM 705. S. G. Fleming, General Electric Co.

9:00 a.m.—Management

CP.* Human Relations Training for Engineers. L. A. Kilgore, Westinghouse Electric Corp.

CP.* Electric Corporation Methods Training for a Utility Company. S. A. Langell, American Gas and Electric Co.

9:00 a.m.—Special Instruments and Auxiliary Apparatus and Indicating and Integrating Instruments

58-8. Electric Hygrometer. W. H. Meiklejohn, General Electric I Research Lab.

CP58-103. Resistance Determination of Resistance Thermometers at Integral Temperatures. J. Knudsen, Lewis Engineering Co.

CP.* Techniques for Measuring Small Three-Terminal Capacitors. M. C. McGregor.

58-11. The Definition and Measurement of the Time Constant and I Response Time of Thermal Converters. Francis L. Hermach, National Bureau of Standards. (Re-presented for discussion.)

CP.* A Unit for Checking A-C Indicating Instruments. H. N. Haywood,

9:00 a.m.—Industrial Power Rectifiers

CP58-223. Comparison of Calculated and Measured Arc Back Current in Large Power Rectifier Systems. J. Teno, Lehigh University; C. H. Titus, General Electric Co. and R. N. Wagner, Aluminum Co. of America.

CP58-224. Anode Breaker Field Testing with a High Capacity Rectifier System. L. J. Harris, Aluminum Co. of America; T. J. Scully and V. N. Stewart, General Electric Co.

CP58-225. Field Testing D-C Air Circuit Breakers on a High Capacity System. P. L. Hartsock, Aluminum Co. of America; and T. J. Scully and V. N. Stewart, General Electric Co.

CP58-226. A Mathematical Model and Procedure for Arc-Back Current Calculations for Power Rectifiers. H. P. Fullerton, General Electric Co. and J. Teno, Lehigh University.

9:00 a.m.—Ground Resistance and Potential Gradient Measurements

CP58-105. The Technique and Instrumentation of Low-Impedance Ground Measurement. C. A. Duke and L. E. Smith, Tennessee Valley Authority.

CP58-106. Some of the Fundamental Aspects of Ground Resistance Measurements. E. B. Curdts, James G. Biddle Co.

CP.* Resistance Measurements of Deep Driven Grounds. C. H. Jensen.

CP.* Ground Measurements for Communication Circuit Protection Planning. W. C. Ball.

2:00 p.m.—Radio Communications Systems

CP.* Dial-Direct Automatic Termination Equipment for Mobile Radiotelephone Service. J. A. Craig, Dumont Mfg. Co.

Hoboken Yard, Bethlehem Steel Co.

CP58-181. A 6,000-MC Radio System for Toll Telephone Service. M. H. Kebby and A. F. Culbertson, Lenkurt Electric Co.

CP58-182. A 240-Channel Microwave Radio Multiplex System. A. Hemmila and R. L. Edens, Lenkurt Electric Co.

CP.* Signaling Systems for Dialing and Supervision on Overseas Radiotelephone Systems. Elmer W. Reeve, A. T. & T. Co.

58-183. The Simultaneous Transmission of Television and Telephone I Multiplex Over a Single Microwave Channel on the Trans-Canada TD-2 System. H. E. Curtis, Bell Telephone Labs.; U. C. P. Strahlendorf and A. J. Wade, Bell Telephone Co. of Canada (Re-presented for discussion.)

58-185. A New Broadband Microwave Antenna System. R. W. Friis I and A. S. May, Bell Telephone Labs. (Re-presented for discussion.)

2:00 p.m.—Communication Theory

58-34. Bits of Information. Arthur S. Zamanakos, U. S. Naval Re-I search Laboratory.

CP58-36. Entering the Machine Domain. S. L. Seaton, Hampton, Va.

CP.* Recent Progress in Applying Information Theory to Digital Transmission Systems. R. F. J. Filipowsky, Westinghouse Electric Corp.

CP58-246. Binary Communication Feedback Systems. B. Harris, A. Hauptschein, K. C. Morgan and L. S. Schwartz, N. Y. U.

57-1041. Binary Symmetric Decision Feedback Systems. B. Harris I K. C. Morgan, N. Y. U. (Re-presented for discussion.)

58-38. An Experimental Study of a Binary Code. W. W. Peterson, I University of Florida. (Re-presented for discussion.)

2:00 p.m.—Telegraph Systems

58-47. Airborne Teletypewriter, AN/AGC-1. R. A. Michals, Klein-I schmidt Labs., Inc.

58-48. The "Mite" Teleprinter. Bernard Howard, Teleprinter Corp. I

CP.* Advancements in the Facsimile Art During 1957. Warren H. Bliss, RCA Labs.

CP.* Present Status of Facsimile in Japan. Yasujiro Niwa, Tokyo Electrical Engineering College.

2:00 p.m.—Industrial Control

58-68. Three-Phase Induction Motor Control Using Static Frequency II Doublers. A. Straughen, Canadian Controllers Ltd., P. P. Biringer and G. R. Slemon, University of Toronto.

CP58-70. An Improved Static Digital Control System. J. J. McNeill and H. A. Perkins, Jr., Westinghouse Electric Corp.

CP58-184. Proximity Switches—Characteristics, Design and Application. F. A. Manners and R. C. Mierendorf, Square D Company.

2:00 p.m.—Power Generation and System Engineering

58-141. Generator Unit Size Study for the Dayton Power and Light III Company. W. J. Pitcher, The Dayton Power and Light Co.; L. K. Kirchmayer, A. G. Mellor, and H. O. Simmons, Jr., General Electric Co.

58-142. Digital Computer Aids Economic-Probabilistic Study of Gen-III eration Systems—Part I. M. K. Brennan, C. D. Galloway and L. K. Kirchmayer, General Electric Co.

58-143. Digital Computer Aids Economic-Probabilistic Study of Gen-III eration Systems—Part II. C. D. Galloway and L. K. Kirchmayer, General Electric Co.

CP58-144. Treatment of Hydro Capability Duration Curves in Probability Calculations. K. L. Hicks, Sargent and Lundy.

2:00 p.m.—Rotating Machinery

58-195. A Theory For Shaded Pole Motors. F. W. Suhr, General III Electric Co. (Re-presented for discussion.)

CP58-196. Temperature Tests on Totally Enclosed Non-Ventilated Motors. R. F. Woll, Westinghouse Electric Corp.

CP*. New Class F Wire Enamel-Varnish Systems. J. R. Learn and R. B. Young, General Electric Co.

58-171. Evolution of the Design and Operation of Large Thrust Bearings. R. A. Baudry, Westinghouse Electric Corp.

2:00 p.m.—Transmission and Distribution and Relays

58-50. Ultra High-Speed Reclosing Experience at 345 KV. H. C. III Barnes, A. Hauspurg and J. H. Kinghorn, American Gas and Electric Service Corp.

58-111. Effect of Current Cut-Off and Arc Voltage on Recovery Volt-III age. C. Concordia, General Electric Co.

58-9. III Bibliography on Power Capacitors 1954-1956. AIEE Working Group of the Capacitor Subcommittee, Chairman M. E. Scoville.

2:00 p.m.—Solid Dielectrics

CP.* Glass Flake in Electrical Insulation. L. M. Conklin and Mark P. Koerner, Jr., Owens Corning Fiberglas Corp.

58-121. I Treeing in Polyethylene as a Prelude to Breakdown. D. W. Kitchin and O. S. Pratt, Simplex Wire and Cable Co.

CP58-211. Internal Oxidation Mechanism for Non-Tracking Organic Insulations. R. S. Norman and A. A. Kessel, General Electric Company.

58-122. I Effect of Hydrostatic Pressure on the Permittivity of Barium Titanate Ceramics. Graham W. Marks and Lester A. Monson, U. S. Navy Electronics Lab.

CP.* Electrical Characteristics of High Density, High Purity, Titanate Ceramics. D. A. Lupfer, General Electric Co.

2:00 p.m.—Theory and Design of Switching Circuits

58-3. I Minimization of Components in Electronic Switching Circuits. T. J. Beatson, General Electric Co.

CP58-193. The Effects of Semiconductor Diode Transients on Computer Gates. H. Austin Spang III, Yale University School of Engineering.

CP.* Collector Response Time From Characteristic Curves. J. E. Palmer and J. E. Lindsay, Radio Corp. of America.

CP.* Monostable Multivibrator Pulse Generators. J. J. Suran, General Electric Co.

CP58-194. Circuit Properties of Hook Transistor Configurations. L. M. Vallese, Polytechnic Institute of Brooklyn.

CP.* Analysis and Design of a Transistor Linear Delay Circuit. R. P. Nanavati, Syracuse University.

2:00 p.m.—Symposium on Effects of Radiation on Materials

CP.* Radiation Damage to Insulators. John F. Kircher, Battelle Memorial Institute.

CP.* Effects of Radiation on Electronic Components. J. C. Pigg, Oak Ridge National Laboratory.

CP.* The Argonne High Level Gamma Irradiation Facility. H. Gladys Swope, Argonne National Laboratory.

CP.* Effect of In-pile Radiation on Ceramic Triod. John R. Crittenden, General Electric Co.

2:00 p.m.—Computers in Control Systems

58-31. I An Analog Computer Study of the Transient Behavior and Stability Characteristics of Serial Type Digital Data Systems. Olle I. Elgard, University of Florida.

CP58-231. Function Tables in Digital Control Computers. E. J. Schubert, Burroughs Research Center.

CP58-232. A Transistorized Digital Control System with Precision Indication of the Controlled Variable. W. M. Kaufman and T. A. Jeeves, Westinghouse Research Labs.

58-247. The Design of Function Generators Using Short-Time Memory Devices and Non-Linear Elements. A. W. Revay, U. S. Air Force and D. J. Ford, University of Pittsburgh.

2:00 p.m.—Industrial Power Systems

CP.* Recent Advances in Busway Concepts. C. J. Falk and C. A. Brown.

CP58-102. Voltage Drop Determinations Examined. R. A. Erwin, Los Angeles Dept. of Water and Power.

CP.* Power Distribution at Vancoram Plant, Vanadium Corp. of America. Floyd G. Fellows and Harris F. White.

CP.* Power Systems for Small Plants Served at Above 15 KV. D. B. Armstrong and L. H. Greutzmacher.

CP58-16. High Voltage Power Distribution Systems for Schools. T. Michael, Cincinnati Gas and Electric Co.

2:00 p.m.—Measurements on Dielectrics

CP58-107. Ionization Pulse Detection with a Slow-Sweep-Speed Oscilloscope. C. A. Duke and L. E. Smith, Tennessee Valley Authority.

58-35. I Measurement of Voltage Resulting from Single Phase Switching of a High Voltage 3-Phase Transformer. W. F. Dunkle and W. F. Mackenzie, Pennsylvania Power and Light Co.

CP58-49. The Development of Power Factor Measurement of Insulation in the Field. E. H. Povey, Doble Engineering Co.

CP58-108. Turbo-Alternator Cylindrical Rotor Winding Tester. E. E. Stamm, Consolidated Edison Co.

Thursday, February 6

9:00 a.m.—Symposium on Safety Considerations in the Proposed Use of Higher Secondary and Utilization Voltages

Arthur E. Pringle, II, Symposium Moderator.

National Electrical Code. H. B. Whitaker.

Industrial and Commercial Buildings. R. H. Kaufmann.

Relative Shock Hazard. W. B. Kouwenhoven.

European Practices. L. D. Price.

Air Conditioning. George S. Jones, Jr.

Canadian Wiring Systems and Appliances. F. R. Whatmough.

Motors.

Commercial Structure.

9:00 a.m.—Wire Communications

CP.* Dial Switching of Toll Circuits in Independent Telephone Co. Areas—Transmission Considerations from the DDD Standpoint. J. N. Petrie, Automatic Electric Co.

58-5. I Nationwide Switching of Intertoll Trunks—Transmission Considerations. O. F. Wallman, American Telephone and Telegraph Co.

58-4. I Impedance and Return Loss Performance of Telephone Plant in Metropolitan Areas. L. B. Bogan, American Telephone and Telegraph Co.

58-214. I Study of Return Losses on Loaded Trunk Cables and Methods Taken to Improve Them. G. H. Speake, Southern Bell Tel. & Tel. Co.

9:00 a.m.—Production and Application of Light

CP.* Progress Report of Light Sources and Equipment.

9:00 a.m.—Electrochemical Processes

CP58-169. An Evaluation of a High Current Mechanical Rectifier. J. C. Trackman and H. Buetikofer, Brown Boveri Corp. and T. F. Ingate, General Analine and Film Corp.

CP.* A User's Experience with Rectifier Transformer Failures. Edward H. Coxe and Hugh O. Bourque, Ethyl Corp.

CP.* A Planned Large Hi-Voltage Germanium Rectifier Installation. Ray P. Stratford and Herbert N. Hickok, General Electric Co.; George Choma, Diamond Alkali Co.

CP.* 3000 KW 300-Volt D-C Semiconductor Rectifier. Otto Jenson, I-T-E Circuit Breaker Co.

CP58-170. Application of Semiconductor Power Rectifiers in Electro chemical Industry. R. P. Stratford, General Electric Co.

9:00 a.m.—Feedback Control Systems and Computing Devices

58-90. II Statistical Design Theory for Digital Controlled Continuous Systems. S. S. L. Chang, New York University.

58-91. II The Effect of Quantization in Sampled-Feedback Systems. J. E. Bertram, Columbia University.

CP.* Why Not Use Sine-Cosine Encoder. W. I. Frank.

CP.* Accuracy Limitations of Geared Up Encoder. W. Barr and W. I. Frank.

CP58-240. General Analysis and Stability Study of Finite Pulsed Feedback Systems. G. Farmanfarma, University of California.

9:00 a.m.—System Engineering

58-165. III Penalty Factors from Power System Equations. P. G. Lubisich, Los Angeles Dept. of Water and Power.

CP.* Some Applications of a New Approach to Loss Minimization in Electrical Utility Systems. T. W. Sze, Jr., J. R. Garnett and J. F. Calvert.

58-104. III Operating Experience with GEDA Automatic Economic Dispatching—Ohio Edison System. R. H. Travers, Ohio Edison Co.

CP58-207. Operating Experience with West Penn Power's Economic Dispatch Computer. W. R. Hamilton and W. H. Osterle, West Penn Power Co.

9:00 a.m.—Rotating Machinery

58-157. III A Basic Analysis of Synchronous Machines—I. W. A. Lewis, Illinois Inst. of Technology.

58-197. III A Complete Equivalent Circuit of a Synchronous Machine. I. Giaever, General Electric Co.

58-198. III Measurement of Rotor Displacement Angle on Synchronous Machines. V. A. Kinitsky, New York, N. Y.

9:00 a.m.—Switchgear

58-127. III 138 KV Metal Enclosed Isolated Phase Bus and Switching Structure. R. H. Albright, I-T-E Circuit Breaker Co.

58-128. III Service Experience and Staged Field Tests on the 115KV 1,000,000 KVA Gas-Filled Power Circuit Breaker. E. B. Henry, Gulf Power Co.; R. E. Friedrich and F. L. Reese, Westinghouse Electric Corp.

58-129. III A New 46 KV Low Capacity Circuit Breaker for Multiple Reclosing Duty. R. N. Yeckley and R. H. Cunningham, Westinghouse Electric Corp.

58-114. III A 46 KV Automatic Circuit Recloser. E. J. Field, I-T-E Circuit Breaker Co.

9:00 a.m.—Transmission and Distribution

58-14. III Analytical Studies of Lightning Performance of One and Two Ground Wire 138 KV Double Circuit Lines of the Commonwealth Edison Co. R. W. Caswell and E. F. Koncel, Jr., Commonwealth Edison Co. and E. T. B. Gross, Illinois Institute of Technology.

58-24. III The Lightning Stroke. C. F. Wagner and A. R. Hileman, Westinghouse Electric Corp.

CP58-189. Anomalous Flashovers on Transmission Lines—II. C. J. Miller, Jr., Ohio Brass Co.

CP.* Magnetic Fields Around a Transmission Line Tower. J. G. Anderson and J. H. Hagenguth, General Electric Co.

CP.* Lightning Current Distribution in Towers and Ground Wires. A. J. Schultz and I. B. Johnson, General Electric Co.; W. S. Price, American Gas and Electric Service Corp.

9:00 a.m.—Transformers

58-112. III Insulation Coordination of Gas Insulated Transformers. G. Camilli and R. E. Coates, General Electric Co.

CP.* Insuldur—Another Milestone in Transformer Insulation Development. J. G. Ford, J. Swiss, G. C. Gainor and M. G. Leonard.

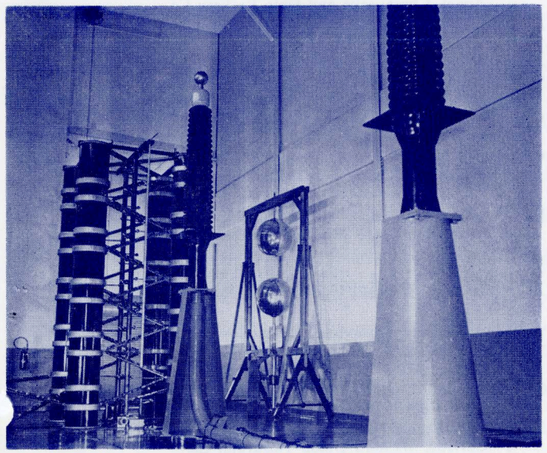
58-155. III Temperature Rise of Dry-Type Transformers. A. A. Halacsy, Delta-Star Electric Co.

CP.* Further Considerations on Reduced Transformer Insulation Levels. J. R. Meador, General Electric Co.

9:00 a.m.—Radiation Effects on Dielectrics

CP.* Effects of Gamma Radiation on Silicone Dielectrics. Cedric E. Currin, Dow Corning Corp.

CP.* The Radiation Effects Information Center. Howard R. Batchelder and Carl J. Lyons, Battelle Memorial Institute.



Phelps-Dodge Copper Products 2 Million-Volt Impulse Generator

CP58-123. A Method for the Evaluation of Radiation Damage to the Mechanical Properties of Plastics. J. H. Kleinpeter, General Electric Co.

CP.* The Effects of Gamma Radiation at High Temperatures on the Engineering Properties of Elastomer Materials. Paul W. Davis, General Electric Co.

CP.* Conductivity Induced in Insulating Materials During Gamma Irradiation. Gerald C. Huth, General Electric Co.

9:00 a.m.—Electrostatic Processes

CP.* A Probe Method for Measuring Potentials in Corona. Gaylord W. Penney and R. E. Matick, Carnegie Inst. of Technology.

CP.* Field Strength Measurements in Parallel Plate Precipitators. J. S. Lagarias, Koppers Co.

CP.* Automatic Precipitator Control. L. L. Little, Western Precipitation Corp.

CP.* Properties and Applications of High Energy Electrons. John G. Trump, MIT.

CP.* Laboratory and Field Testing on Silicon Diode Rectifiers for Electrical Precipitation Service. Homer D. Laube and Lucien J. Theriault, General Electric Co.

58-229. I Automatic Control of Electrical Precipitation Rectifiers. H. E. Van Hoesen, H. J. White and H. J. Hall, Research-Cottrell, Inc.

57-87. I Some Measurements of Abnormal Corona. Gaylord W. Penney, Carnegie Inst. of Technology and Jack G. Hewitt, IBM Corp. (Re-presented for discussion.)

9:00 a.m.—Computing Devices and Data Communications

CP.* FM Digital Subset. L. A. Weber, Bell Telephone Labs.

CP.* Synchronizing Clock for Data Transmission. J. O. Edson, M. A. Flavin and A. D. Perry, Bell Telephone Labs.

CP.* Digital Data Transmission Between Dissimilar Processing Centers. J. A. Brustman, I. Cohen and H. P. Guerber, Radio Corp. of America.

2:00 a.m.—Safety Symposium (continued)

Canadian Utilities. H. Hyde.

Electrical Inspection.

Underwriters' Labs., Inc. Requirements.

Major Appliances.

Utility Distribution.

Space Heating.

Army.

Navy Installations. C. D. Friday.

Lighting Sources.

Panelboards.

2:00 p.m.—Wire Communications

58-59. I A Basis for Transmission Performance Objectives in a Telephone Communication System. W. K. MacAdam, American Telephone and Telegraph Co.

CP58-236. The Planning of National Telecommunication Networks. Charles A. Parry, Page Communications Engineers.

CP.* Pretied Tie for Communication Line Wires. C. R. Ballard, Rural Electrification Administration; R. R. Bouche, National Bureau of Standards.

58-239. I A New Method of Frequency Error Correction in Carrier Systems. B. R. Stachiewicz, Federal Telecommunication Labs. (Re-presented for discussion.)

57-907. A Transistorized Repeater for Use with the 45 BN Cable System. V. Babin and R. Fish, Lenkurt Electric Co. (Re-presented for discussion.)

58-215. I A Frequency-Converting Telephone Carrier Repeater for Military Use. G. Goltsos and J. H. Johnston, Signal Corps Engineering Lab. and R. B. Anderson, Lenkurt Electric Co. (Re-presented for discussion.)

2:00 p.m.—Symposium: Metering of High Current Low Low Voltage D-C Power Systems

CP.* John H. Miller, Weston Electrical Instrument Corp.

CP.* George B. Scheer, Kaiser Engineers.

CP.* Lester H. Wolgast, Reynolds Metals Co.

CP.* A. F. Touchette, General Electric Co.

CP.* M. E. Reagan, Westinghouse Electric Corp.
CP.* Max Kramer, Aluminum Company of America.
CP.* F. Langvee, Aluminum Company of Canada, Ltd.

2:00 p.m.—Transistors in Feedback Control Systems

CP58-87. Some Stability Considerations in the Design of Large Feedback Junction Transistor Amplifiers. Herbert Hellerman, University of Delaware.
58-88. II Silicon Transistor Performance in a Chopper Application. J. Giorgis and C. C. Thompson, General Electric Co.
CP58-89. Application of Switching Transistors and Saturable Reactors in a High-Performance Servo. F. B. Cox and P. R. Johannessen, Massachusetts Inst. of Technology.
58-92. II Compensating Saturation in Feedback Control Systems by Excess Error Storage. S. S. L. Chang and R. W. Archbald, New York University.
CP.* Preliminary Report of Feed Back Control Systems Subcommittee on Component Specifications. Chairman, D. D. Pidhayny.

2:00 p.m.—System Enginering and Power Generation

58-113. III The Criterion of Economic Choice. P. H. Jeynes and L. Van Nimwegen, Public Service Electric and Gas Co.
58-166. III Valve Point Loading of Turbines. G. L. Decker and A. D. Brooks, Dow Chemical Co.
CP58-167. Performance Computer for Steam-Electric Generating Units—Part I. A. J. Hornfeck and T. S. Imsland, Bailey Meter Co.
CP58-168. Evaluation of Combustion Control-Load Control Tie-in Equipment at Niles Station of Ohio Edison Co. R. H. Travers, D. B. Zelenka, Leeds and Northrup, H. A. List and C. Nichols, Ohio Edison Co.

2:00 p.m.—Rotating Machinery

58-199. III An Advanced Concept for Turbine-Generator Stator Winding Insulation. E. J. Flynn, C. D. Richardson and C. E. Kilbourne, General Electric Co.
CP58-203. Medium Voltage A-C Testing of Rotating Machinery Insulation. F. S. Oliver, Doble Engineering Co.
CP58-204. Separation of Absorption and Leakage Components in High Voltage D-C Insulation Testing. F. R. Schlief and L. R. Engvall, Bureau of Reclamation.
CP.* A New Method of Corona Suppression for High Voltage Rotating Machines. Vincent E. Manni and William Schneider, Westinghouse Electric Corp.

2:00 p.m.—Switchgear

CP.* A 1,000 MVA, 13.8-kv Magnetic De-ion Air Circuit Breaker. R. C. Dickinson and Russell Frink, Westinghouse Electric Corp.
CP58-130. A Magnetic Air Circuit Breaker for 350 MVA, 3,000 Amperes and 4.16 KV. Russell Frink and J. M. Kozlovic, Westinghouse Electric Corp.
CP58-249. 13.8 kv Metal Clad Switchgear with 5 cycle Magnetic Air Circuit Breakers Having Symmetrical Interrupting Ratings. W. A. Carter, P. G. Smith and E. B. Rietz, I-T-E Circuit Breaker Co.
58-43. III A New Design Metal-Clad Switchgear for 4.16 KV Service. N. Kreekon and W. H. Lane, Allis-Chalmers Mfg. Co.
CP58-248. A New Magnetic Air Circuit Breaker for 2.3/4.16 KV Service. M. J. Reilly and V. A. Mortenson, Allis-Chalmers Mfg. Co.

2:00 p.m.—Transmission and Distribution

58-176. III Arc Drop During Transition From Spark Discharge to Arc. C. F. Wagner, C. M. Lane and C. M. Lear, Westinghouse Electric Corp.
58-22. III The Insulator Contamination Problem as Influenced by Silicone Surface Coatings. J. E. Conner, Southern California Edison Co. and A. D. Lantz, Jr., Ohio Brass Co.
58-57. III Development of Corona Shields for Suspension Assemblies of Bundled Conductor Transmission Lines. J. Kaminski, Jr., General Electric Co.
CP.* Radio Influence Voltages Caused by Point Protrusions on Bundle Conductors. T. W. Liao and P. A. Doyle, General Electric Co.
CP.* A Comparative Study of the Radio Influence Characteristics of Several High Voltage Transmission Lines. W. S. Price, American Gas and Electric Service Corp.; C. Concordia and G. E. Adams, General Electric Co.

2:00 p.m.—Transformers

58-153. III Effect of Coil Winding and Processing on the Electric Strength of Class OA Insulating Materials. W. T. Sackett, Jr., Kuhlman Electric Co.
CP.* A Medium Size Anechoic Chamber. T. J. Twomey.
CP58-156. The Technical Assistant Can Be an Aid to the Engineer. G. R. Monroe, Westinghouse Electric Corp.
58-109. III Economics of Design and Application of Transformers. E. C. Wentz and N. Chackan, Westinghouse Electric Corp.
58-46. III Cell Construction for Current Limiting Reactors. L. E. Sauer, Westinghouse Electric Corp.

2:00 p.m.—Solid-State Dielectric Devices—Electroluminor and Photoconductor Devices

58-150. I An Electroluminescent Digital Indicator with ELPAK Translation Logic. E. A. Sack, Westinghouse Electric Corp.
CP.* Gain-Bandwith Limitations of Photoconductors. A. Rose, RCA Labs.
CP.* Gains, Response Times and Traps in Powder Photoconductors. H. B. DeVore, RCA Labs.
CP.* Information Display Panels Utilizing Electroluminescent and Photoconductive Materials. D. B. Parker and W. L. Gardner, MIT Lincoln Labs.
CP58-151. New Electroluminescent Devices for Forming and Holding Images. K. Butler and F. Koury, Sylvania Electric Products, Inc.

2:00 p.m.—Thinking Machines of the Future

CP.* J. B. Wiesner, Massachusetts Inst. of Technology.
CP.* The Future Matching of Man and Machine. Simon Ramo, Ramo-Wooldridge Corp.
CP.* C. R. De Carlo, International Business Machines Corp.

2:00 p.m.—Heavy Traction

CP58-237. Some Aspects of the Application of Diesel-Electric Locomotives in North and South America. G. T. Bevan, General Electric Co.
CP.* Non-Destructive D-C High-Potential Testing of Insulation Systems in Low- and Medium-Voltage D-C Equipment. A. M. Odok and T. M. Soelaiman, General Electric Co.
58-250. II First Year's Operating Experience with New Control Equipment on One Hundred New York City Subway Cars. G. W. Weber, General Electric Co. (Re-presented for discussion.)
58-238. II Mobile Reflectoscopic Inspection of Railroad Car Axles on the Chesapeake and Ohio Railway. E. R. Hauer and C. M. Argel, Chesapeake and Ohio Railway Co.

2:00 p.m.—Symposium on International Developments in Telegraph Switching Systems

CP.* A New Teleprinter Switching System With Motor-Driven Selectors (TWN). E. Rossberg, Siemens & Halske A.G.
CP.* An Automatic Communications Switching System. J. A. Brustman, I. Cohen and L. S. Levy, Radio Corp. of America.
CP.* STRAD—A New Concept for a Fully Electronic Automatic Signal Sorting and Distribution System. E. P. G. Wright, Standard Telecommunication Labs., Ltd.
CP.* Communication Networks for Coded Information. J. M. Unk, N. V. Philips' Telecommunicatie Industrie.

Friday, February 7

9:00 a.m.—Telegraph and Data Communications Systems

58-2. I Error Checking for Five-Channel Telegraphic Tape. R. A. Barbeau, IBM Corp.
CP.* Teledata System. E. O. Blodgett, Friden Calculating Machine Co.
58-172. I Data Transmission Testing Set. J. E. Boughtwood and T. A. Christie, Western Union Telegraph Co.
CP.* Recorded Carrier System. R. M. Gryb, Bell Telephone Labs.

9:00 a.m.—Cathodic Protection

CP58-58. The Canso Causeway. T. R. B. Watson, Corrosion Service Ltd.
CP58-95. Cathodic Protection of Underground Plant Facilities. H. W. Hosford, Harco Corp.
CP.* Effective Voltage on Cable Jackets and Analysis. G. H. Hunt, Simplex Wire and Cable Co.

9:00 a.m.—Feedback Control Systems

58-10. II A Nonlinear Integrator for Servomechanisms. John C. Clegg, University of Utah.
58-12. II Transfer Function of Two-Phase Servomotors. S. L. Mikhail, University of California and G. H. Fett, University of Illinois.
58-84. II Obtaining the Frequency Response Characteristics of a Nonlinear Servomechanism from an Amplitude—and Frequency—Sensitive Describing Function. W. A. Stein and G. J. Thaler, U. S. Naval Postgraduate School.
58-85. II Approximate Analysis of the Drag Cup A-C Tachometer. L. A. Knox, IBM Corp.
58-86. II An Analysis of a Servomechanism with Backlash by the Ritz-Galerkin Method. Katsuhiko Ogata, University of Minnesota and Cyril P. Atkinson, University of California.

9:00 a.m.—Rotating Machinery

CP.* Water Cooling of Generator Stator Windings. G. V. Browning, J. F. Quilan and C. H. Holley, General Electric Co.
58-148. III Harmonics of the Salient Pole Synchronous Machine and Their Effects—Part III, The Differential Leakage of the Damper Winding with Respect to the Main Wave Current Distribution in the Damper Bars. M. M. Liwschitz-Garik, Polytechnic Institute of Brooklyn.
CP58-149. Functional Evaluation of Two D-C Form-Wound Rotor Coil Insulation Systems Using A Test Formette. E. S. Yates, General Electric Co.

9:00 a.m.—Transmission and Distribution

CP58-191. The Resistance and Reactance of Aluminum Conductors, Steel Reinforced. W. A. Lewis, Illinois Institute of Technology and P. D. Tuttle, Alcoa Research Labs.
CP.* Magnetic Properties of ACSR Core Wire. L. W. Matsch, University of Arizona and W. A. Lewis, Illinois Institute of Technology.
58-41. III "Current-Carrying Capacity of ACSR", H. E. House and P. D. Tuttle, Alcoa Research Labs.
CP.* Kemano-Kitimat 300 kv Cross Suspension System. H. B. White, Aluminum Company of Canada, Ltd.

9:00 a.m.—Transformers

58-54. III Line-Drop Compensator Settings For Automatic Parallel Operation of Load-Tap—Changing Transformers. S. Minneci and H. E. Pinney, General Electric Co.
58-158. III Measurement of Iron and Copper Losses In Transformers. T. R. Specht, L. B. Rademacher and H. R. Moore, Westinghouse Electric Corp.
58-152. III A Transistorized Bushing Potential Device. R. L. Stauffer, Canadian Westinghouse Co. Ltd., and E. O. Shepard, Westinghouse Electric Corp.
58-159. III An Improved Method of Oil Preservation and Its Effect on Gas Evolution. W. J. Degnan, G. G. Doucette, Jr. and R. J. Ringlee, General Electric Co.
58-55. III Thermal Analysis of Transformer Load Cycles. S. Bennon, Westinghouse Electric Corp.

9.00 a.m.—Semiconductors

CP.* Thermoelectric Heat Pumping—A Survey. Nils E. Lindenblad, RCA Labs.
CP.* A Survey of Thermoelectric Power Generation. Willem J. van der Grinten and Phillipp H. Klein, General Electric Co.
CP.* Practical Thermoelectric Power Generation. Stephen J. Angello, Westinghouse Research Labs.
CP58-186. A One-Watt Solar Power Plant. D. H. Smith, Bell Telephone Labs.

9:00 a.m.—Electrical Techniques in Medicine and Biology

CP.* A Survey of Imaging Devices Suitable for Medical Purposes. Joseph Lempart, Westinghouse Electric Corp.
CP.* Density Stabilization System for X-Ray Cine-Fluoroscopy. Phillip A. Duffy, Westinghouse Electric Corp.
CP.* Electronic Capsule in Gastrointestinal Investigation. J. T. Farrar, Cornell University; W. J. Bieganski, Radio Corporation of America and C. Berkeley, Rockefeller Institute.
CP.* Square Wave Electromagnetic Flow Meter for the Measurement of Mean and Phasic Flow in Unopened Blood Vessels. M. D. Spencer, Bowman Gray School of Medicine and E. J. Dennard, Western Electric Co.
CP.* Rectilinear Coordinate Injection Control of Dual Reagents for Chromatographic Columns. Grant C. Riggle, National Institutes of Health.
CP58-97. Some Applications of Air Ion Measurement. John C. Beckett, Wesix Electric Heater Co.

9:00 a.m.—Computing in the IGY

CP.* Vanguard Satellite Launching Vehicle. D. D. Pasik, E. E. Loft and W. A. Elfers, Martin Co.
CP.* Tracking of Earth Satellites at the Vanguard Computing Center. A. R. Mowlem, IBM Corp.
CP.* Role of the MIT Computing Center in Visual Tracking of Earth Satellite. J. F. Blackburn, IBM Corp.
CP.* Computational Problems Associated With the Vanguard IGY Satellite Program, J. W. Siry, Naval Research Labs.

9:00 a.m.—Computers

58-190. Train Performance and Locomotive Tonnage Ratings Calculated by Digital Computer. J. E. Hogan, Pennsylvania Railroad Co.
CP.* A Digital Computer Program For Multiple Unit Train Performance Calculations. R. E. Stillwagon and C. P. Saalback, Westinghouse Electric Corp.
CP.* The Application of Computers to Problems of Transportation Equipment Design. D. R. MacLeod, General Electric Co.

9:00 a.m.—Engineering Education in Foreign Lands

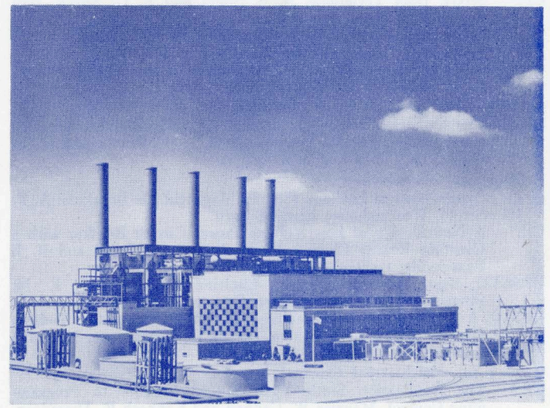
CP.* Technical Education in India. Michel G. Malti, Cornell University.
CP.* Engineering Education in Central Europe. William F. Gauster, Oak Ridge National Laboratory.
CP.* Technical Education in England. Denys Akhurst, Massachusetts Institute of Technology.
CP58-147. Electrical Engineering Education and Research In The USSR. P. A. Abetti and G. F. Lincks, General Electric Co.

2:00 p.m.—Telegraph Systems

58-44. I An Improved Six-Channel Time Division Multiplex For Submarine Cable Telegraphy. H. F. Wilder, Western Union Telegraph Co. Presented by Ralph Ascione, Western Union Telegraph Co.
58-45. I Automatic Telegraph Switching System Plan 55-A. G. S. Vernam, Western Union Telegraph Co.
CP.* Teletypewriter Error Checking System. A. L. Whitman, Bell Telephone Laboratories.
CP.* Some Recent Western Union Developments in Printing Telegraph Apparatus. F. W. Smith, Western Union Telegraph Co.

2:00 p.m.—Storage Batteries

CP.* Lead-Acid Storage Batteries in Telephone Service. R. C. Shair, Bell Telephone Labs. Inc.



Public Service Eng. Co., Linden Generating Station

WINTER GENERAL MEETING, NEW YORK, FEB. 2-7, 1958

CP.* Lead Calcium Batteries—8 Years of Field Experience. Eugene Willihnganz, C & D Batteries.

CP.* Batteries in Military Applications. C. G. Grimes, The Electric Storage Battery Co.

58-202. Classical Heat Flow Problems Applied to Induction Billet Heating. R. M. Baker, Westinghouse Electric Corp.

2:00 p.m.—Feedback Control Systems

58-80. II The Sensitivity of the Poles of a Linear, Closed-Loop System. R. Y. Huang, Curtiss-Wright Corp.

58-81. II Limiting Values of Driving Point Impedances and Transfer Functions Due to Component Variations. Sheldon Jones, Hughes Aircraft Co.

CP58-13. Gain Variations in an Output Rate Stabilized Servomechanism. Edmund G. Trunk, Servo Corp. of America.

58-82. II Time-Varying Analysis of a Guidance System. B. Friedland, Columbia University.

58-83. III Use of Phase Space in Transient Stability Studies. S. T. Bow, Chinese Academy of Science and J. E. Van Ness, Northwestern University.

2:00 a.m.—Rotating Machinery

CP58-205. A Brush Manufacturer Looks at Silicone Insulation. H. E. Campbell, R. T. Lundy and J. D. Snyder, General Electric Co.

CP58-200. Axial Vibration and Noise in Ball Bearing Motors. E. G. Fischer, Westinghouse Electric Corp.

CP58-201. Applications of Electromagnetic Field Theory to Induction Machines. E. C. Guilford and R. M. Saunders, University of California.

CP58-206. Theory of Electromechanical Energy Converters. E. C. Guilford and R. M. Saunders, University of California.

2:00 p.m.—Transmission and Distribution

58-30. III The Economics of Subtransmission Planning. David N. Reps, Westinghouse Electric Corp.

58-23. III Evaluation of Distribution Systems For Medium Load Density Commercial Areas. G. L. Landgren, Commonwealth Edison Co.

58-174. III A Protection Plan For Distribution Feeders. J. R. Hayden, J. E. Martin and R. L. Tilson, Public Service Co. of Colorado.

CP.* Higher Secondary Voltage for Residential Service. A. S. Anderson, Chase Hutchinson and S. J. Pearson.

2:00 p.m.—Computers in Design

58-162. I The Practice and the Economics of Applying Digital Computers to Engineering Problems. P. A. Abetti and S. B. Williams, General Electric Co.

58-233. I Philosophy of Applying Digital Computers to the Design of Electrical Apparatus. P. A. Abetti, W. J. Cuthbertson and S. B. Williams, General Electric Co.

CP58-234. A Generalized Computer Procedure for the Design of Optimum Systems—Part I. R. R. Brown, M.I.T.

CP58-235. A Generalized Computer Procedure for the Design of Optimum Systems—Part II. R. R. Brown, M.I.T.

2:00 p.m.—Data Communications

CP.* SAGE Data System Considerations. R. G. Enticknap, Lincoln Labs. and E. F. Schuster, Western Electric Co.

CP.* SAGE Data Terminals. R. S. Soffel and E. G. Spack, Bell Telephone Labs.

CP.* Communication Channels for SAGE Data System. R. T. James, American Tel. and Tel. Co.

CP.* Methods of Evaluating the Performance of the A1 Digital Data System. A. E. Ruppel, Bell Telephone Labs.

2:00 p.m.—Railroad Electrification

58-32. II The Financial Return on Railway Electrification An Approximate Method For Its Determination. H. F. Brown and H. E. Marmaros, Gibbs and Hill Inc.

2:00 p.m.—Switchgear

58-21. III Suppression of Leakage Flux In Magnetic Air Breakers. A. P. Strom, Westinghouse Electric Corp.

CP.* A New Design of Low Voltage Power Circuit Breaker with a Constant Energy Closing Mechanism. L. L. Baird and R. J. Baskerville, General Electric Co.

CP58-131. High Capacity Current Limiting Fuses Today. E. M. Fitzgerald and V. N. Stewart, General Electric Co.

CP58-6. A New 2½ Cycle Recloser—Its Application On Today's Electric Distribution System. Wayne C. Wiechmann, McGraw-Edison Co.

2:00 p.m.—Industrial Control

CP.* The Application Static Switching Techniques to Programming Control. Maurice W. Cannon and Kenneth R. Thompson, General Electric Co.

CP.* Inductrol DC Drives. Max Berman, General Electric Co.

CP58-212. A Seven Times Magnetic Frequency Multiplier. R. A. Stuart, Westinghouse Electric Corp.

58-213. II A Static Exciter For Aircraft A-C Generators. H. H. Britten and D. L. Plette, General Electric Co. (Re-presented for discussion.)

58-138. II An Electro-Hydraulic Speed and Load Division Control for Constant Speed Air Turbine Drives. P. Dantowitz and L. G. Norris, General Electric Co. (Re-presented for discussion.)

CONTINUED FROM PAGE 2

ing, and assembly of manual and automatic switchboard equipment. Only United States citizens are permitted. No cameras.

Phelps Dodge Copper Products Corp., Habirshaw Cable and Wire Division, Yonkers, N. Y. (Thursday afternoon). Included will be tours of the Nepperhan plants where telephone cable and rubber and plastic insulated wire are manufactured, followed by a tour of the Glenwood plant where high-voltage cables are produced. The Glenwood plant includes facilities for applying aluminum sheath to power and communications cable. The tour will be completed in the Research Laboratories which house a two million volt impulse generator.

Ladies and cameras are not permitted.

Holophane Light and Vision Institute, New York, N. Y. (Thursday afternoon). This lighting clinic is a unique permanent demonstration of lighting principles where there are ingenious mechanical displays of how the eye sees, how it can be deceived, how lighting levels are determined and how colors should be chosen. Visitors will be able to see the effect of shadow diffusion and contrast on various visual tasks in specially constructed movable devices. A special treat are the small demonstrations of light controlled devices that the visitors will be able to operate theirselves. Refreshments will be served at the conclusion of the meeting at the Holophane executive offices.

LADIES ENTERTAINMENT: A full and varied program is planned for the ladies accompanying their husbands to the Winter General Meeting. The Washington Room at the Statler will again be Ladies' Headquarters for registrations, get-to-gethers and a long morning Coffee Hour. Registrations will begin on Sunday from 2 P.M. to 4 P.M. and continue daily thereafter. All ladies must first register with their husbands before they can sign up for the program and must present their identification badges. Hostesses will be in attendance from 8:30 to 4:00 to answer questions and to help everyone enjoy their visit to New York. Cards and bridge tables will be provided on request.

The highlight of Monday's entertainment will be a Get-Acquainted-Tea from 4 to 5:30 P.M. sponsored by the Phelps-Dodge Copper Products Corporation. Tuesday will be a full day with the ever popular U.N. Tour and Luncheon in the delegates dining room, an afternoon trip to the Hayden Planetarium, and ending with a Ladies Dinner which will be preceded by a Cocktail Hour sponsored by the I-T-E Circuit Breaker Company. There will be entertainment, through the courtesy of Waterbury Company, Inc., and prizes at the dinner. Another interesting tour is planned for Wednesday and also a luncheon and bridge at a well-known hotel. The busiest day of the week will be Thursday which will start with breakfast and a hat show at Altman's Fifth Ave. Department Store and then a luncheon and fashion show at the world famous Waldorf-Astoria Hotel. This luncheon, sponsored by the John A. Roebling's Sons Corp., is complimentary and can be attended by only those holding admission tickets. Tickets reserved for this luncheon will not be held after 10:30 A.M. on Thursday. The Dinner-Dance will mark the end of a perfect day.

WINTER GENERAL MEETING COMMITTEE: Members of the 1958 Winter General Meeting Committee are: D. M. Quick, chairman; R. T. Weil, Jr., vice-chairman; J. J. Anderson, secretary; L. F. Stone, budget co-ordinator and AIEE vice-president for District 3; H. Blackmon, chairman Techanical Operations Department; J. A. Parrott, Public Relations; R. W. Gillette, General Session; D. E. Winslow, Hotel Accommodations; T. C. Oliver, Registration; J. A. Mulligan, Inspection Trips; R. R. Meola, Monitors; H. B. Snow, Smoker; W. F. Anselm, Dinner-Dance; Mrs. C. T. Hatcher, Ladies Entertainment; A. J. Cooper, ex-officio member (past-chairman).

THE CANADIAN BREAKFAST will be held in the Pennsylvania and Cornell Rooms of the Hotel Statler at 7:30 a.m. on Tuesday, February 4th. Price per plate, including tax and gratuity will be $3.75.

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