Fall General Meeting

OCTOBER 3-7, 1955

Chicago, Illinois

Headquarters
Morrison Hotel

Museum of Science and Industry

For the second year in succession, the Fall General Meeting of the AIEE will be held in Chicago. This year the meeting will be held from October 3 to 7, and the meeting headquarters will again be at the Morrison Hotel. The technical program, inspection trips and social activities will occupy the entire facilities of the Morrison during the 5-day meeting.

Chicago is the center of one of the greatest diversified industrial areas in the world and its easy accessibility by air, rail, and automobile from all parts of the continent makes it an unusually favorable place for this important meeting.

TECHNICAL SESSIONS

A large and varied technical program has been planned with special attention being given to the subject of rotating machinery, and communication. There will be seven sessions on rotating machinery and six sessions on various aspects of electrical communication, including two on television and aural broadcasting. Two sessions have been organized by the new Committee on Dielectrics. Sessions are also scheduled by the General Committees on Education, Management and Safety.

SOCIAL ACTIVITIES

Reception Tea and Hospitality Hour—Social activities will begin Sunday afternoon, October 2, from 4:00 to 6:00 p.m., with an informal reception tea, and with a hospitality hour sponsored by the Chicago Section, AIEE, for members of the AIEE and their families.

Smoker—A Smoker is planned for Monday evening, October 3. This event coincides with a cocktail party and dinner for the ladies. The Smoker will consist of a dinner and excellent entertainment in the Terrace Casino of the Morrison Hotel. Address requests for tickets to: Edward H. Finch, Sargent & Lundy, 140 South Dearborn Street, Chicago 3, Ill. Tickets are $10.00 each and all requests should be accompanied by a remittance of $10.00 to insure a reservation. Members wishing to attend this Smoker should get their reservations in early. The capacity of the Terrace Casino is limited to about 1,100 persons and the high quality of last year's program together with the fact that the National Electronics Conference, being held in Chicago that same week, has been invited to participate in the Smoker, virtually insures a sell-out.

Dinner Dance—Since the date of the AIEE Fall General Meeting this year coincides with that of the National Electronics Conference, arrangements have been made to have members of the AIEE attend the NEC Party rather than to stage one in competition with NEC. The NEC Party will be held Tuesday night, October 4, at the Sherman Hotel. Tickets to the NEC Party cost $6.50. Send requests for tickets together with remittance to Merlin J. Adams, Westinghouse Electric Company, Merchandise Mart Plaza, Chicago 80, Illinois.

LADIES' PROGRAM

A full and varied program for the ladies has been arranged by Mrs. Robert B. Gear and her committee. This includes the informal reception tea on Sunday afternoon, and a cocktail party and dinner on Monday night, October 3, when the men attend the Smoker. The cocktail party will be held from 5:00 to 7:00 p.m. at the Gold Key Club of Chez Paree and is by courtesy of General Cable Corporation. All will then enjoy a famous Chez Paree dinner and entertainment, including three door prizes. Tickets, not including transportation, will be $5.50.

On Wednesday at 12:30 p.m. there will be a style show and luncheon at Marshall Field and Company, courtesy of Delta-Star Electric

AIEE FALL GENERAL MEETING

Division of H. K. Porter Company. At this luncheon there also will be door prizes.

Other social events for the ladies include a card party with door prizes and a tea, courtesy of the Allis Chalmers Company.

Trip to Museum of Science and Industry—On Thursday, at 10:30 a.m. there will be a trip to the Chicago Museum of Science and Industry to which the men are also invited. This will provide an opportunity of seeing hundreds of interesting exhibits from all sciences and industries, and a special show in the theatre.

You Pick It—We'll Take You—Since no pre-arranged schedule can meet all desires, ladies are invited to name the places they would like to visit and hostesses will be available to help arrange the trips of their choice. Among these might be: Chicago Historical Society, Chicago Art Institute, Adler Planetarium, Shed Aquarium, Chicago Natural History Museum, Retail Stores, Marshall Field and Company, Carson Pirie Scott and Company, and others, Chicago University, Northwestern University, etc.

Coffee Hour—From 9:00 to 10:30 each morning coffee and rolls will be served in the Ladies' Headquarters, and hostesses will be in attendance to explain the program and help ladies choose their entertainment for the day.

RADIO, TELEVISION, AND THEATER TICKETS

Free radio and television tickets for all days of the convention will be available. Tickets should be secured a day in advance and information concerning programs, show times and seating will be available at Headquarters.

Theater tickets and tickets for sporting events will be available only from the Hotel ticket broker in the lobby.

HOTEL RESERVATIONS

A sufficient number of rooms have been set aside at the Morrison Hotel to accommodate all those planning to attend the Meeting. Rates per day at the Morrison Hotel are:

Single Room—One Person .....$5.00 to $12.00
Double Room, Double Bed — Two Persons..$7.50 to $15.00
Double Room, Twin Beds — Two Persons...$11.50 to $16.00
Two Room Suite: Parlor-Bedroom .....$25.00 to $41.00
All Rooms with bath, Servidor and circulating ice water.

TIPS AND NOTES ON MAKING HOTEL RESERVATIONS

1. Mr. F. D. Hurd is in charge of Hotel Reservations and should be contacted in case you need assistance. Address your request to Mr. Hurd, Hotel Arrangements Committee, c/o Pioneer Service & Engineering Co., 231 S. La Salle St., Chicago 4, Ill.

2. It is suggested that in order to insure accommodations you mail the *reservation card* enclosed with this announcement, by September 20, directly to the Morrison Hotel. If you mislay the card write to the Reservation Manager, Morrison Hotel, Madison and Clark Sts., Chicago 2, and *be sure to mention AIEE.*

3. Should you decide the last minute to attend the meeting, your best bet for sleeping accommodations will still be the Morrison Hotel.

4. As you know, a definite room will not be reserved for you until you arrive. If at that time a room at the rate you requested is not available, you will be assigned a room of the next higher rate available.

5. If you plan to register at the Morrison after 6:00 p.m. you will come under the classification of *Late Arrival.* In order to insure a room for *Late Arrival* the following deposits will be required with your request for reservations.

Single Room.....$5.00 Double Room.....$10.00

Send your deposit to the Morrison and a copy of your letter to Mr. Hurd so that he can make sure you will have a room when you arrive. If you find that you will not be able to use the room reserved by a deposit, notify the Morrison by 6:00 p.m. of the day the room is reserved for and your deposit will be refunded. Your deposit still may be refunded if you notify the Hotel later than 6:00 p.m.

INSPECTION TRIPS

A number of interesting inspection trips are planned for the week of the meeting. Among these are trips to the Ford Aircraft Plant, the Standard Oil Refinery at Whiting, Ind., The Electro-Motive Plant of General Motors Corp. at LaGrange, Ill., the Rauland Corp., the new Will County Station of the Commonwealth Edison Company, Reynolds Metals, and the new Prudential Building.

Members are asked to register in advance for all trips as the number than can be taken on the various trips is limited. In making reservations for these trips please include names, nationalities, business connections, and checks for bus fees if required. Aliens should give advance notice of plans to make inspection trips. Transportation for the trip to Will County Station will be furnished at no charge by the Commonwealth Edison Company, and transportation for the Electro-Motive Plant will be furnished at no charge by the Electro-Motive Division of General Motors Corp. The Prudential Building is within easy walking distance of the Morrison Hotel. Bus fees for other inspection trips will be $2.00 each except for the Museum of Science and Industry which is $1.50. Tickets will be held in members' names at the Trips Registration Desk for pick-up during the convention.

Send trip registrations and fees to E. B. Josler, Jr., The Okonite Company, 6045 So. Knox Ave., Chicago 29, Ill.

Ford Aircraft Engine Division—Thursday, October 6, 8:30 a.m.—This plant is known as United States Air Force Plant No. 39. It is the largest government owned manufacturing facility in the country. The property includes 476 acres of land and 19 major buildings with six and one-half million sq. ft. of floor space. The Engine Plant, which is the largest building, has approximately four and one-half million sq. ft. of floor area and is the largest single story manufacturing building known to exist—87 acres under one roof with more than 6,500 machine tools. Just for comparison, the area of the Engine Plant is equivalent to 66 football gridirons.

This is a well-integrated facility including a forge plant, magnesium foundry, aluminum foundry, and machining and assembly and test areas. The fuel facility has a capacity of approximately one and one-half million gallons of aviation fuel.

This plant made the R-4360 piston engine which was the first engine the Division contracted to build. It is the largest piston engine in the world. Each of the 28 cylinders on the R-4360 engine is capable of delivering as much horsepower as the engine of a higher priced automobile.

The Aircraft Engine Division completed its R-4360 program in August of last year. The Division is now making the J-57 engine which is an axial-flow dual compressor type engine having excellent power and fuel consumption characteristics. It weighs approximately 4,200 pounds and is in the 10,000 pound thrust class.

Standard Oil Refinery—Wednesday, October 5, all day, Luncheon will be provided by the Standard Oil Company. The largest oil refinery in the midwest, the Whiting Refinery of the Standard Oil Company of Indiana is a landmark in the world-famous Calumet industrial district. About 50,000 motorists drive daily along US Routes 12 and 20 past its 1700 acres bordering the southwest shore of Lake Michigan. The refinery, begun in 1889, is now equipped to process an annual average of 210,000 barrels per day of crude oil. The daily production of gasoline is 3,700,000 or 3-1/3 billion gallons per year.

The Whiting Refinery generates and distributes all of the power required for the operation of the entire refinery. There is no connection with a utility company. The total generating capacity is 64,000

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TECHNICAL PROGRAM

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 publications.
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.

Monday, October 3

9:00 a.m.—Instruments and Measurements

55-737. I A Method of Making Screen Room Interference Measurements. K. E. Mortenson and C. J. Truax, Rensselaer Polytechnic Institute.

CP.* Calorimetric Power Meters. Max Sucher, Polytechnic Institute of Brooklyn.

CP.* Reproducing a Shaft Rotation by Digital Coding. Ivan Flores, Queens, New York.

9:00 a.m.—X-Ray Engineering

CP.* Cine-Radiography with Image Amplification. F. J. Euler and P. A. Virbal, Westinghouse Electric Corp.

CP.* Engineering Progress in the Design of Rotating Anode X-Ray Tubes. R. W. Cobean, Dunlee Corp.

CP.* Design Concepts of Modern Phototimers. R. Godbarsen, Jr., General Electric Co.

55-739. I Use of Proportional Counters in X-Ray Diffraction. H. R. Laird and M. J. Zunick, General Electric Co. Re-presented for discussion.

55-740. I A Symmetrical Transistor Oscillator with Low Second-Harmonic Distortion. W. M. Grim, Jr., General Electronic Labs. Inc. Represented for discussion.

9:00 a.m.—Safety

CP.* Factoring the Human Equation into Electrical Testing. C. R. DeReamer and H. E. Vann, General Electric Co.

Will County Generating Station, Commonwealth Edison Company

CP.* Serviceableness of Flexible Cord from the Standpoint of Safety to Life and Property. F. V. Paradise. Underwriters' Labs., Inc.

CP.* The Grounding of Electrical Equipment in Farm and Rural Occupancies. O. K. Coleman, Duncan Electric Co.

9:00 a.m.—Mining and Metal

CP.* Characteristics and Ratings of Electric Motors for Drills in Mines. Ben Harbage, Jeffrey Mfg. Co.

CP.* Effect of Voltage Variations on Mining Machine Motor Performance. Frank Terrant, Reliance Electric & Engineering Co.

CP.* AC Drives for Mine Belt Conveyors. W. R. Morton, General Electric Co.

CP.* Modern Diesel-Electric Railway Cranes. S. E. Wallin, Bucyrus-Erie Co.

9:00 a.m.—Solid State Devices

CP.* Square Loop Materials for the Timing of Multivibrators. H. J. Venema.

CP.* The Ferroresonant Trigger Pair: Analysis and Design. C. F. Spitzer, General Electric Co.

CP.* Switching Wave Shapes in Ferroelectric Storage Capacitors. C. F. Pulvari.

CP.* Major and Minor Hysteresis Loops in Dielectric Amplifiers. Earl Wingrove and Louis Depian, Carnegie Institute of Technology.

2:00 p.m.—General Session

Introduction of General Committee, F. A. Cox, Chairman

Address of Welcome. A. V. Kahler, President, Illinois Bell Telephone Co.

Response. President M. D. Hooven

"Address." J. A. Hutcheson, Vice-President, Westinghouse Electric Corp.

Tuesday, October 4

9:00 a.m.—Basic Sciences

55-705. I Analysis of a Triode Oscillator with Losses Associated with the Inductive Branch and Signal Applied in Grid Circuit. A. E. Mostafa, Alexandria University.

55-706. I Transistor Frequency Changers for Amplitude Modulated Signals. H. Hellerman, Syracuse University.

55-707. I What is a Minimum-Phase Network? N. Balabanian and W. R. LePage, Syracuse University.

55-708. I The Underwater Spark; A Photographic Light Source of High Intrinsic Brilliance. H. C. Early and E. A. Martin, University of Michigan.

CP.* Equations for the Inductance and Short-Circuit Forces of Busses Comprised of Right-Angled Conductors Back to Back. T. J. Higgins and Hsu Chen, University of Wisconsin.

9:00 a.m.—Transmission and Distribution

55-709. III Bibliography and Summary of Fault Location Methods, An AIEE Working Group Report. General Systems Subcommittee.

CP55-757. Practice of Fault Location in the Georgia Power Company System, T. J. Allen, Georgia Power Co.

CP.* Practice of Fault Location in the Boston Edison Company. D. F. Tulloch, Boston Edison Co.

CP.* Fault Location Methods. R. F. Stevens, T. W. Stringfield and L. R. Spaulding, Bonneville Power Administration.

9:00 a.m.—DC Machines

CP55-723. Design Factors Affecting the Electromechanical Time Constant of Ward-Leonard Transmission with Inertia Load. B. B. Young, The Franklin Institute.

55-677. Dynamics of D-C Machine Systems. M. Riaz, Massachusetts II Institute of Technology.

CP55-727. New N.E.M.A. Standards for D.C. Motors and Generators. J. F. Davis, General Electric Co.

9:00 a.m.—Land Transportation

CP.* Detection and Significance of Flaws in Traction Gearing. J. B. McPherson and Mr. Brucknicki, General Electric Co.

CP.* Maintenance Inspection of Traction Motor Gears and Pinions. M. C. Winstanley, Westinghouse Electric Corp.

55-754. Automation for Gravity Freight Classification Yards. A. V. II Dasburg, General Railway Signal Co.

CP.* High Potential D-C Testing of Insulation. M. C. DuBois, DuBois Engineering and Mfg. Co.

9:00 a.m.—Closed Circuit Television I

55-687. Developments in Closed Circuit Television. M. H. Kraus, Jer- I rold Electronics Corp.

CP.* The Application of Wired Television to Augment and Extend Human Vision. John Day, Kay Labs.

CP.* Color Television in Medical Education. Michael Klein, University of Kansas Medical Center.

CP.* Closed Circuit Television in the Bell System. C. A. Bartlett, American Tel. & Tel. Co.

2:00 p.m.—Transmission and Distribution

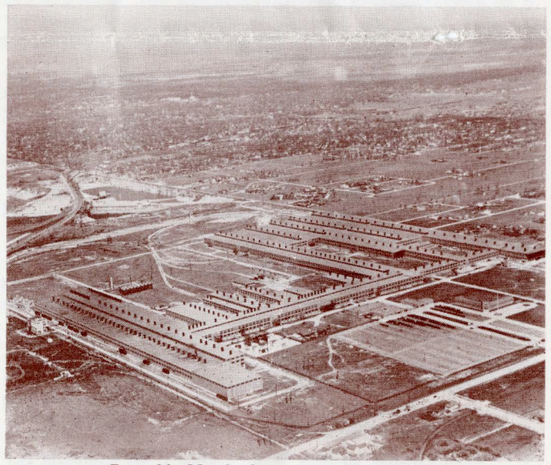
55-710. Report on the Operation of Switched Capacitors. AIEE Ca- III pacitor Subcommittee.

CP55-711. D-C Circuit Gives Easy Method of Determining Value of Capacitors in Reducing I^2R Losses. R. A. Schmidt, General Electric Co.

55-712. Insulation Characteristics of Wood and Suspension Insulators III in Series. J. M. Clayton and D. F. Shankle, Westinghouse Electric Corp.

55-713. Efficiency of Grounding Grids with Nonuniform Soil. J. Za- III borszky, University of Missouri.

CP55-756. The Arresters Without Power Follow Current. Operating Experience and Design Features. C. L. Stroup, A. C. Westrom and Alex Vitkus, Hubbard & Co.



Reynolds Metals Company, McCook Plant

2:00 p.m.—Single Phase Machines

55-728. Developing Iron Loss Curves for Small Motors from Motor III Tests. V. C. Shaneman, Westinghouse Electric Corp.

55-729. Single-Phase Induction Motor Noise Due to Dissymmetry III Harmonics. D. F. Muster and G. L. Wolfert, General Electric Co.

55-684. Equivalent Circuits for Single-Phase Motors. G. R. Slemon, III University of Toronto.

55-730. Design Principles of Flux-Switch Alternators. S. E. Rauch, III University of California and L. J. Johnson, Hufford Machine Works.

55-108. Metadyne Transients. K. A. Fegley, University of Pennsylva- III nia. Re-presented for discussion.

2:00 p.m.—Closed Circuit Television II

CP.* The Use of Television by the Biological Research Organization—Pilot Study. M. C. Brown, National Institute of Health.

CP.* Closed Circuit Television at the State University of Iowa. C. H. Menzer, State University of Iowa.

CP.* High Intensity Color Television for Very Large Screen Projection. C. L. Ellis, General Electric Co.

2:00 p.m.—Industrial Power Systems and Chemical Industry

CP55-688. Maintenance Problems of Electrical Equipment Which Affect Design Considerations. H. R. Walker, The Dow Chemical Co.

CP55-672. A Unique Industrial Distribution System. Leo Dolkart, Commercial Light Co.

CP55-753. Modernization and Extension of Electrical Facilities at a Heavy-Equipment Industrial Plant. F. H. Carlton Sargent and Lundy and A. Ewy, Allis Chalmers Mfg. Co.

55-674. Problems Associated with the Development of a Power Sys- II tem for a Manufacturing Plant. W. C. Heinz, General Electric Co.

55-689. System Neutral Grounding for Chemical Plant Power Sys- II tems. D. S. Brereton and H. N. Hickok, General Electric Co. Re-presented for discussion.

55-690. Surge Protection on Industrial Systems. C. L. Wagner, West- II inghouse Electric Corp. Re-presented for discussion.

Wednesday, October 5

9:00 a.m.—New Developments in the Design of Digital Computers

CP55-742. The Wisconsin Integrally Synchronized Computer—A University Research Project. J. L. Asmuth, C. H. Davidson, J. B. Miller, D. S. Noble and A. K. Scidmore, University of Wisconsin.

CP55-735. Arithmetic Design for a Transistorized Digital Computer. R. A. Isaacs and J. L. Maddox, Philco Corp.

55-719. The Design of the IBM Type 702 System. C. J. Bashe, P. W. I Jackson, H. A. Mussell and W. D. Winger, International Business Machines Corp.

CP55-736. The Interconnection of Two Digital Computers. M. E. Stevens, National Bureau of Standards.

9:00 a.m.—Insulated Conductors

55-691. Aluminum Sheathed Control Cable. E. E. McIlveen, The III Okonite Co.

55-692. Research on the Electric Breakdown of Fully Impregnated III Paper Insulation for High-Voltage Cables. P. G. Priaroggia and G. Palandri, Pirelli, Milan.

55-679. Characteristics of Single-Conductor Electric Cable at High III Frequency. J. T. Sabol, Ohio Crankshaft Co.

9:00 a.m.—Switchgear

55-722. A New High Capacity Anode Air Circuit Breaker. S. A. III Bottonari and J. H. Sprow, Westinghouse Electric Corp.

CP55-721. A New 5 KV, 50,000 KVA, De-Ion Air Circuit Breaker. Russell Frink and J. M. Kozlovic, Westinghouse Electric Corp.

CP.* New High Capacity Service Entrance Protector for Industrial and Commercial Buildings. L. L. Baird and V. N. Stewart, General Electric Co.

9:00 a.m.—System Engineering

55-720. A New Method of Determining Constants for the General III Transmission Loss Equation. E. D. Early, Southern Services, Inc. and R. E. Watson, Leeds & Northrup Co.

CP.* General Circuit Theorems of Power Flow in Linear Networks. J. F. Calvert and T. W. Sze, University of Pittsburgh.

55-743. Two Large Electric Arc Furnaces—Electrical Characteristics III and Corrective Equipment. S. W. Luther, J. D. Ghesquiere and C. E. Quick, Detroit Edison Co.

CP.* Guide for Application of Arc Furnaces on Power Systems. Preliminary Report by Working Group on Arc Furnaces.

9:00 a.m.—Telegraph Systems

55-175. A Polar Relay Using Momentum Transfer. H. L. Garbarino I and K. E. Bisshopp, Armour Research Foundation of Illinois Institute of Technology. Re-presented for discussion.

55-734. An Envelope Delay Measuring Instrument in the Audio Fre- I quency Range. W. D. Cannon, Western Union Telegraph Co.

CP.* A New 18" Wide Continuous Web Facsimile Recorder. A. G. Cooley, Times Facsimile Corp.

CP.* Applications of a Frequency Shift Carrier Telegraph System in the Telephone Plant. C. W. Smith, American Tel. & Tel. Co.

CP.* A New Semi-automatic Teletypewriter Message Relaying System. R. J. Anspach, P. A. Tamasi and J. T. Neiswinter, American Tel. & Tel. Co.

2:00 p.m.—Insulated Conductors

55-678. Some Performance Characteristics of High-Voltage, Rubber- III Insulated Cables. S. J. Rosch, Anaconda Wire & Cable Co.

55-668. Design and Evaluation of Butyl Rubber Insulated Power III Cable. J. C. Carroll, A. R. Lee and R. B. McKinley, General Electric Co.

55-693. Modern High Voltage Rubber Insulations. W. H. Couch, G. III H. Hunt, N. D. Kenney and P. H. Ware, Simplex Wire & Cable Co.

2:00 p.m.—System Engineering and Computers

CP55-744. Use of Digital Computers by Ontario Hydro in System Engineering Problems. L. J. Lacey and P. L. Dandeno, Hydro-Electric Power Commission of Ontario.

55-680. Digital Calculation of Network Impedances. A. F. Glimn, III R. Habermann, Jr., J. M. Henderson and L. K. Kirchmayer, General Electric Co.

CP55-745. Digital Load Flow Studies for Loss Allocation. L. A. Dunstan, Bonneville Power Administration.

2:00 p.m.—Improved Utilization of Engineers and Technicians

CP.* The Technician—His Training and His Role in Industry. E. A. Williford and W. W. Wood, Link Aviation.

CP.* The Graduate Engineer—His Training and His Full Utilization in Industry. S. B. Ingram, Bell Telephone Labs.

CP.* Optimum Utilization of Engineers and Technicians—The Management Problem. J. N. Stanbery, Illinois Bell Telephone Co.

CP.* Case Histories of Effective Utilization. J. N. Stanbery, Illinois Bell Telephone Co.

2:00 p.m.—Wire Communications

55-683. Combined Operation of 24-Channel Cable Carrier and 12- I Channel Open-Wire Carrier Systems. G. W. Searle (deceased) and R. A. Schaefer, Wisconsin Telephone Co.

55-682. A Pole-Mounted, A-C Operated Repeater for 12-Channel I Open-Wire Carrier System. G. W. Searle (deceased) and R. A. Schaefer, Wisconsin Telephone Co.

CP55-758. Local Television Facilities and Their Performance. J. H. Enenbach, Illinois Bell Telephone Co.

CP55-759. Video Frequency Attenuation Equalizers. H. R. Stevens, Illinois Bell Telephone Co.

CP.* Developments in Communications in the Lower St. Lawrence Valley. F. C. Douk, Quebec Telephone Corp.

Thursday, October 6

9:00 a.m.—System Engineering

55-673. Principles and Practices of Modern System Planning. A. P. III Fugill, Detroit Edison Co.

55-746. Rural Electric System Planning. J. H. Rixse, Jr., Rural Elec- III trification Administration.

55-669. General Study of Area Supply Methods. J. A. Casazza, Pub- III lic Service Electric & Gas Co., and J. R. Rankin, Rutgers University.

CP55-747. System Planning for Reinforcement of the Iowa Division Union Electric Power Co. A. A. Musler, C. C. Marxer, Union Electric Co. of Missouri and D. P. Ayers, J. C. Endahl, Sverdrup & Parcel, Inc.

CP55-748. An Approach to System Planning. W. D. Johnson, Illinois Power Co.

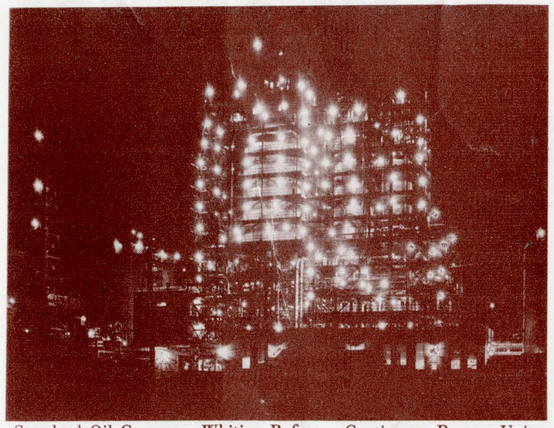
9:00 a.m.—Induction Motor—Noise Symposium

55-724. Sonance Design for Large Induction Motors. R. L. Wall, III General Electric Co.

55-725. Apparatus Noise Measurement. R. J. Wells, General Electric III Co.

55-726. Predetermination of Sound Pressure Levels of Magnetic Noise III of Polyphase Induction Motors. E. Erdelyi, Syracuse University.

55-731. Measurement of Resistance of Energized A-C Motor Wind- III ings. K. J. Waldschmidt, A. O. Smith Corp.



Standard Oil Company, Whiting Refinery, Continuous Process Unit

9:00 a.m.—Electric Storage Batteries

CP.* Nickel Cadmium Batteries in Industrial Service. O. S. Sandburg, Nife, Inc.

CP.* Internal Resistance Short Circuit Current and Other Lead Acid Battery Characteristics. E. A. Hoxie, The Electric Storage Battery Co.

CP.* Metallic Rectifier Battery Charging.

9:00 a.m.—Effects of Radiation and Arcs on Dielectrics

CP.* A General Survey and Some Experimental Work on the Radiation Effect on High Polymers. K. H. Sun and W. R. Thomas, Westinghouse Electric Corp.

CP.* The Generation of High Energy Electrons for Industrial Processing. J. W. Ranftl, General Electric Co.

55-741. The Effects of High-Energy Gamma Radiation on Dielectric
I Solids. P. H. Klein and C. Mannal, General Electric Co.

55-694. The Effect of Reactor Irradiation on Electrical Insulation.
I J. C. Pigg, C. D. Bopp, O. Sisman, Oak Ridge National Lab., and C. C. Robinson, Wright Air Development Center.

2:00 p.m.—Power Generation

55-681. Economic Selection of Auxiliary Drive Motors in Power
III Plants. E. T. B. Gross and V. F. Bobrowicz, Illinois Institute of Technology.

CP55-697. Auxiliary Transfer Scheme at Eastlake Proven by Operation. C. F. Paulus and J. P. Fitzgerald, Cleveland Electric Illuminating Co.

CP55-760. Integrated Steam Station Protection. Working Group on Steam Station Protection.

55-749. Operation of a Nuclear Power Plant on an Integrated Elec-
I tric System. N. E. Wilson, Westinghouse Electric Corp. Represented for discussion.

2:00 p.m.—Induction Motors

55-676. Double Energy Conversion in an Air Gap—A Novel Asyn-
III chronous Frequency Changer. W. La Pierre and J. Y. Louis, Columbia University.

55-675. Equivalent Circuit for the Concatenation of Induction Motors.
III Y. H. Ku, University of Pennsylvania.

55-732. Ten Part Winding Arrangements in Sample 4 Pole Induction
III Motor. J. J. Courtin, Westinghouse Electric Corp.

2:00 p.m.—Carrier Current and Relaying

55-695. Future Application Needs of Carrier Pilot Relaying. T. A.
III Cramer and F. C. Krings, General Electric Co.

CP.* Frequency Shift Carrier for Distance Relaying. H. W. Lensner, Westinghouse Electric Corp.

CP.* Standards for Carrier Radiation. Project Subcommittee #8 of the Committee on Carrier Current.

55-698. Power Line Carrier Coupling: An Analysis. M. G. Bienhoff,
III Los Angeles, Calif.

2:00 p.m.—Arc Resistant Dielectric Materials

CP.* Problems in Evaluating Arc Resistance of Insulating Materials. L. J. Goldberg, General Electric Co.

CP55-699. Non-Tracking Organic Insulations. R. S. Norman, R. A. Pfuntner and A. A. Kessel, General Electric Co.

CP55-755. Arc Resistant Molding Materials and Finishes. R. F. Sterling, Westinghouse Electric Corp.

CP.* Tracking Resistance Studies. M. Walbright and W. T. Starr, General Electric Co.

Friday, October 7

9:00 a.m.—Radio Communication Systems

55-750. Presentation of Data on Broadband and Pulse Transformer
I Cores. P. R. Gillette, K. Oshima, K. W. Henderson and R. M. Rowe, Stanford Research Institute.

CP.* A Simplified Approach to a 960 Mc. Multi-channel Radio System. Curt Schultz, Motorola Mobile Systems Engineering.

CP.* A New Broad Band Microwave Antenna System. A. S. May and R. W. Friis, Bell Telephone Labs., Inc.

55-751. VHF Radio Link Between Puerto Rico and the Virgin
I Islands. Roger McSweeny, American Cable and Radio Corp. Re-presented for discussion.

55-752. The Seattle-Victoria Radio System. R. E. Kistler, The Pacific
I Tel. & Tel. Co. Re-presented for discussion.

9:00 a.m.—Motor Protection Symposium

CP55-761. Induction Motor Temperature Characteristics. J. F. Heidbreder, Westinghouse Electric Corp.

CP.* Squirrel Cage Motor Characteristics Useful in Setting Protective Devices. F. R. Karr, Westinghouse Electric Corp.

CP.* Factors Influencing the Starting Duty of Large Induction Motors. V. J. Picozzi, General Electric Co.

CP55-733. Advancements in Synchronous Motor Control and Protection. John Baude, Allis-Chalmers Mfg. Co.

9:00 a.m.—Transformers

55-714. Transformer Temperatures on Short Circuit. W. C. Sealey,
III Allis-Chalmers Mfg. Co.

55-671. Sequence Impedances of Symmetrical 3-Phase Transformer
III Connections. B. A. Cogbill, General Electric Co.

CP.* The Rigorous Solution of a Field Problem by Means of the Card Programmed Calculator. L. Rabius and J. R. Faillace, General Electric Co.

55-686. Experiences with the Use of Aluminum in Windings for Dry
III Type Power Transformers. E. W. Tipton, Westinghouse Electric Corp. Re-presented for discussion.

9:00 a.m.—Feedback Control Systems

55-700. Simple Analytic Method to Obtain Transient Performance
II from Open Loop Parameters of Linear Feedback Systems. M. E. Clynes, Bogue Electric Mfg. Co.

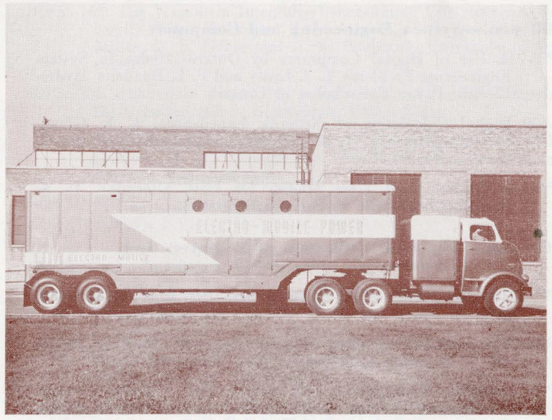
55-701. Estimating Transient Responses from Open-Loop Frequency
II Responses. G. A. Biernson, Massachusetts Institute of Technology.

55-670. Quasi-Linearization Techniques for Transient Study of Non-
II linear Feedback-Control Systems. Kan Chen, Westinghouse Electric Corp.

CP.* New General Stability Criterion for Servo Mechanisms (and other Feedback Systems) With Time-Lag. N. H. Choksy, The Johns Hopkins University and T. J. Higgins, University of Wisconsin.

2:00 p.m.—Rotating Machinery and Relays

CP55-696. Problems in Medium-Size-Motor Protection. O. A. Lentz and T. Neissink, Commonwealth Associates, Inc.



General Motors Mobile Diesel Electric Generating Unit

CP* Problems of Applying Thermal Protection to Motors. J. M. Bisbee, Consolidated Edison Co. of NY., Inc.

CP.* Motor Protection for Steam Power Stations with 4 kv Grounded Neutral Systems. W. F. Neff, Ohio Valley Electric Corp., S. H. Horowitz, American Gas & Electric Service Corp., and R. B. Squires, Westinghouse Electric Corp.

CP.* Protecting Motors with Low-voltage Air Circuit Breaker Series Trips. F. P. Brightman and P. J. Reifschneider, General Electric Co.

2:00 p.m.—Transformers

55-715. The Application of a New Non-Tracking Butyl to High Volt-
III age Instrument Transformers. R. A. Pfuntner, R. S. Norman and B. W. Wilterdink, General Electric Co.

CP55-716. Recent European Developments in Current and Potential Transformer Designs. H. H. Schwager, Schwager-Wood Corp.

55-717. Controls for Step Voltage Regulators. T. C. Lennox, General
III Electric Co.

55-718. Contact Life of Voltage Regulating Relays. C. W. Schoendube
III and R. L. Elliott, General Electric Co.

2:00 p.m.—Feedback Control Systems

55-703. Feedback in Contouring Control Systems. F. J. Ellert, Gen-
II eral Electric Co.

55-702. An Analysis and Analog Computor Study of a Force-Reflect-
II ing Positional Servomechanism. M. G. Spooner, University of Wisconsin and C. H. Weaver, University of Tennessee.

CP55-704. Transfer Function and Parameter Evaluation for D-C Servomotors. G. J. Thaler and W. A. Stein, U. S. Naval Postgraduate School.

55-685. Short-Time Memory Devices in Closed-Loop Systems—Steady
II State Response. T. W. Sze and J. F. Calvert, University of Pittsburgh. Re-presented for discussion.

2:00 p.m.—Communication Switching Systems

55-762. Roll Welding Precious Metals for Telephone Contacts. A. L. Quinlan, Western Electric Co.

55-763. Development of a Wire Contact Relay. R. E. Markle, International Business Machines Corp.

CP.* New Developments in Wire Spring Relays. H. M. Knapp, Bell Telephone Labs., Inc.

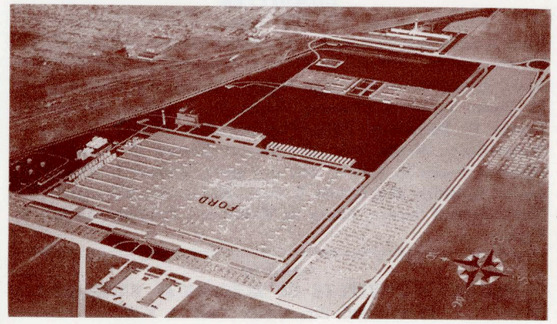
CP.* Dry Reed Switches and Relays O. M. Hovgaard and G. E. Perreault, Bell Telephone Labs., Inc.

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.



Ford Aircraft Division

CONTINUED FROM PAGE 2

kw. Power is generated in two power stations. Steam is generated at pressures of 1400 and 400 psi to supply turbine-generators and process.

The electrical distribution system comprises three interconnected systems with respective voltages of 13,200, 4160 and 2400. The lower voltage systems are radial and the 13,200 volt system is a spot network system. The Refinery has one of the largest independent local telephone systems (1500 telephones) in the midwest. There is a two-way radio installation so that all mobile equipment can be contacted immediately.

The Company's Research Department and the Engineering Research Department are also located in Whiting. The latter is responsible for developing new mechanical equipment and processes. A new analogue computer has recently been installed for use in studying process control and instrumentation problems.

The Refinery maintains its own fire-fighting forces and equipment. It has its own pumping plant and has pumped 285,000,000 gallons of water in one day or more than 1/4 as much as the city of Chicago pumps to a population of 4,000,000 with all of its industries. Pipelines bring crude oil to the refinery from Texas, Kansas, New Mexico, Oklahoma, Wyoming and Colorado. The most distant producing fields are more than 1400 pipeline miles away. Products pipelines carry more than 1/3 of the refinery's average daily output to market terminals such as Lafayette and Indianapolis, Ind., Moorehead, Minn., and River Rouge, Mich. Nearly 1/3 of the 8100 people employed at Whiting are used to maintain the equipment. The remainder work on new construction, operation, or research.

McCook Plant of Reynolds Metals—Thursday, October 6, 1:30 p.m.—The McCook Plant was built for the Government during the second world war. It was leased to Reynolds in 1946 and was purchased in 1949. It has facilities for remelting and alloying aluminum, a large hot mill, a cold mill, and associated equipment. The McCook plant has produced more aluminum sheet in a day than any similar plant in the world.

The original cost of the McCook plant was $43,000,000. It has 2,344,000 sq. ft. of floor space and there are 55 acres of the plant under roof. There are 122 furnaces in service, heated by electricity, oil, coal and gas. An almost endless number of electric motors are in operation, some rated as high as 5000 horsepower. A special 138,000 volt power line brings electricity into the McCook substation which distributes power throughout the plant. Included among the 36 buildings are a 10,000 sq. ft. cafeteria, locker rooms, a two-story office building and a first aid station.

The McCook boiler house produces 40,000 pounds of steam per hour at 150 psi.

Will County Station—Wednesday, October 5, 1:00 p.m.—The new Will County Station of the Commonwealth Edison Company is the newest addition to the Company's great power system serving Northern Illinois. It was formally placed in operation in March of this year and is the twelfth large generating plant to become part of the Commonwealth Edison System.

Will County Station has been under construction for more than three years. The initial installation consists of a 160,000-kw generating unit but the installation of a second machine of the same size is being completed this summer and is expected to be in operation at the time of the AIEE Fall General Meeting. A third unit of 250,000-kw capacity is scheduled for completion in 1957.

The station is located on a 216-acre tract on the Chicago Sanitary Ship Canal near Lemont, Ill., about 19 miles southwest of Edison's Ridgeland Station and 11 miles northeast of its Joliet Station. This new station incorporates all the latest improvements in electric generating station construction and operation. A coal-burning plant, it will require less than one pound of Illinois coal per kilowatt of electricity. This compares with one and one-half pounds per kwh in some older stations and an average of 1.23 lb per kwh for the Com-

The Chicago Skyline With the New Prudential Building *Kaufmann & Fabray Photo*

monwealth Edison system in 1954. The boilers for each of the two 160,000-kw units will burn about 1600 tons of coal in a normal day's operation. Will County brings the Edison system's installed capacity to 3,582,000 kw.

Electro-Motive Plant of General Motors Corp.—Tuesday, October 4, 1:30 p.m.—Since the first diesel-powered streamlined train in the U.S. made its initial run in 1934, Electro-Motive Division of General Motors has devoted its manufacturing facilities and engineering abilities to the mass production of diesel-powered mobile electric generating plants—diesel-electric locomotives.

More than 15,000 locomotives have been built and placed in service since the first General Motors diesel electric locomotive was produced in the LaGrange plant in 1936. This is the only plant building all major components of such locomotives—diesel engines, electric generators, traction motors, car bodies, and trucks. At the present time, in addition to locomotive production, this plant is building the new Electro-Mobile generating units. These are complete diesel-powered electric generators designed especially to meet fringe area electric power generating requirements. These units are made in four capacities, 350 kw, 500 kw, 750 kw and 1000 kw. They are mounted either on automobile trucks, on railroad flat cars or they can be installed on steel bases for permanent or semi-permanent locations. The units are completely automatic both as to starting, synchronizing, and operation. Visitors to the Electro-Motive plant will see the production of all the equipment that goes into these units.

Rauland Corporation—Tuesday, October 4, 1:30 p.m.—The Rauland Corporation is of interest in that it has facilities for the mass production of television tubes and advanced electronic equipment.

Museum of Science and Industry—Thursday, October 6, 10:30 a.m.—This is a trip being planned by the ladies and will be of great interest to every engineer. This great institution, founded by Julius Rosenwald, occupies the reconstructed Fine Arts Building of the World's Columbian exposition of 1893. The structure is one of the finest examples of classic architecture in the world. With a total floor area of some 14 acres it contains exhibits of scientific and industrial progress, many of them in full operation. They are arranged by subject into sections, such as "fuels and metals." Each section is grouped into sequence, often tracing an idea from its invention to its mass production.

Prudential Building—Tuesday, October 4, 8:30 a.m. or 10:30 a.m. —The Prudential building is Chicago's newest office building. This $40,000,000 structure is perhaps the most modern office building in the world. It has the highest electrical design load of any building in the United States, the fastest high-rise elevators in the world, and also the higest intensity lighting.

REGISTRATION

Members can simplify registration procedure by returning the advance registration card promptly. This will save time in completing registration details upon arrival at the hotel. The registration desk at the Morrison Hotel will be open Sunday afternoon, October 2, and will be open from 8 a.m. to 4 p.m. daily thereafter during convention hours. The registration fee will be $3.00 for members and $5.00 for nonmembers. No fee will be required of student members and immediate families of members.

COMMITTEE

The members of the 1955 Fall General Meeting Committee are: *General Chairman*, Francis A. Cox; *Vice-Chairman*, William M. Ballenger; *Secretary*, Howard R. Stevens; *Treasurer*, Richard W. Jones; *Hotel Arrangements*, G. Leslie Welch; *Finance and Budget*, Frank M. Scott; *Technical Program*, Robert M. Bergslien; *Registration*, George E. Buchanan; *Trips—Transportation*, Donald M. Pearcy; *Dinner-Dance*, Merlin J. Adams; *Smoker*, Edward H. Finch; *Entertainment*, Foster A. Larson; *Sale of Papers*, Michael J. O'Laughlin; *Ladies Activities*, Mrs. Robert B. Gear; *Hospitality*, Eldridge H. McNeill; *General Session*, Edwin R. Whitehead; *Publicity*, Andrew W. Kramer.

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