



MIDDLE EASTERN DISTRICT MEETING

October 5 - 7, 1954

Reading, Pa.

Headquarters: Abraham Lincoln Hotel



City of Reading, Pennsylvania

The Middle Eastern District Meeting to be held at the Abraham Lincoln Hotel, in Reading, Pennsylvania, October 5th to 7th—will have as its setting the Picturesque Pennsylvania Dutch Countryside. A full program of technical meetings, social events and inspection trips have been arranged. The technical program is composed of many varied subjects having local industrial plants and utilities as their source. The social activities for the members and their guests are complete in all respects with Luncheons, a Banquet, a Fersommling and Tea. An extensive program for the ladies has been arranged with an accent on Pennsylvania Dutch Cooking and customs. With the number and variety of industries in the Reading area, a complete cross-section of inspection trips have been arranged that will be of interest to all. These inspection trips will include the largest textile machine works in the world, several steel plants and a new office building utilizing a heat pump.

INFORMAL TEA: Early arrivals will be entertained at an informal tea, Sunday afternoon, October 3, in the English Lounge, of the Abraham Lincoln Hotel at 3 P.M. This social period will be primarily for those who will attend the Executive Committee meeting on Monday, October 4, before the General Session on Tuesday. However all advance registrants are most cordially invited.

AIEE TEXTILE SUBCOMMITTEE: The AIEE Textile Subcommittee with Mr. F. D. Snyder as chairman will co-sponsor the two textile sessions on Wednesday, October 6. A luncheon with a guest speaker will be held in the Berkshire Hotel Ballroom at 12:30 P.M.

DISTRICT EXECUTIVE MEETING: A meeting of the District Executive Committee will be held Monday at 10:00 A.M. in the Abraham Lincoln Hotel. During the Executive Meeting a shopping tour for the ladies will be arranged by the Ladies Committee.

GENERAL SESSION—OCTOBER 5: At 10:00 A.M. on Tuesday morning, October 5, Mr. R. E. Neidig, Chief Engineer of Metropolitan Edison Co. and Vice Chairman of this District #2 Meeting, will open the general session. Mr. Neidig will introduce Mr. W. B. Morton, Assistant Electrical Engineer of the Pennsylvania Power & Light Company and Vice President, AIEE District #2, who will present the cash awards of \$75 and \$50 and the certificates to the two technical prize paper authors in District #2 for 1953-1954.

The luncheon following the general session will be in charge of Mr. Geo. M. Keenan, Vice President, Engineering, of the Pennsylvania Power & Light Company who will introduce the luncheon speaker,

Mr. F. H. Lichtenwalter, formerly Managing Director of the Pennsylvania Electric Association.

HOTEL RESERVATIONS: Rooms have been set aside at the following hotels for the members' use:

Abraham Lincoln Hotel	Double	\$7.00 to \$ 9.00
	Twin Bed	8.00 to 10.00
	Single	5.00 to 6.50
Berkshire Hotel	Double	6.50 to 7.50
	Twin Bed	7.00 to 8.50
	Single	4.50 to 5.50

Hotel reservations should be made as early as possible directly with the hotel of your choice. Send no money or reservation requests to the Committee. Also parking facilities are adjacent to the Abraham Lincoln Hotel.

REGISTRATION: The registration facilities will be located on the lobby balcony of the Abraham Lincoln Hotel. They will be in operation Sunday, October 3, from 3:00 to 5:00 P.M. Monday, October 4, the registration headquarters will open at 8:30 A.M., and remain in operation as needed, through Thursday Noon, October 7, 1954.

Please register in advance, by returning the advance reservation card properly filled in. Arrangements have been made to expedite advance registrations. The registration fee is \$3.00 for members and \$5.00 for non-members. No fees will be required from Students or families of members. Do not enclose remittance. Fees will be collected when registering. By indicating on the advance registration card the number of people and trips and activities that are of interest the committee will be able to make arrangements prior to your arrival.

STUDENTS' ACTIVITIES: Wednesday, October 6, 1954, will be students' day at Reading District meeting of the AIEE. The program for the day will be:

Morning: Regular District paper presentation. A session on electronics and communications is planned with papers on television and transistors.

Noon: Student luncheon with a short talk by Pres. Montieth.

Afternoon: Inspection trip to the Titus Generating Station of the Metropolitan Company.

This is an excellent chance for students to see the AIEE in action and also to hear Pres. Montieth.

The Lehigh Valley Section cordially invites the student branches in District No. 2 to attend and participate in this program.

Continued on page 4

AIEE MIDDLE EASTERN DISTRICT MEETING — PROGRAM — Reading, Pa., October 5-7, 1954

ADVANCE COPIES OF PAPERS

Members may obtain preprints of Transaction Papers at the uniform price of 30¢ each (60¢ each to nonmembers), by sending enclosed order form and remittance to the AIEE Order Department, 33 West 39th Street, New York 18, N. Y. Mail orders (particularly from out-of-town members) are advisable, inasmuch as an adequate supply of each paper at the meeting cannot be assured. Coupon books in \$9 denominations are available for those who wish to avoid remittance by check or otherwise. These Transaction Papers will also be published in the bimonthly publications.

NOTE: Those numbered papers prefixed with the letter "C" will be available only at and after the meeting; they are not intended for publication in the Transactions.

Tuesday, October 5

10:00 a.m.—General Session

2:00 p.m.—Mining and Quarrying

W. C. LENHARDT, Presiding

- C54-425. Development of the Friedensville, Pennsylvania Property of the New Jersey Zinc Company. Warren Hastings, New Jersey Zinc Co.
C54-426. Developing the Resources of our Land—Stone and Lime Processing in the Lebanon Valley. D. K. Shroyer, H. E. Millard Lime & Stone Co.
C54-427. Iron Ore Mining at Cornwall and the New Grace Mine at Morgantown. S. J. Shale and W. C. Lenhardt, Bethlehem Cornwall Corp.
C54-428. The Electrical Design at Grace Mine. F. O. Blair, Bethlehem Steel Co.

2:00 p.m.—Power—I

H. E. SMITH, Presiding

- C54-429. Design Features of Crosby Steam Electric Station. W. S. Einwechter and G. E. Klapper, Philadelphia Electric Co.
C54-430. The Martins Creek Steam and Electric Station of the Pennsylvania Power and Light Company. S. C. Townsend and M. D. Engle, Pennsylvania Power and Light Co.
C54-431. Power Plant Operational Intercommunication. A. L. Royle, Gai-Tronics.
C54-432. Electrical Design Features—Shawville Station. M. F. Rosol, Gilbert Associates, Inc.

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

A. J. ALTHOUSE, Presiding

- C54-433. Techniques and Economies in Reconductoring Transmission and Sub Transmission Lines. F. S. Brown, Cleveland Electric Illuminating Co.
C54-434. System Voltage Control. R. M. Butler and D. R. Samson, General Electric Co.
C54-435. Distribution Transformer Protection Schemes. W. H. Mutchler, Jr., Allis-Chalmers Mfg. Co.
C54-436. 138 K.V. Line Crossing of the Maumee River (Toledo). H. H. Dugan, Toledo Edison Co.

Wednesday, October 6

9:30 a.m.—Textiles—I

Co-Sponsored by the Textile Subcommittee

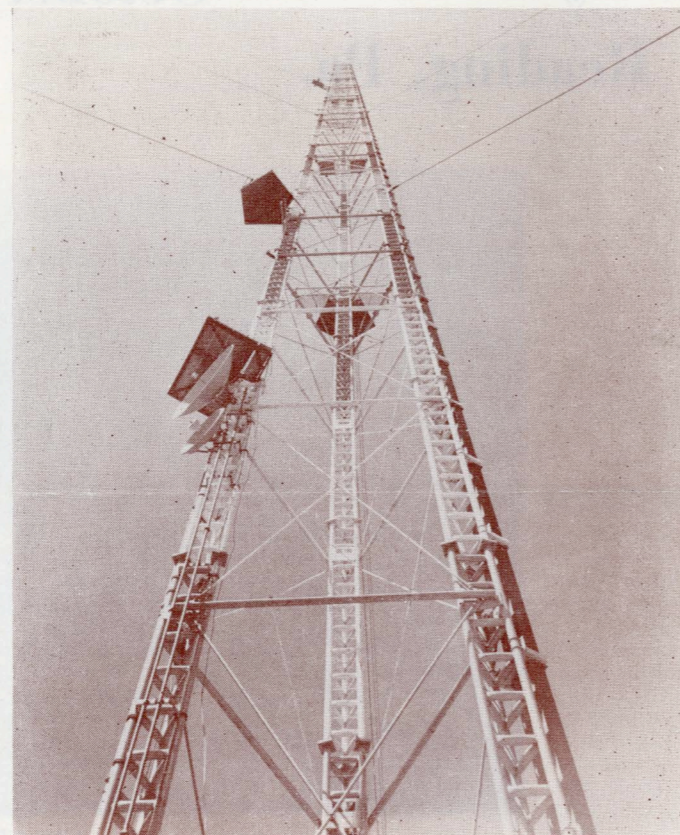
F. D. SNYDER, Presiding

- C54-437. The Reading Full Fashioned Knitting Machine. R. F. Hornberger, Textile Machine Works.
C54-438. Adjustable Speed Drives for Full Fashioned Knitting Machines. E. H. Sowers, Reliable Elec. and Engineering Co.
C54-439. Amplicat Regulated Full Fashioned Hosiery Machine Drive. R. E. Parker, General Electric Co.

9:30 a.m.—Steel—I

H. H. ANGEL, Presiding

- C54-440. Modern High Capacity Electric Furnaces—Design. J. W. Moore and W. B. Wallis, Pittsburgh Lectromelt Furnace Corp.
C54-441. Operation of Basic Electric Furnaces in Steel Plants. H. E. Bigge, Bethlehem Steel Corp.
54-481. System Capacity Required for 3-Phase Arc Furnaces. O. Ramsaur and J. E. Treweek, Pennsylvania Power & Light Co.



1036 foot WHUM-TV Antenna TOWER atop 1500 foot Blue Mountain, Reading, Pa.

- C54-442. Extensions to the Electrical Generating and Distribution Systems at Sparrows Point. H. D. Ruger, Bethlehem Steel Co.

9:30 a.m.—Power—II

E. W. TAYLOR, Presiding

- C54-444. Economic Generation Control. W. S. Burt, General Electric Co.
C54-445. Ignitron Rectifier Excitation System for Power Stations. M. M. Morak and M. Temoshok, General Electric Co.
C54-446. Magamps in Excitation System for Turbine Generators. J. E. Barkle and D. M. Sauter, Westinghouse Electric Corp.
54-447. Field Preheating for Large Turbine Generators. W. J. Gilson and H. D. Taylor, General Electric Co.
C54-468. Field Welded Generator Lead Housings. W. B. Morton, Pennsylvania Power & Light Co.

9:30 a.m.—Transmission and Distribution—II

A. J. ALTHOUSE, Presiding

- 54-448. Simultaneous Single-Line-to-Ground Faults on Opposite Sides of Delta-Wye Transformer Banks. J. C. Neupauer, Westinghouse Electric Corp.
C54-449. A Distribution Transformer Fuse Link to End Burnouts Due to Overloading and Secondary Faults—Matthews Slofast. G. Appleman, Pennsylvania Power and Light Co.
C54-450. Distribution Aspects of Mercury Lamps. J. R. Morin, Sylvania Electric Products, Inc.
54-451. Chemical Brush Control of Rights of Way. L. Z. Ludorf, Pennsylvania Power and Light Co.

9:30 a.m.—Communications and Television

I. M. McNAIR, Presiding

- C54-452. Recent Developments in Semiconductor Devices. W. J. Pientopol, Bell Telephone Labs., Inc.
C54-453. UHF Television Broadcasting. L. W. Haeseler, Radio Corporation of America.
C54-454. Germanium Refining and Crystal Growing, Using R. F. Heating. F. H. Bower, Western Electric Co.
C54-455. Principles of Color Television. C. N. Hoyle, RCA Labs.

2:00 p.m.—Textiles—II

Co-sponsored by the Textile Subcommittee

VICTOR SEPAVICH, Presiding

- C54-456. Variable Speed Range Drives. C. E. Robinson and R. J. Farrell, Reliance Electric Co.
C54-457. Designing to Reduce Maintenance Costs. A. W. Frankfield, E. I. DuPont de Nemours Co.
C54-458. Induction Motor Characteristics and Capabilities to Meet Textile Machine Requirements. F. D. Snyder, Westinghouse Electric Corp.

2:00 p.m.—Industrials—I

R. W. SMITH, Presiding

- C54-459. Large Oil-Cooled DC Magnets. W. C. Sealey, Allis-Chalmers Mfg. Co.
C54-460. Transverse Flux Induction Heating. R. M. Baker, Westinghouse Electric Corp.
C54-461. Heat Pump Design in a Modern Office Building. P. A. Kinsey, Metropolitan Edison Co.
C54-462. Increased Load Due to Stream Pollution Abatement. R. W. Simpson, Gilbert Associates, Inc.

2:00 p.m.—Steel—II

C. L. EICHENBERG, Presiding

- C54-463. Power Supply and Utilization—Hoffman Machinery Corporation. H. Landsman, Hoffman Machinery Corp.; T. Graham and W. P. Koppenall, General Electric Co.
C54-464. High Powered Induction Heating in Shell Forging. H. Landsman, Hoffman Machinery Corp. and A. T. Lattauezo, Westinghouse Electric Corp.
54-465. Induction Heating Steel with 60 Cycle. C. D. Kramer, West Penn Power Co.
C54-466. Specialty Steels for the Electrical Industry. C. B. Post, Carpenter Steel Co.

2:00 p.m.—Power—III

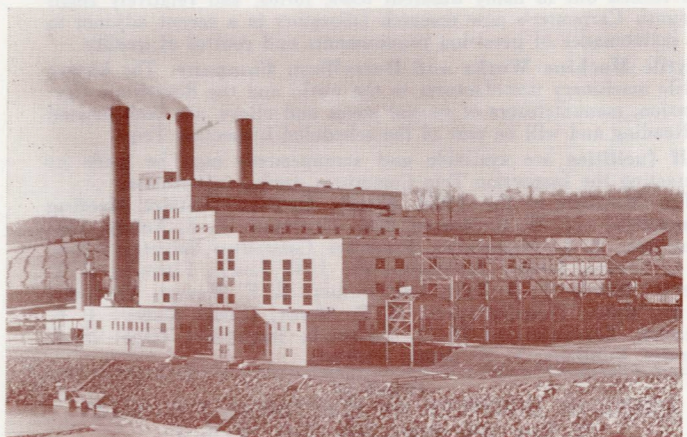
R. F. NEIDIG, Presiding

- 54-467. Equations for Determining Current Distribution Among the Conductors of Busses Comprised of Double-Channel Conductors. C. M. Siegel, University of Virginia and T. J. Higgins, University of Wisconsin.
C54-443. All Steel Station Grounding Network. S. J. Litrides, Pennsylvania Power & Light Co.
54-469. Impedance and Induced Voltage Measurements on Iron Conductors. W. F. Mackenzie, Pennsylvania Power and Light Co.
C54-470. Demonstration of the Principles of the Ultrasonic Flow Meter. R. C. Swengel, Consultant, York, Pa., W. B. Hess, Safe Harbor Water Power Corp., and S. K. Waldorf, Pennsylvania Water and Power Corp.

2:00 p.m.—Microwave, Telemetry and Supervisory Control

W. F. DUNKLE, Presiding

- C54-471. Things New in Supervisory Control and Telemetry. W. M. Larson, Control Corp.
C54-472. A New High Speed Telemeter for D. C. Measurements. R. M. Stuart, General Electric Co.
C54-473. Control Problems in Remotely Operated Electric Utility Stations. W. A. Derr and W. L. Metz, Westinghouse Electric Corp.



Titus Station, Metropolitan Edison Company

- C54-474. Application of Microwave on Power Systems. J. G. McKinley, West Penn Power Co. and E. J. Muller, Westinghouse Electric Corp.

Thursday, October 7

9:30 a.m.—Industrials—II

W. B. BERTOLET, Presiding

- C54-475. The Fluorescent Lamp Today and Tomorrow. E. F. Lowry, Sylvania Electric Products, Inc.
C54-476. Wafer Coil Techniques for Small Power Transformers. A. Zack and J. C. Heffernan, Sylvania Electric Products, Inc.
C54-477. Electric Problems in Pipe Line Operation. R. I. Cozzens, Keystone Pipe Line Co.
C54-478. Air World Education. J. H. Furbay, Trans-World Airlines. Laying of the Mackinac Pipe Line. (Film—"The Deep Inch"). Merrit, Chapman and Scott.

9:30 a.m.—Substations—I

D. A. CAMPBELL, Jr., Presiding

- C54-479. Economics of Power Transformer Application. L. W. Schoenig, Allis-Chalmers Mfg. Co.
C54-480. "On the Line" Circuit Breaker Testing. J. F. Zboyovsky and W. A. Kohar, Roller-Smith Corp.
C54-482. 30 Degree Phase Shift Angle Displacement Program—Metropolitan Edison Co. and Pennsylvania Electric Co.
54-491. A 500,000 KVA Power Fuse to Fulfill Requirements of Power Distribution at 34.5 to 69 KV. C. H. Baker and R. H. Harner, S. & C. Electric Co.

9:30 a.m.—Management and General Interest

GEO. M. KEENAN, Presiding

- C54-483. Financial and Economic Aspects of Utility Systems. M. G. Davis, Gilbert Associates, Inc.
C54-484. How Our Business System Operates. H. W. Bennett, General Electric Co.
C54-485. The Engineering Development of the Voice of America. E. T. Martin, J. Ross, G. Jacobs, International Broadcasting Services.
C54-486. Effect of Radioactivity on Power Plant and Industrial Operation. R. Gerstell, Director of State Council of Civil Defense for Penna.

9:30 a.m.—Power Plant Safety and Fire Protection

J. O. LESLIE, Presiding

- C54-487. Protection Against Fires—Large Steam Turbine Generator Units. L. P. Grobel and J. J. Gibney, Jr., General Electric Co.
C54-488. Safety and Fire Protection in Generating Stations. G. F. Briner, Gilbert Associates, Inc.
C54-489. Turbine Oil Fire Protection. W. N. Lawton and C. F. Averill, Grinnell Co., Inc.
C54-490. Fire Protection from an Operating Viewpoint. E. F. Weaver, Pennsylvania Power and Light Co.

2:00 p.m.—Substations—II

J. B. HOMESHER, Presiding

- C54-492. Modern Trends in 220/66 KV Substation Design. W. J. Bartholomew, Pennsylvania Power and Light Co.
C54-493. Erection Steel for Standardizing Substations. G. W. Swanson, Consumers Power Co.
C54-494. Models Help Utility Designers. M. C. Galiyano, Pennsylvania Power and Light Co.

2:00 p.m.—Relays and Carrier Current

F. S. FEHR, Presiding

- C54-495. Operating Difficulties with Carrier Current Relaying. S. S. Leach, Pennsylvania Power and Light Co.
54-496. Relaying M. E. Co.'s 230 KV System. G. E. May, Metropolitan Edison Co. and W. C. New, General Electric Co.
C54-497. A Back-Up Ground Fault Relay Arrangement. G. Appleman, Pennsylvania Power and Light Co.

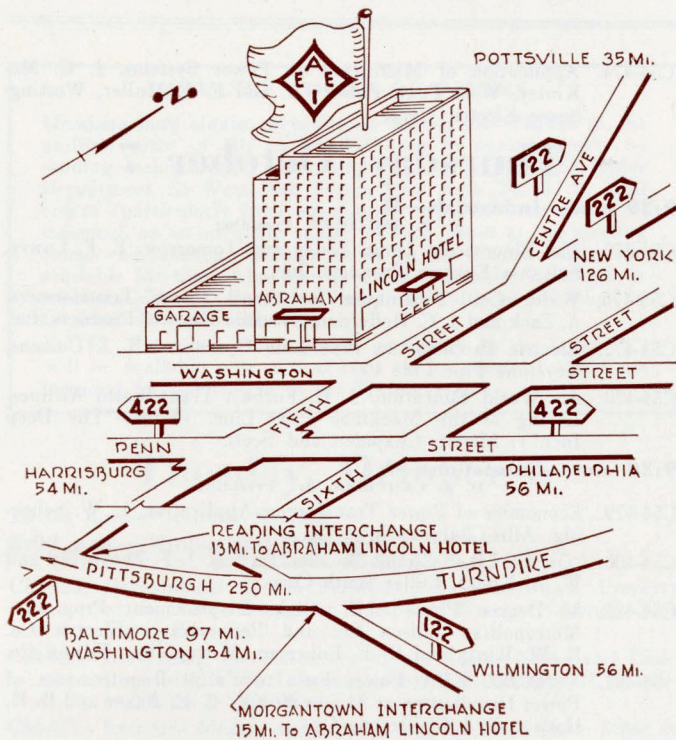
2:00 p.m.—Atomic Energy

S. C. TOWNSEND, Presiding

- C54-498. The Potential Prospects for Economic Atomic Power. B. R. Prentice, General Electric Co.
C54-499. Operation of a Nuclear Power Plant in an Integrated Power System. N. E. Wilson, Westinghouse Electric Corp.
C54-500. Problems Confronting Development of Commercial Nuclear Power. D. R. Rees, Metropolitan Edison Co.

Note: Numbered papers prefixed with the letter C will be available only at and after the meeting; not intended for publication in TRANSACTIONS.

ALL ROADS LEAD TO READING, PA.



TRANSPORTATION: Access to Metropolitan Reading can be made by rail, air, or highways. The Reading Railroad Company has regularly scheduled connections between Philadelphia and Harrisburg. Air service is available at the Reading Municipal Airport, through the Colonial Air Lines, Capital Airlines and Trans-World Airlines.

Highway connections are many, such as U. S. Routes, 122, 222, 422 and State routes. It is only 15 miles from the Morgantown Interchange of the Pennsylvania Turnpike to the Abraham Lincoln Hotel. Bus Lines travel in all directions from all the major Eastern cities. The map inset will help those driving to pin point the Headquarters Hotel.

LADIES' ENTERTAINMENT: A committee of 50 ladies, with Mrs. Donald L. Greene as chairman and Mrs. Joseph B. Homsher as vice-chairman, have arranged a program for the ladies which should make their visit to "Reading in '54" most enjoyable.

The English Lounge on the Mezzanine of the Abraham Lincoln Hotel has been reserved for the ladies Monday through Thursday. A coffee hour will be held there each morning at 8:30 except Tuesday. All ladies are cordially invited to use these facilities.

A tea has been planned for Monday in the English Lounge at 3:00 P.M. No charge. Greet your friends and meet new ones.

Tuesday, Brunch will be served at 11:00 A.M. in the Colonial Room of the Abraham Lincoln Hotel. This will supplant the coffee hour and luncheon. Pennsylvania Dutch Cook Books and hand painted favors of Pennsylvania Dutch design will be given each guest. The Brunch will be followed by a trip through the Berkshire Knitting Mills, the largest hosiery mills in the world. Busses will leave the Hotel (Washington Street entrance) at 12:30 P.M. and return at 3:00 P.M. Ticket \$2.00.

On Wednesday a trip to Hershey has been planned, with a visit to the Museum, luncheon at the beautiful Hershey Hotel and a visit to the Hershey Chocolate Plant. The route is through a section of the country referred to as the Garden Spot of America and should be delightful. Tickets are \$5.00 and the busses leave the Washington Street Entrance of the Abraham Lincoln Hotel at 9:15 A.M. Leave Hershey for return at 3:00 P.M.

Thursday following the coffee hour, private cars will be available to take visitors to points of interest in and about Reading.

It is of utmost importance that reservations be made for the trips both Tuesday and Wednesday as early as possible. Committee members will be located in the English Lounge to accept reservations.

BANQUET: On Wednesday, October 6, the Banquet will be held in the Abraham Lincoln Ballroom. "Dutch Treat" cocktails at 6:30 P.M. Dinner at 7:15 P.M., followed by entertainment by a fine choral group; the Textilaires of the Textile Machine Works of Reading. Your dinner table will be headquarters for your party for dancing until twelve to the music of Ginger Sharkazy's famous entertaining orchestra. Open to all members, ladies and guests. Dress informal. Make advance reservations for tables of 6 or 8 at \$4.40 per person

by writing H. D. Moore c/o General Electric Company, 1014 Hamilton Street, Allentown, Pennsylvania—and enclose check made out to H. D. Moore, Chairman.

LUNCHEONS: Luncheons have been arranged by the committee for the Executive Committee on Monday, the General Meeting on Tuesday, and Students on Wednesday.

The Executive Committee Lunch will be in the Colonial Room of the Abraham Lincoln Hotel at \$2.50 per person including gratuities.

The General Meeting Lunch, on Tuesday, will be in the Ballroom of the Abraham Lincoln Hotel. Buy tickets at registration desk at \$2.20 per person including gratuities.

The Students' Lunch in the Colonial Room, on Wednesday, will be buffet style.

The Textile Subcommittee will also hold a Wednesday luncheon in the Berkshire Hotel Ballroom at 12:30 P.M.

FERSOMMLING: A "Pennsylvania Dutch" style party for men and ladies will be held on Tuesday at 8 P.M. in the Abraham Lincoln Hotel. There will be entertainment up to 10 P.M. at which time a buffet will be served. Tickets will be available at the registration desk. Tickets will be \$5.00 per couple, \$3.00 per person.

For those who read Pennsylvania Dutch the following will more clearly describe the activities at this affair:—

Wann da Summer fabei iss, dann kummt da AIEE. Fersommling in Redden. Da Octower bringt oftmools die schenscht Zeit im Yohr. Mach schur as du net ferseimscht an da grossa Fersommling, da Dienschdawg Owet, da 5th Octower tzu sei. En Pennsylvaniaish Deitscher Hauptman is Forsitzer un hot die Sacha in Hand.

Come the street down and the corner round and help make fun at the Fersommling on Tuesday, October 5, Abraham Lincoln Hotel. Say it will be a Deitscher band with Deitscher singers and dancers mit beer and pretzels yet. And when da Ike Schlonkelwatzel un da Pete Brunnergrass the eats bring in, den der will be Sauer Kraut un Brotwarscht, Schmeare Kase un Lodwarick, Kuttle Fleck, Schnitz Boi, Grumbiera Schpee, Tzalerich, Reddich un Tzwilva, un lots more maybe.

INSPECTION TRIPS: Metropolitan Edison Co.—Titus Station.

The most recent addition to the electric generating facilities of Metropolitan Edison Company is the Titus Station located in South Reading. Consisting of 3 generating units rated at 80,000 KW., each unit is made up of one pulverized coal fired boiler supplying steam to one turbine generator. Steam is generated at 1450 pounds pressure, at 1000 degrees Fahrenheit temperature.

The generating voltage is 13,800 volts and the transmission voltage is 66,000 and 144,000 volts. The station uses approximately 35 carloads of coal per day, with storage provisions for approximately 200,000 tons of coal. Approximately 160,000,000 gallons of water will be used daily in condensing steam from the turbines.

The Titus Station is the first power plant in the East having walls made of Aluminum "C" panels. These panels consist of two sheets of 16 gauge aluminum, 16 inches wide and eight feet long, separated by three inches of glasswool insulation. Felt is folded between the two metal members to prevent metal contact.

Metropolitan Edison Company Office Bldg. The new operating Headquarters of the Metropolitan Edison Company, located near Reading, Pennsylvania, one of the most modern office structures of its type, will be one of the five inspection trips scheduled.

Included in the many interesting features found in this new building are the use of aluminum-brick construction, interior lighting, departmental arrangements, and electric heat pump which will heat and cool the building through the use of well water. This is one of the first heat pump installations of its kind in the United States.

Carpenter Steel Company. The Carpenter Steel Company, which has its main offices and mill in Reading, Pennsylvania, restricts its manufacture of steel to specialized steel requirements. This mill produces a great variety of alloy steels, generally difficult to process, and turned out in many different sizes, forms, and relatively small amounts. Carpenter's new research laboratory is a recent adjunct to the maintenance of precision requirements and control of quality.

Textile Machine Works and Beryllium Company. The largest textile machinery manufacturer in the world and the Beryllium Corporation, manufacturers of special steels and alloys, are both located in Reading and will be part of the scheduled Inspection Trips.

Golf facilities are available and arrangements may be made by contacting the Inspection Trip Committee during registration.

The Members of the **1954 Middle Eastern District Meeting Committee** are: W. B. Morton, Gen. Chairman; R. E. Neidig, Vice Chairman; L. L. Nonemaker, Executive Committee Secretary; Mrs. D. L. Greene, Ladies' Entertainment; J. O. Leslie, Finance; D. L. Greene, Hotels; F. S. Fehr, Registration; E. F. Weaver, Meetings; R. M. Wyatt, Transportation; H. D. Moore, Dinner Dance; J. E. Treweek, Fersommling; D. O. Eschbach, Inspection Trips; S. J. Litrides, Publicity; F. W. Smith, Students.

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