## "It's Toledo For You - In '52"



# AMERICAN INSTITUTE ELECTRICAL ENGINEERS

we with the second

MIDDLE EASTERN
DISTRICT MEETING
PROGRAM

Please retain for use during entire meeting

TOLEDO, OHIO October 28 - 30 1 9 5 2

Meeting Headquarters
COMMODORE PERRY HOTEL

## NATIONAL OFFICERS

Donald A. Quarles, President

H. H. Henline, Secretary

J. C. Strasbourger, Vice President, District No. 2

F. R. Benedict A. C. Muir Directors from District No. 2

## Middle Eastern District Meeting Committees

#### General

M. W. Keck, Chairman
C. E. Ide, Honorary Chairman
Roy Stott, Secretary-Treasurer
L. H. Fox, Chairman — Toledo Section
T. J. Kozak, Past Chairman — Toledo Section
Tsute Yang, Co-ordinator — Toledo University Student Branch

### Scheduling

L. E. Smith, Chairman R. May

## Technical Program

J. W. Cofer, Chairman

A. Hoefle
L. H. Fox
J. R. Bryan
P. Thornbury

## Special Meetings and Inspection Trips

W. H. Schwalbert, Chairman C. E. Flahie C. L. Keller

## Registration and Finance

B. W. Wallace R. W. Elder W. V. Gorton

## Entertainment and Publicity

R. L. Manor
W. E. Boruh, Chairman
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Mrs. W. E. Boruh

## Air Transportation

D. E. Fritz, Chairman W. L. Berry, Vice Chairman R. H. Keith, Secretary

## "It's Toledo For You - In '52"



## MIDDLE EASTERN DISTRICT MEETING

October 28 - 30 1 9 5 2

GENERAL INFORMATION

ENTERTAINMENT — INSPECTION TRIPS

PROGRAM — MONDAY — TUESDAY

PROGRAM—WEDNESDAY—A.M.

PROGRAM—WEDNESDAY—P.M.

PROGRAM—THURSDAY—A.M.

PROGRAM—THURSDAY P.M.—FRIDAY

LADIES' ENTERTAINMENT

SCHEDULE OF EVENTS

## GENERAL INFORMATION

Advance Registration— Monday, October 27, 1952 — 4:00 to 9:00 P.M.

Registration—
Tuesday, Wednesday, Thursday — Starts at 8:30 A.M.

Place - Mezzanine

Registration Fee Schedule-

Members	\$2.00
Non-Members	\$3.00
Ladies	
Students	None

Information on all features may be obtained at the information and registration desks.

Tickets for all events may be obtained at the ticket sa	les desk-
Luncheon — Tuesday, October 28, 1952	\$2.85
Smoker — Tuesday, October 28, 1952	\$3.75
Banquet — Wednesday, October 29, 1952	\$6.00
Transportation for inspection trips	\$1.00

Advance copies of papers may be purchased at a specially designated desk.

Special arrangements can be made at the information desk for sports events.

Student Activities: Students of the Middle Eastern District will hold a conference at the University of Toledo on Friday and Saturday, October 31 and November 1. The students will assist and attend the district sessions and are welcome to join the members on any of the inspection trips and social functions.

DP.\*\*—District paper; no advance copies are available; not intended for publication in TRANSACTIONS.

ACO.\*—Advance copies only available, not intended for publication in TRANSACTIONS.

## ENTERTAINMENT

## Tuesday, October 28, 1952

12:30 P.M. Luncheon: Ballroom, Mezzanine
Presiding: W. W. Keck, General Chairman
Middle Eastern District Meeting
Invocation—Rev. Carl G. Zehner, Pastor
St. Paul's Evangelical Lutheran Church
Greetings: Lloyd E. Roulet, Mayor, City of Toledo
L. H. Fox, Chairman, Toledo Section, AIEE
Presentation: District Prize Paper Awards
J. C. Strasbourger, Vice President,
District No. 2, AIEE

7:30 P.M. Smoker, Crystal Room, Lobby Refreshments and Entertainment

## Wednesday, October 29, 1952

7:00 P.M. Banquet, Crystal Room, Lobby
Presiding: Charles E. Ide, Honorary Chairman
Middle Eastern District Meeting
Address: Grove Patterson, Editor-in-Chief
Toledo Blade

(Ladies Entertainment listed separately)

## INSPECTION TRIPS

In addition to the four scheduled inspection trips, arrangements can be made for visits to the Toledo Edison Co., Acme Station and Service Center — also Ohio Bell Telephone Co.

There will be a charge of \$1.00 transportation for each of the four scheduled trips.

Sun Oil Company: Wednesday, October 29, 1:30 P.M. This refinery is the largest in the Toledo area. Every day it can make sufficient gasoline to run an average automobile for 1900 years. The world's tallest refinery unit, the first of its kind, a new catalytic cracking tower, is located here in the Toledo plant.

Willys-Overland Motors, Inc.: Wednesday, October 29, 1:30 P.M. This is the home of the mighty Jeep. Members will view the assembly lines as well as the giant press and forging operations. A guided tour will be of much interest to all electrical engineers as the military jeep is complete with electrical components — some designed specifically for under water operation.

Chesapeake & Ohio Coal and Ore Docks: Thursday, October 30, 1:30 P.M. This is one of two docks that give Toledo its position as the leading trans-shipper of soft coal in the world. The C. & O. coal handling equipment can empty 4,500 coal cars per day and has slips to accommodate 16 lake freighters at one time. The huge car dumpers, ore unloaders and car pushers afford an opportunity to see the electrical equipment and devices at work.

Toledo Scale Company: Thursday, October 30, 1:30 P.M. This modern plant is devoted to the manufacturer of automatic retail and industrial scales and special testing devices. Here weighing devices are developed and manufactured which incorporate many electrical and electronic circuit elements.

## ENTERTAINMENT - INSPECTION TRIPS

## PROGRAM

## Monday, October 27, 1952

10:00 A.M.	District Executive Committee Meeting
	French Room, Third Floor J. C. Strasbourger, Vice President, District No 2, Presiding

- 12:30 P.M. Luncheon, District Executive Committee
  Toledo Room, Third Floor
- 2:30 P.M. District Executive Committee Meeting
  French Room, Third Floor

  J. C. Strashourger, Vice President, District No.
  - J. C. Strasbourger, Vice President, District No. 2, Presiding
- 4:00 P.M. to 9:00 P.M. Advance Registration Mezzanine
- 10:30 P.M. WSPD Radio Station Broadcast Toledo Town Meeting

## Tuesday, October 28, 1952

10:00 A.M. General Session — Crystal Room, Lobby

	Presiding, Charles E. Ide, President, The Toledo Edison Co.
	Address: Management Looks Ahead in the Electric Power Industry W. L. Cisler, President, The Detroit Edison Company
11:00 A.M.	Rotating Machinery Sub-Committee English Room, Third Floor Evaluation of Insulation for Rotating Machines P. L. Alger, Presiding
12:30 P.M.	Luncheon — Ballroom, Mezzanine Presentation of District Prize Paper Awards J. C. Strasbourger, Vice President, AIEE
2:00 P.M.	Management — Crystal Room, Lobby C. J. Beller, Presiding
D.P.**	Management Development, L. A. Russ, Westinghouse Electric Corp.
D.P.**	Human Relations in the Management Team E. C. Stone, University of Pittsburgh
2:00 P.M.	Air Transportation — Toledo Room, Third Floor J. W. Allen, Presiding
D.P.**	Operation Problems of Air Turbines for Accessory Drives T. E. Abraham, Douglas Aircraft Co., Inc.
D.P.**	A New Hydraulic Constant Speed Drive R. E. Thorn and E. E. Lewis, General Electric Company
52-311.	Automatic Synchronizing for Aircraft Alternators F. B. McCarthy and G. W. Hills, Convair
D.P.**	The Maintenance of Electrical Equipment of Modern Airplanes A. J. Mustard, Eastern Airlines
2:00 P.M.	Rotating Machinery Committee Administrative Sub-Committee Parlon No. 1. Magnonine

PROGRAM - MONDAY - TUESDAY

C. G. Veinott, Presiding

7:30 P.M. Smoker-Crystal Room, Lobby

## Wednesday, October 29

Feedback Control Systems

nology

ROGRAM -- MONDAY -- TUESDAY

	Parlor No. 1, Mezzanine F. E. Crever, Presiding
DP.**	Drag-Cup A-C Tachometer with Constant-Current Excitation
	R. H. Frazier, Massachusetts Institute of Tech-

- 52-313. Stability Limits for Third-Order Servomechanisms
  T. J. Higgins and L. G. Levinthal, University
  of Wisconsin
- 52-199. The Use of Non-Linear Feedback to Improve the Transient Response of a Servomechanism
  J. B. Lewis, University of Tennessee
  Presentation by title only for discussion.
- 52-344. Piecewise Linear Servomechanisms
  J. W. Schwartz, Cornell University
  Presentation by title only for discussion.
- 52-314. An Appropriate Transfer Function for the Analysis and Design of Pulsed Servos
  R. G. Brown and G. J. Murphy, General Motors Corp.
  - 9:30 A.M. Rotating Machinery
    Parlors 2, 3 and 4, Mezzanine
    S. F. Henderson, Presiding

9:30 A.M.

- 52-315. A Graphical Method for Determining the Impedance of Multiple Cage Conductors S. S. L. Chang, Robbins & Myers, Inc.
- 52-316. Performance Calculation of Double-Cage Induction Motors

ACO.*	S. S. L. Chang and C. H. Crouse, Robbins & Myers, Inc.
52-317.	A Contribution to the Theory of the Double Cage
	Induction Motor
52-318.	J. F. H. Douglas, Marquette University Double and Triple Squirrel Cages for Polyphase
02-010.	Induction Motors
	P. L. Alger and J. H. Wray, General Electric
	Corp.
ACO.*	Design Method for Double Squirrel Cage Induction
	Motors
	R. Kaplan, Howell Electric Machines Co.
9:30 A.M.	Relaying — Toledo Room, Third Floor
	M. Robison, Presiding
DP.**	Phase Comparison Carrier Relaying for Three
	Terminal Lines
50 335	H. W. Lensner, Westinghouse Electric Corp.
DP.**	Standardization of System Relaying
DP.**	D. B. Brandt, General Electric Co.
Dr.	Typical Utility Microwave Applications D. F. Burnside, Westinghouse Electric Corp.
	ROTATION MINISTRALL PROPERTY AND AND ASSESSMENT OF TAXABLE PROPERTY OF THE PRO
9:30 A.M.	Air Transportation — Crystal Room, Lobby
	S. H. Hanville, Presiding
52-319.	Characteristics of Aircraft A-C Generators
ACO.*	L. J. Stratton, L. W. Matsch, Illinois Institute
DD	of Technology
DP.**	Effects of Aircraft A-C Generator Characteristics
Db'ss	on System Performance K. W. Carlson, General Electric Co.
DP.**	Power Equalizer Systems for Aircraft Alternators
	J. A. Granath and A. K. Hawkes, Illinois Insti-
ENT 6	tute of Technology
DP.**	Reactive Load Division of Parallel AC Generators
	in Aircraft Electrical Systems
52-322.	E. S. Sherrard, Naval Research Lab.
94-944.	Impedance Data for 400-Cycle Aircraft Distribution Systems
	D. W. Exner and G. H. Singer, Jr., Boeing Air-
3:00 F.M.	plane Co.
	Presentation by title only for discussion.
52-323.	Continuous Current and Temperature Rise in
THE PW	Bundled Cables for Aircraft
THE WAY	Milton Schach and R. E. Kidwell, Jr., Naval
	Research Lab. Presentation by title only for discussion.
	Allina composit formation and the composition of th
11:00 A.M.	A. T. & T. Micro-wave Demonstrations
	Secor Hotel, Parlors D and E

## Wednesday, October 29

PROGRAM-WEDNESDAY-A.M.

	Research Lab.
1:15 P.M.	A. T. & T. Micro-wave Demonstrations Secor Hotel, Parlors D and E
2:00 P.M.	System Engineering — Toledo Room, Third Floor A. A. Johnson, Presiding
DP.**	Expected National Load Growth and Its Effect on Utility Expansion A. A. Johnson, Westinghouse Electric Corp.
DP.**	A New Design 60 Cycle AC Network Analyzer J. L. Davidson, Long Island Lighting Co., and R. E. Koll, System Analyzer Corp.
DP.**	Aluminum for Conductors and Electrical Equipment R. R. Cope, Aluminum Co. of America
DP.**	Commodity and Power Requirements C. R. Beardsley, Defense Electric Power Administration
2:00 P.M.	Rotating Machinery — Parlor No. 1, Mezzanine T. C. Lloyd, Presiding
52-325.	Defining the Equivalent Circuit of the Double Cage Motor Paul Jacobs, Westinghouse Electric Corp.
52-326.	A Design Method for Double Squirrel-Cage Induction Motors J. Goodman, Allis-Chalmers Mfg. Co.
52-327.	A Design Method for Double Squirrel Cage Induction Motors C. H. Lee, Reliance Electric & Engineering Co.
DP.**	Design Description, Test Results, and Comparison of Calculated Characteristics of Sample Double-Cage Motors
	J. J. Courtin, Westinghouse Electric Corp.

S. S. L. Chang and C. H. Crouse, Robbins & Myers, Inc. 2:00 P.M. Rotating Machinery Committee

DC Sub-Committee

English Room, Third Floor

L. Greer, Presiding

2:00 P.M. Air Transportation — Crystal Room, Lobby

B. O. Austin, Presiding

DP.\*\* A System of Boosting D-C Voltage for Special Aircraft Applications
J. A. Hartings and E. L. Foster, Lockheed Aircraft Corp.

52-328. Electrostatic Oscillation in Sensitive Contact Mechanisms

T. R. Steulpnagel, Hughes Aircraft Co.
Presentation by title only for discussion.

52-329. Consideration of Off - On - Modulated Reversing Clutch Servo Systems

T. R. Stuelpnagel and J. P. Dallas, Hughes Aircraft Co.

DP.\*\*

Development of Static Regulators for Aircraft
A-C Generators

D. L. Plette and H. H. Britten, General Electric Co.

52-330. Stabilizing Elements in Aircraft D-C Systems
D. G. Scorgie and D. H. Schaefer, Naval Research Lab.

4:30 P.M. A. T. & T. Micro-wave Demonstration Secor Hotel, Parlors D and E

7:00 P.M. Banquet — Crystal Room, Lobby
Charles E. Ide, Presiding
Address by Grove Patterson, Editor-in-Chief, The
Toledo Blade

## Thursday, October 30, 1952

9:00 A.M.	Rotating Machinery Committee Meeting No. 4 Standards Coordinating Sub-Committee Parlors 3 and 4, Mezzanine W. R. Hough, Presiding
9:30 A.M.	Industrial Control — Parlor No. 1, Mezzanine J. A. Cortelli, Presiding
DP.**	Importance and Coordination of Electrical Controls and Power to the Refinery Process M. K. Dubbs and C. H. Johnson, Sun Oil Co.
DP.**	Electrical Interlocking of Automatic Industrial Equipment R. O. Bradley, Toledo Scale Co.

DP.\*\* Quick Stopping of Rubber Mill Motors J. F. Sellers and A. Halter, Allis-Chalmers Mfg. Co., and Blake Wheeler, Cutler-Hammer, Inc.

- 9:30 A.M. System Engineering - Toledo Room, Third Floor H. H. Kerr, Presiding
- DP.\*\* Economic Effects of Conductor Size on Transmission Line Loadings R. M. Butler, L. E. Saline and H. J. Fiedler, General Electric Co.
- DP.\*\* Coaxial Blade Transfer Switch S. C. Killian, Delta Star Electric Co.
- 52-331. Power Supply to Critical Loads S. G. Farace and P. W. Crosby, Philadelphia ACO.\* Electric Co.
- DP.\*\* Power Supply to Critical Loads in the Glass Industry N. W. James, Libbey-Owens-Ford Glass Co.

9:30 A.M. Air Transportation — Crystal Room, Lobby
Ray D. Jones, Presiding

DP.\*\* Regulated Transformer Rectifiers
G. B. Farnsworth, General Electric Co.

DP.\*\* Study of a Transformerless Rectified 120 Volt
D-C Aircraft Electrical System

J. P. Dallas and C. A. Reising, Jr., Hughes
Aircraft Co.

DP.\*\* Economic Factors for Aircraft Electric Power Systems

R. M. Bergslien, L. J. Stratton and H. J. Fini-

son, Armor Research Foundation

DP.\*\* Coordination of Circuit Protection Devices with Cables

Rudolf Steiner, USNADC

52-332. Feeder Fault Protection for Direct-Current Aircraft Generators

W. W. Davis, Boeing Airplane Co. Presentation by title only for discussion.

52-333. Arc Interruption Phenomena in a Magnetic Field at Altitude

J. P. Dallas, Los Angeles, Calif.

Presentation by title only for discussion.

DP.\*\* Current Transformer Differential Protection for Aircraft D-C Systems

C. A. Brown, General Electric Co.

## Thursday, October 30

12:30 P.M.	Luncheon—Air Transportation Committee French Room, Third Floor
2:00 P.M.	Electrical Application in Glass Industry Parlor No. 1, Mezzanine James E. Arberry, Presiding
DP.**	Comparison of Induction Regulators and Saturable Reactors for Electric Melting of Glass C. R. Olson, Westinghouse Electric Corp.
DP.**	Coordinated Section Drives in the Manufacture of "Fiberglas" N. A. Dragics, Owens-Corning Fiberglas Corp.
DP.**	Electric Power Applications in the Glass Industry E. A. E. Rich, General Electric Co.
52-320.	Electric Glass Welding M. R. Shaw, Corning Glass Works
2:00 P.M.	Power Plants and Equipment French Room, Third Floor L. R. Gaty, Presiding
DP.**	Electrical Features of Eastlake Generating Station C. F. Paulus, Cleveland Electric Illuminating Co.
DP.**	A Study for the Selection of a Station Power One Line Diagram L. E. Smith, Toledo Edison Co.
52-334. ACO.*	A Fluid Network Reduction Method for Accurate Representation of the Non-Linear Characteristics W. T. Brown and R. A. Markel, Philadelphia Electric Co.
	G. B. Farmssenrib. General-Blechin Co. Co.

2.00 1.11.	rotating machinery — roledo room, rimra Floor
	C. G. Veinott, Presiding
DP.**	Magnetic Noise in Salient Pole Synchronous Machines W. L. Ringland, Allis-Chalmers Mfg. Co.
DP.**	The Figure of Merit of DC Rotating Power Amlifiers J. T. Carleton, Westinghouse Electric Corp.
DP.**	Analog Comparator as a Tool in Motor Application J. L. Fuller and A. P. DiVincenze, Reliance Electric and Engineering Corp.
DP.**	Automatic Speed Controls for the AC Brush-Shifting Commutator Motor V. J. Picozzi, General Electric Co.
52-343. ACO.*	Apparatus for Determination of Induction Motor Torque K. M. Chirgwin, English Electric Co. of Canada, Ltd.
2:00 P.M.	Air Transportation — Parlors 2, 3 and 4, Mezzanine
2:00 P.M.	Air Transportation — Parlors 2, 3 and 4, Mezzanine R. L. Olson, Presiding
2:00 P.M. 52-335.	The second of th
	R. L. Olson, Presiding A Review of the Factors Affecting the Temperature of Airborne Electrical and Electronic Equipment
52-335.	R. L. Olson, Presiding A Review of the Factors Affecting the Temperature of Airborne Electrical and Electronic Equipment L. J. Lyons, Northrop Aircraft, Inc. Altitude Chamber Requirements for Evaluating Blast-Cooled Aircraft Generators
52-335. 52-336. 52-337.	R. L. Olson, Presiding  A Review of the Factors Affecting the Temperature of Airborne Electrical and Electronic Equipment  L. J. Lyons, Northrop Aircraft, Inc.  Altitude Chamber Requirements for Evaluating Blast-Cooled Aircraft Generators  D. H. Scott, Naval Research Lab.  Thermodynamic and Aerodynamic Evaluation of Aircraft Generator Installations  D. Friedman and J. M. Marzolf, Naval Re-

## English Room, Third Floor D. E. Fritz, Presiding

## Friday, October 31, 1952

9:00 A.M. Air Transportation Committee English Room, Third Floor Annual Business Meeting

D. E. Fritz, Presiding

12:30 P.M. Lunch — Air Transportation Committee French Room, Third Floor

## LADIES' ENTERTAINMENT

Register at Registration Desk — Mezzanine Floor — No Fee Ladies' Headquarters - French Room, Third Floor

## Tuesday, October 28, 1952

2:00 to 4:00 P.M. Get-Acquainted Tea (no fee)—French and English Rooms, Third Floor 7:00 P.M. Dinner and Card Party, \$2.50, Toledo Woman's Club

## Wednesday, October 29, 1952

10:30 A.M. 11:30 A.M. 2:30 P.M. Inspection Trip — Grace E. Smith's Cafeteria

Luncheon—Grace E. Smith's Cafeteria Inspection Trip—Libbey Glass Division, Owens-Illinois Glass Co.

7:00 P.M. Banquet Crystal Room, Lobby, Commodore Perry Hotel

### Thursday, October 30, 1952

Open for shopping, visiting Toledo's famous Art Museum, etc. Ladies are invited to attend the 12:30 P.M. Luncheon with the men on Tuesday — Crystal Room, Lobby.

## COMMITTEES

Mrs. W. E. Boruh, General Chairman

## Reception

Mrs. B. W. Wallace, Chairman Mrs. J. A. Dinwiddie, Co-Chairman

Mrs. R. W. Elder Mrs. W. L. Beat Mrs. J. W. Cofer Miss Eva Lowery

### Get-Acquainted Tea

Mrs. A. Hoefle, Chairman Mrs. J. H. Hunt, Co-Chairman

Mrs. H. E. Kohler Mrs. C. L. Keller Mrs. D. L. Rexford

Hostesses: Mrs. H. H. Kerr, Mrs. S. J. Tombaugh

## Dinner Party

Mrs. W. M. Campbell, Chairman Mrs. W. V. Gorton, Co-Chairman

Mrs. F. C. Helwig Mrs. C. E. Campbell Mrs. H. R. Daykin Mrs. J. F. Craig

## Inspection Trips

Mrs. W. H. Schwalbert, Chairman Mrs. P. R. Knapp, Co-Chairman

Mrs. P. V. Martin Mrs. F. D. Whitmer, Jr.

#### Transportation

Mrs. M. W. Keck, Chairman Mrs. T. J. Kozak, Co-Chairman

## LADIES' ENTERTAINMENT

## APPRECIATION

The Toledo Section gratefully acknowledges the financial support given by the following contributors:

Allis-Chalmers Mfg. Co.
A. Bentley & Sons Co.
Delos M. Palmer & Assoc.
General Electric Company
Haughton Elevator Company
International Business Machine Corp.
Libbey-Owens-Ford Glass Co.
Owens-Corning Fiberglas Corp.
The Electric Auto-Lite Co.
The Ohio Hydrate & Supply Co.
The Strong Electric Corporation
The Toledo Edison Co.
Toledo Scale Company
Westinghouse Electric Corporation

These firms and those who were your hosts on inspection trips, and all the members of the Toledo Section, hope that you will take away with you many pleasant remembrances of your visit here, and that you will look forward to a return to Toledo.

We extend sincere thanks to the Toledo Convention and Visitors Bureau for its immeasurable assistance in the arrangements of this meeting.

We have been honored in having the Air Transportation Committee select Toledo in which to hold its meetings in conjunction with the Middle Eastern District.

The Toledo Section

American Institute of Electrical Engineers

## SCHEDULE OF EVENTS

(See separate schedule for ladies)

### Monday, October 27, 1952

District Executive Committee Meeting - French 10:00 A.M.

Room, Third Floor
Luncheon — District Executive Committee — Toledo Room, Third Floor 12:30 P.M.

District Executive Committee Meeting - French 2:30 P.M. Room, Third Floor

4:00 P.M.

Advance Registration — Mezzanine Toledo Town Meeting — Radio Station WSPD 10:30 P.M.

### Tuesday, October 28

8:30 A.M. Registration — Mezzanine

General Session — Crystal Room, Lobby Rotating Machinery Sub-Committee — English 10:00 A.M. 11:00 A.M. Room, Third Floor

12:30 P.M.

Luncheon — Ballroom, Mezzanine Management Session — Crystal Room, Lobby Air Transportation — Toledo Room, Third Floor 2:00 P.M. 2:00 P.M. Meeting Administrative Sub-Committee, Rotating
Machinery Committee — Parlor 1, Mezzanine
Smoker — Crystal Room, Lobby 2:00 P.M.

7:30 P.M.

## Wednesday, October 29

Registration — Mezzanine 8:30 A.M.

Feedback Systems — Parlor 1, Mezzanine Rotating Machinery—Parlors 2, 3 and 4, Mezzanine

9:30 A.M. 9:30 A.M. 9:30 A.M. 9:30 A.M. Relaying — Toledo Room, Third Floor

Air Transportation — Crystal Room, Lobby A. T. & T. Microwave Demonstration — Hotel — Parlors D and E 11:00 A.M.

T. & T. Microwave Demonstration - Secor 1:15 P.M. - Parlors D and E Hotel -

1:30 P.M.

1:30 P.M.

Inspection Trip — Sun Oil Co.
Inspection Trip — Willys Overland Motors, Inc.
System Engineering — Toledo Room, Third Floor
Rotating Machinery — Parlor 1, Mezzanine
Rotating Machinery Sub-Committee — English 2:00 P.M. 2:00 P.M. 2:00 P.M. Room, Third Floor

2:00 P.M.

Air Transportation — Crystal Room, Lobby A. T. & T. Microwave Demonstration — Hotel — Parlors D and E 4:30 P.M.

Banquet — Crystal Room, Lobby 7:00 P.M.

## Thursday, October 30

8:30 A.M. Registration - Mezzanine

9:00 A.M. Rotating Machinery Sub-Committee — Parlors 3 and 4, Mezzanine

9:30 A.M. Industrial Control — Parlor 1, Mezzanine

System Engineering — Toledo Room, Third Floor Air Transportation — Crystal Room, Lobby 9:30 A.M.

9:30 A.M. Luncheon - Air Transportation - French Room, 12:30 P.M.

Third Floor

1:30 P.M. Inspection Trip — C. & O. Coal and Ore Loading Docks

1:30 P.M. Inspection Trip — Toledo Scale Co.

Electrical Applications in Glass Industry — Parlor 2:00 P.M.

1, Mezzanine Power Plants and Equipment — French Room, Third Floor 2:00 P.M.

2:00 P.M.

Rotating Machinery — Toledo Room, Third Floor Air Transportation—Parlors 2, 3 and 4, Mezzanine Air Transportation Committee Meeting — English 2:00 P.M. 7:00 P.M.

Room, Third Floor Friday, October 31
Air Transportation Committee

Annual Business 9:00 A.M. Meeting — English Room, Third Floor

Luncheon —Air Transportation Committee—
French Room, Third Floor 12:30 P.M.

## PRESIDING CHAIRMEN

- J. W. Allen, Bendix Aviation Corp., Eclipse-Pioneer Division, Teterboro, N. J.
- J. E. Arberry, Pittsburgh Plate Glass Co., Pittsburgh, Pa.
- B. O. Austin, Westinghouse Electric Corp., Lima, Ohio
- C. J. Beller, Cleveland Electric Illuminating Co., Cleveland, Ohio
- J. A. Cortelli, Clark Controller Co., Cleveland, Ohio
- F. E. Crever, General Electric Co., Schenectady, N. Y.
- D. E. Fritz, Jack and Heintz, Inc., Cleveland, Ohio
- L. R. Gaty, Philadelphia Electric Co., Philadelphia, Pa.
- S. H. Hanville, Jr., Aeronautics Bureau, U. S. Navy, Washington, D. C
- S. F. Henderson, Westinghouse Electric Corp., Buffalo, N. Y.
- C. E. Ide, The Toledo Edison Co., Toledo, Ohio
- A. A. Johnson, Westinghouse Electric Corp., Pittsburgh, Pa.
- R. D. Jones, General Electric Co., Fort Wayne, Ind.
- M. W. Keck, The Toledo Edison Co., Toledo, Ohio
- H. H. Kerr, The Toledo, Edison Co., Toledo, Ohio
- T. C. Lloyd, Robbins & Myers, Inc., Springfield, Ohio
- R. L. Olson, Northwest Airlines, Inc., St. Paul, Minn.
- M. Robison, The Toledo Edison Co., Toledo, Ohio
- J. C. Strasbourger, Cleveland Electric Illuminating Co., Cleveland, Ohio
- C. G. Veinott, Westinghouse Electric Corp., Lima, Ohio

#### **GUESTS**

- W. L. Cisler, President, The Detroit Edison Co., Detroit, Mich. Grove Patterson, Editor-in-Chief, The Toledo Blade, Toledo, Ohio
- Asa S. Knowles, President, Toledo University, Toledo, Ohio
- J. B. Brandeberry, Dean, College of Engineering, Toledo University, Toledo, Ohio
- F. Kalisik, Chairman, AIEE Student Branch, Toledo University, Toledo, Ohio
- Lloyd E. Roulet, Mayor, City of Toledo
- Rev. Carl G. Zehner, St. Paul's Ev. Lutheran Church