



**FIFTH BIENNIAL
A. I. E. E.
CONFERENCE
ON
ELECTRIC HEATING**

**SHERATON-LINCOLN HOTEL
Indianapolis, Indiana
APRIL 11 and 12, 1961**

**Sponsored by
Committee on Electric Heating
with
AIEE CENTRAL INDIANA SECTION,—Host.**

A conference for users, practical rather than theoretical, covering process heating equipment and applications for industry.

Bring along your Heating Problems and your Questions.

A bound volume of the papers presented will be distributed and is included in the registration fee.

TUESDAY, APRIL 11th, MORNING

8:00 a.m. Registration, Sheraton-Lincoln Hotel

9:30 a.m.—Presiding—C. A. Tudbury, Chairman, AIEE Committee on Electric Heating.

Welcome—F. S. English
Cory, Crum & English, Chairman,
Central Indiana Section AIEE

Keynote—"Electric Heat's Future in Industry". Frank Flick, President, Flick-Reedy Corp., Bensonville, Ill.

The most modern plant in the United States uses electric power exclusively for all heating—comfort as well as process. Solutions to the problems encountered opened new avenues to improved operations throughout the plant and offices and are ably described by the man responsible for this pioneering effort.

9:50 a.m. First Session

Chairman—K. J. Sorace, The Lamson & Sessions Co., Cleveland, Ohio.

1 "Selection and Control of Equipment for Heating Air and Other Gases for Process Work and Environmental Testing". M. Epstein, General Manager, Industrial Engineering & Equipment Co., St. Louis, Mo.

A description of the use of air heaters in the environmental test facility at Wright Field and the heating of air for testing jet engine and missile parts.

Also described is the use of hot air for regenerating drying towers and for spraying mold dressings to prevent steam blisters in the casting of brass ingots.

2 "Bright Annealing of Stainless Steel"—L. W. Johnson, Market Development Specialist, Industrial Heating Dept., General Electric Co., Shelbyville, Ind.

Discussion of a new electric furnace for continuous bright annealing of stainless steel strip; the process being replaced; solutions to problems of very rapid heating and cooling, maintaining atmosphere purity of 99.995%, and handling strip without scratching or stretching; and improvements in product quality and cost.

3 "Controls Incorporated—Always"—A. B. Conant, Couchman-Conant, Inc., Indianapolis, Ind.

History of temperature indicating, measuring and controlling devices. Early applications and the rapid transition to precision controls with what is offered in industry today.

12:00 Luncheon—Travertine and Lincoln Rooms, Sheraton-Lincoln Hotel

TUESDAY, APRIL 11th, AFTERNOON

1:30 p.m. Second Session

Chairman—W. T. Thomas, Plasma Physics Laboratory, James Forrestal Research Center, Princeton University, Princeton, New Jersey.

1 "Application of Radio Frequency Generators to Induction Heating"—R. A. Sommer, Manager, Development Engineering Dept., and G. A. Kappenhagen, Development Engineer, The Ohio Crankshaft Co., Cleveland, Ohio.

Discussion of factors to be considered when selecting frequencies for an induction heating application, stressing in particular those which are important when radio frequency is being considered. Construction details of generators and application of accessory devices to complete applications will be illustrated by the use of block diagrams and photographs.

2 "Induction Melting Equipment and Applications"—R. S. Segsworth, Chief Development Engineer, Trenton Div., Ajax-Magnethermic Corp., Trenton, New Jersey.

Descriptions of applications where induction melting has been especially successful and discussion of the various types of induction melting equipment: low, medium, and high frequency, core and coreless, air and vacuum.

Particular job requirements are considered to show how the most appropriate equipment may be selected for any application.

3 "Construction, Operation, and Maintenance of Modern High Frequency Alternators"—P. S. Tsvitse, Supervisor, Alternator Design, Reliance Electric and Engineering Co., Cleveland, Ohio, and R. J. Kasper, Development Engineer, The Ohio Crankshaft Co., Cleveland, Ohio.

The electrical and mechanical aspects of the construction and operation of modern high frequency alternators of ratings from 7½ to 350 KW, and 1000 to 10,000 cycles including electrical design affecting performance characteristics, and mechanical design affecting ventilation and high speed construction from the standpoint of the alternator manufacturer.

Also included is a discussion of the application of the alternator by the induction heating equipment manufacturer, covering the operation and maintenance of the alternator, with emphasis on the control and protection of the alternator.

4 "Induction Heating Controlled by Average Billet Temperature"—Vernon Pieron, Project Engineer, Ajax-Magnethermic Corp., Youngstown, Ohio.

The "average" temperature of a billet being heated by induction cannot be determined by measuring the temperature only at the surface of the billet. This is because of surface to center differentials which vary with heating rate, billet diameter, and thermal conductivity of the material being heated.

By using three thermocouple prods and a standard temperature instrument, the preset average temperature may be obtained with a minimum of heating time regardless of heat rate, billet diameter and thermal conductivity.

TUESDAY, APRIL 11th, EVENING

7:00 p.m. Banquet—Travertine Room
Sheraton-Lincoln Hotel

8:00 p.m. Presiding—C. A. Tudbury, Chairman
AIEE Committee on Electric Heating
Address—"Africa Today"—Robert J. Kryter, Engineering Consultant, Indianapolis, Ind.

The hottest troublespot in our world today, which promises to continue in this role for some time, is the subject of a colorful and timely discourse.

Aided by selections from 5000 color slides taken in Central Africa just after the Congo became independent, a talented speaker will present a clear political and economic assessment of the African situation from the viewpoint of an engineer and scientist.

WEDNESDAY, APRIL 12th, MORNING

9:30 a.m. Third Session

Chairman—J. R. Wark, Indianapolis Power and Light Co., Indianapolis, Ind.

1 "The Challenge of Electric Heat"—W. T. Richards, Vice President—Sales, Indianapolis Power and Light Co., Indianapolis, Ind.

The selection of industrial heating equipment in industrial processes presents a challenge to industrial engineers and management. As they continue their search for better methods to increase production, improve quality, and reduce unit production costs to maintain their earnings and competitive position, the use of electric heating equipment must be considered. However, to determine the feasibility of electric heat in relation to net earnings, a thorough economic analysis must be made.

2 "Electric Floor Panel Heating"—L. E. Whitehead, Station Electrical Design Engineer, Commonwealth Edison Co., Chicago, Ill.

A discussion of types of electric floor panel heating, followed by an outline of the behavior of floor panel systems, and details of one system of electric floor panel heating in which the elements are directly embedded in the structural floor. Calculations of the values for the system are appended.

3 "High Temperature Radiant Sources"—J. P. Frier, Illuminating Engineer, General Electric Co., Nela Park, Cleveland, Ohio.

The progress of high temperature radiant sources and, in particular, infrared lamps from 1954 to present, discussion of the state of the art and problems encountered, and the applications of high temperature sources.

4 "Radiant Heating for Coal Car Thawing"—D. A. Aitken, President, Aitken Products, Inc., Cleveland, Ohio.

The understanding of the basic problem and variations in the heating problem caused by differences in materials and in freezing conditions due to transportation times and types of local climate. The paper covers the basic requirements for electrical components of a thawing device and illustrates by slides of operating installations.

12:00 Luncheon—Travertine and Lincoln Rooms,
Sheraton-Lincoln Hotel

WEDNESDAY, APRIL 12th, AFTERNOON

1:30 p.m. Fourth Session

Chairman—J. E. Friess

General Electric Co., Allentown, Pa.

1 "Fluidized Bed Heating"—K. F. Henrich, Heat Processing Specialist, Industrial Heating Dept., General Electric Co., Shelbyville, Ind.

The fluid bed is a new heat transfer mechanism for heat treatment of metallic and non-metallic materials. The paper will include a discussion of the fundamentals of fluidization, heat transfer coefficients and typical applications for this new heat processing tool.

2 "Changes in the F.C.C. Regulations for Radio Frequency Induction and Dielectric Heating Equipment"—W. H. Hickok, Manager, Girdler Process Div., Chemetron Corp., Louisville, Ky.

The new Federal Communications Commission changes to Part 18 of the FCC Rules for certifying R. F. Induction and Dielectric Heating Equipment will be discussed. Two certificates are required. I Certification by Operator of Equipment, II Certification Regarding Radiation Measurements.

3 "Electric Heating in Research"—A. F. Leatherman, Project Leader, Solid State Devices Div., Battelle Memorial Institute, Columbus, Ohio.

Electric heat finds wide-scale use in the modern diversified research laboratory. Many special types of electric heating equipment such as the electron beam welder, pressurized carbon resistor furnace, and plasma-jet have joined conventional electric furnaces as important tools of the trade. The requirements of certain research investigations could not be met successfully without the unique approach that electric heating frequently makes possible.

4 "Low Distortion Hardening of Automotive Axles by Induction Heating"—J. W. Peach, Senior Engineer, Industrial Electronics Dept., Westinghouse Electric Corp., Baltimore, Md.

A brief history of hardening methods used in processing automotive axles will be followed by a description of the Low Distortion process.

This process clamps the axle flange in a machine tool type of automatic work handling equipment and limits shaft run-out during heating and quenching. The expensive cold straightening after hardening, formerly required, is eliminated or greatly reduced.

Typical installations of high production process lines will be described.

CONFERENCE REGISTRATION

A registration card is enclosed. Please fill it out including check payable to C. S. Strickland, Treasurer, and mail to L. E. Fickle, Chairman Registration Committee, 4944 Leone Drive, Indianapolis 26, Indiana.

HOTEL RESERVATIONS

The Sheraton-Lincoln Hotel is holding rooms for Conference Registrants. Please indicate accommodations desired on the hotel reservation card and mail direct to the hotel.

BANQUET AND LUNCHEONS

There will be a banquet Tuesday Evening, April 11th, at 7:00 P.M. Tickets are \$5.00 each, including gratuities. Please include payment for this with your registration fee.

There will be luncheon accommodations available in the Lincoln and Travertine Rooms. Tickets for luncheon will be available at the Conference at \$2.50 each, including gratuities.

COMMITTEES

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New Rochelle Thermatool Corp.

A.I.E.E. Central Indiana Section—as Host

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A.I.E.E. Headquarters Representative

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