THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
29 West 39th Street
New York 18, N. Y.

The American Society of Mechanical Engineers

invites you to the

1953

SEMI-ANNUAL MEETING

JUNE 28-JULY 2

HOTEL STATLER
Los Angeles
California

IN CONJUNCTION WITH
THE HEAT TRANSFER
AND
FLUID MECHANICS INSTITUTE

tentative program

Printed in U.S.A.

TENTATIVE PROGRAM
1953 ASME SEMI- ANNUAL MEETING

Inspection Trips

We must inform our hosts of the number of persons participating in these Inspection Trips — therefore it is imperative that you register at the Inspection Trip Desk. Members and guests are urged not to visit plants of their competitors unless they declare themselves when registering and receive approval to do so. Visitors are requested (1) to observe the posted safety rules and regulations, (2) not to take cameras into the plants, and (3) to stay with their assigned groups.

WEDNESDAY, JULY 1

9:30 a.m.....LOCKHEED AIRCRAFT CORPORATION

Famous for "Hall of Giants." Final assembly lines of military and commercial airplanes.

2:00 p.m.....FRENCH SARDINE COMPANY

Largest and most modern fish cannery anywhere — tuna, sardines and albacore. Beautiful view of Los Angeles Harbor.

or

2:00 p.m.....EXCHANGE LEMON PRODUCTS COMPANY

Largest lemon processing plant in the world. Modern extraction of juices and manufacture of lemon oil. Thirty percent of the United States lemon crop is converted here into various products.

or

2:00 p.m.....C. F. BRAUN CORPORATION

Engineering and fabricating plant. The facilities to be inspected include a million dollar research laboratory, an engineering center of some 900 offices and a twelve acre manufacturing plant. producing specialized process equipment.

or

2:00 p.m.....LEVER BROTHERS COMPANY

Large, modern plant manufacturing soap products and food shortening such as Lux and Lux Flakes, Lifebuoy Soap, Surf, Rinso and Spry.

or

2:00 p.m.....HYPERION TREATMENT PLANT

Sewage sludge treatment for City of Los Angeles and vicinity. Affluent is rendered harmless for flow into Pacific Ocean. Solids rendered commercially usable by Ferric Chloride process. Large Battery of gas engines generate power.

Registration

SCHEDULE

SUNDAY, JUNE 28 — 3:00 p.m. to 8:00 p.m.

MONDAY, JUNE 29 — 8:00 a.m. to 8:00 p.m.

TUESDAY, JUNE 30 — 8:30 a.m. to 6:30 p.m.

WEDNESDAY, JULY 1 — 8:30 a.m. to 3:00 p.m.

THURSDAY, JULY 2 — 8:30 a.m. to 3:00 p.m.

All events are scheduled on Pacific **DAYLIGHT** Time

FEE FOR NONMEMBERS

A registration fee of $3 will be charged nonmembers attending the 1953 Semi-Annual Meeting of the American Society of Mechanical Engineers. The fee for student nonmembers will be $1.

The following nonmembers will be exempt from the payment of registration fee:

Immediate family of member (any grade)

Authors listed in the program or their appointed representatives

Invited discussers

Session chairmen and vice-chairmen

Committeemen required to attend a meeting of their committee

Session Aides

Members of the ASME Woman's Auxiliary

Members of the Engineering Institute of Canada

Members of societies listed in the program

Distinguished guests invited by the President or Secretary

The Semi-Annual Business Meeting of the members of the American Society of Mechanical Engineers will be held on Monday, June 29, 1953 at 4:30 p.m. in the Hotel Statler, Los Angeles, California, as part of the Semi-Annual Meeting of the Society.

Available preprints of *numbered* papers may be purchased from ASME Order Department, 29 West 39th Street, New York 18, N. Y. Please order by number as listed in program. The tentative program follows: →

TENTATIVE PROGRAM
1953 ASME SEMI- ANNUAL MEETING

Monday, JUNE 29, 1953

8:00 a.m. *Registration*

9:30 a.m. *Power I*

Boiler Cleaning Systems — Principles and Practices.
LYLE B. SCHUELER, Diamond Power Specialty Corp. **(Paper No. 53-SA-24)**

Removal of Fireside Deposits Through Use of Mechanical Slag Blowers.
J. A. VANYO, Jr. and S. F. WALLEZE, Continental Foundry & Machine Co.
To be presented by DELOS E. HIBNER, Jr.

The Application of Additives to Fuel Oil and Their Use in Steam Generating Units.
J. B. McILROY, E. J. HOLLER, Jr., Babcock & Wilcox Co., and RODERIC B. LEE, Florida Power Corp. **(Paper No. 52-A-160)**

9:30 a.m. *Management I*

Physical Control as Applied to Production Control.
JOSEPH DRULINER, Norris Thermador Corp.

A Computational Technique for Scheduling Problem.
MELVIN E. SALVESON, University of California.

Cost Reduction Through Electronic Production Control.
R. G. CANNING, University of California.

9:30 a.m. *Heat Transfer I — Heat Transfer & Fluid Mechanics Institute I*

Heat Transfer to Constant-Property Laminar Boundary-Layer Wedge-Flows with Stepwise Arbitrary Wall Temperature Variations.
S. SCESA and S. LEVY, University of California. **(Paper No. 53-SA-47)**

Forced Convection from Non-Isothermal Surfaces.
JOHN KLEIN and MYRON TRIBUS, University of Michigan. **(Paper No. 53-SA-46)**

The Design of Wet Air-to-Air Heat Exchangers.
J. M. APPELGATE, Airesearch Manufacturing Co. **(Paper No. 53-SA-45)**

9:30 a.m. *Applied Mechanics I*

Constant Strain Waves in Strings.
J. D. COLE, California Institute of Technology, and C. B. DOUGHERTY and J. H. HUTH, Rand Corp. **(Paper No. 53-SA-4)**

The Measurement of Acceleration Pulses with the Multi-frequency Reed gage.
H. SHAPIRO, Propulsion Research Corp., and D. E. HUDSON, California Institute of Technology. **(Paper No. 53-SA-8)**

Dynamic Stress-Strain Relations for Annealed 2S Aluminum Under Compression Impact.
J. E. JOHNSON and D. S. WOOD and D. S. CLARK, California Institute of Technology. **(Paper No. 53-SA-7)**

The Effect of Strain-hardening on an Annular Slab.
P. G. HODGE, Jr., University of California. **(Paper No. 53-SA-20)**

9:30 a.m. *Gas Turbine Power I*

Experimental Investigation of Propagating Stall in Axial-Flow Compressors.
T. IURA and W. D. RANNIE, California Institute of Technology.

Design of Extremely Light Weight High Speed Compressor Rotors for Aircraft Gas Turbines.
J. S. ALFORD, General Electric Corp.

Combined Propulsion Plants for Naval Vessels.
J. J. McMULLEN, U. S. Navy Dept.

9:30 a.m. *Safety — Aviation I*

Statistical Trends in Air Safety.
BEN W. ASHMEAD, Civil Aeronautics Board.

The Engineer and Safety Engineering.
SIDNEY D. BERMAN, Norton Air Force Base.

Safety Vigilance in Air Transport Operation.
A. M. SALMON, United Airlines, Inc.

12:15 p.m. *President's Luncheon*

Presiding: Past President, R. J. S. PIGOTT, Fellow ASME, Gulf Research & Development Co.
Speaker: The President, FREDERICK S. BLACKALL, jr., Fellow ASME.
Subject: The Forest — The Trees, A Reappraisal of our Society.

2:30 p.m. *Power II*

Design of Steam Piping and Valves for 1100°F.
FRANK A. RITCHINGS and SABIN CROCKER, Ebasco Services, Inc. **(Paper No. 53-SA-37)**

Fabrication of Austenitic Stainless Steel Steam Piping for Operation at 1100°F.
W. G. BENZ, and R. H. CAUGHEY, The M. W. Kellogg Co.

2:30 p.m. *Management II*

The Work Sampling Technique.
A. J. ROWE, University of Southern California.

An Evaluation of Quantitative Techniques in Plant Layout.
J. R. HUFFMAN, University of Southern California.

A Critique of the Statistics of Time Study.
R. T. NELSON and H. P. EDMUNDSON, University of California.

Monday, continued

Monday, continued

2:30 p.m. *Heat Transfer II — Heat Transfer and Fluid Mechanics Institute II*

Intermittent Heating of Airfoils for Ice Protection Utilizing Hot Air.
H. H. HAUGER, Jr., Douglas Aircraft Company, Inc.
(Paper No. 53-SA-42)

Remarks on Film Condensation with Turbulent Flow.
R. A. SEBAN, University of California.
(Paper No. 53-SA-44)

Steady Temperature Fields in Electrical Coils by Membrane Analogy.
P. J. SCHNEIDER and A. B. CAMBEL, State University of Iowa.
(Paper No. 53-SA-43)

2:30 p.m. *Applied Mechanics II*

Analysis of a Nonlinear Dynamic Vibration Absorber.
L. A. PIPES, University of California.
(Paper No. 53-SA-41)

Flexural Vibrations in Uniform Beams According to the Timoshenko Theory.
R. A. ANDERSON, U. S. Naval Ordnance Test Station. **(Paper No. 53-SA-9)**

Flexural Wave Solutions of Coupled Equations Representing the More Exact Theory of Bending.
JULIUS MIKLOWITZ, U. S. Naval Ordnance Test Station. **(Paper No. 53-SA-6)**

2:30 p.m. *Gas Turbine Power II Aviation II*

Development of Ramjet Power.
N. F. SVENDSON, and J. W. BRAITHWAITE, Marquardt Aircraft Co.

An Application of the Palouste Turbo Compressor.
O. H. JACOBSON, and P. VOLKMAR, Northrup Aircraft Co.

2:30 p.m. *Process Industries I*

A New Type Radiant Heater.
T. F. KREIPE, Selas Corporation of America.
(Paper No. 53-SA-40)

Air Purification as a Means of Reducing Air Conditioning Equipment and Duct Sizes.
NORMAN SHARPE, California State Polytechnic College.

4:30 p.m. *Business Meeting*

Presiding: The President.
FREDERICK S. BLACKALL, jr., Fellow ASME.

8:00 p.m. *Junior*

Speaker: DR. WILLIAM F. NASH, C. F. Braun Co.
Subject: The Future's Unlimited — Let's Get Ready.

Tuesday, JUNE 30, 1953

8:30 a.m. *Registration*

9:30 a.m. *Petroleum I*

Development of Gas Engine Compressor Plants.
LYMAN F. SCHEEL, The Fluor Corporation, Ltd.

Comparison of Electric Motors and Steam Turbines as Drivers for Fluid Catalytic Cracking Units.
HAYS C. MAYO, The M. W. Kellogg Co.

9:30 a.m. *Aviation III*

Air Conditioning the Super Constellation.
B. L. MESSINGER and H. M. COUSINS, Lockheed Aircraft Corp.
(Paper No. 53-SA-31)

Air Conditioning Design Features of the DC-7 Airplane.
G. T. ROWE, Douglas Aircraft Company, Inc.
(Paper No. 53-SA-38)

9:30 a.m. *Power III — Hydraulic I*

Features of Nuclear Power Plants of Interest to Power Plant Engineers and Operators.
R. A. BOWMAN, Bechtel Corp.

Effect of Exhaust Pressure on the Economy of Condensing Turbines.
A. KELLER and J. E. DOWNS, General Electric Co.

Prevention of Babbitt Blisters in Thrust Bearing Pads.
R. A. BAUDRY, D. W. GUNTHER and B. B. WINER, Westinghouse Electric Corp.
(Paper No. 53-SA-23)

9:30 a.m. *Management III*

Permanent Management — Labor Peace and Full Employment.
ETHELBERT FAVARY, Consulting Engineer, Hollywood, California.

Industrial Relations Training that Works.
C. H. SHUMAKER, Southern Methodist University.

The Mutual Interests of Engineers and Management.
W. J. KING, University of California.

9:30 a.m. *Production Engineering I*

Value Analysis — "A Plant-Wide Creative Cost Reduction Program Under Purchasing Leadership."
L. D. MILES, General Electric Co.

Productionizing New Materials
H. W. BENJAMIN, Lockheed Aircraft Corp.
(Paper No. 53-SA-48)

Tuesday, continued

9:30 a.m. *Applied Mechanics III*

Measurement of Torsional Stiffness Changes and Instability Due to Tension-Compression and Bending.
H. L. ENGEL and J. N. GOODIER, Stanford University. **(Paper No. 53-SA-5)**

On Reinforced Circular Cutouts.
E. LEVIN, University of California. **(Paper No. 53-SA-11)**

A Large Deflection Theory for Laterally Loaded Doubly Curved Rectangular Plates with Various Edge Conditions, Including the Effects of Edge Members and Edge Forces.
CONRAD C. WAN, United Aircraft Corp.

9:30 a.m. *Heat Transfer and Fluid Mechanics Institute III*

Heat and Mass Transfer from Slender Cylinders to Air Streams in Axisymmetrical Flow.
H. H. SOGIN and MAX JAKOB, Illinois Institute of Technology.

Heat Transfer in the Compressible Turbulent Boundary Layer on a Flat Plate.
CONSTANTINE C. PAPPAS and MORRIS W. RUBESIN, Ames Aeronautical Laboratory, NACA.

Experimental Investigation of Heat Transfer at Hypersonic Mach Number.
R. D. DeLAUER, Bureau of Aeronautics, Navy Dept., and H. T. NAGAMATSU, California Institute of Technology.

9:30 a.m. *Metals Engineering I*

Mechanical Aspects of Seizing in Metal Wear.
HARRY CZEYZEWSKI, Metallurgical Engineers, Inc. **(Paper No. 53-SA-26)**

Dynamic Properties of Nodular Cast Iron — Part II Size Effect.
HARRY MAJORS, California Research and Development Co. **(Paper No. 53-SA-25)**

Lateral Forces in Forging Operations.
J. M. ENGLISH, University of California.

12:15 p.m. *Petroleum Luncheon*

Presiding: H. L. EGGLESTON, Petroleum Consultant.
Speaker: A. C. RUBEL, Vice-President of Exploration and Production, Union Oil Company of California.
Subject: Petroleum's Place in Our Industrial Future.

2:30 p.m. *Petroleum II Process Industries II*

The Entertainment Problem and a Simple Economical Solution.
SANFORD C. REYNOLDS, Metal Textile Corp.

An Approach to the Sizing of Vapor Relieving Systems.
J. CONISON, The Fluor Corporation, Ltd.

Tuesday, continued

2:30 p.m. *Aviation IV Materials Handling I*

Modernization of the C-46 Air Freighter.
P. W. MILLER, The Flying Tiger Line, Inc.

A Method for Calculating the Economic Parameter of Transport Type Aircraft.
G. A. BUSCH, Slick Airways, Inc.

2:30 p.m. *Boiler Feedwater Studies I Power IV*

Progress in the Study of Corrosion in the Moisture Region of Large Steam Turbines.
TRAFFORD W. BIGGER, J. F. QUINLAN and C. C. CARSON, General Electric Co. **(Paper No. 53-SA-12)**

Reduction of Condensate Line Corrosion.
SCOTT JENSEN and E. RUSSELL LANG, Southern California Edison Co. **(Paper No. 53-SA-15)**

A Preliminary Investigation of Iron Oxide Deposition in Boiler Feedwater Systems.
E. G. GOTHBERG, HENRY KEHMNA and E. S. JOHNSON, Pacific Gas & Electric Co. **(Paper No. 53-SA-19)**

2:30 p.m. *Production Engineering II*

An Engineering Approach to Methods Improvement and Planning.
L. C. LANDER, Jr., General Motors Inst.

The Statistical Control of Production Processes.
R. L. FOWLKES, Northrop Aircraft, Inc.

2:30 p.m. *Applied Mechanics IV Heat Transfer III*

Temperature Distribution in the Wake of a Heated Sphere.
D. H. BAER, Phillips Petroleum Co., W. G. SCHLINGER, California Institute of Technology, V. J. BERRY, Stanolind Oil and Gas Co., and B. H. SAGE, California Institute of Technology. **(Paper No. 53-SA-2)**

Skin Friction and Heat Transfer for Laminar Boundary-Layer Flow with Variable Free Stream Velocity.
S. LEVY and R. A. SEBAN, University of California. **(Paper No. 53-SA-3)**

The Rate of Growth of Vapor Bubbles in Super-Heated Water.
PAUL DERGARABEDIAN, U. S. Naval Ordnance Test Station. **(Paper No. 53-SA-10)**

Tuesday, continued

2:30 p.m. *Heat Transfer and Fluid Mechanics Institute IV*

Steady Interaction of Disturbances with a Shock Wave with Applications to Turbulence and Noise.

H. S. RIBNER and F. K. MOORE, Lewis Flight Propulsion Laboratory.

Temperature Measurements in the Wake of Bodies in Supersonic Flow.

A. H. LANGE, Naval Ordnance Laboratory.

A Study of Shock Wave Turbulent Boundary Layer Interaction.

SEYMOUR M. BOGDONOFF, Princeton University.

2:30 p.m. *Hydraulic II*

The Source of Radial Forces in Centrifugal Pumps and Compressors.

RALPH M. WATSON, Worthington Corp.

An Experimental and Theoretical Investigation of Two Dimensional, Centrifugal Pump Impellers.

ALLEN JAMES ACOSTA, California Institute of Technology.

7:00 p.m. *Banquet*

Toastmaster: J. CALVIN BROWN, Fellow ASME. Owner Firm of J. Calvin Brown, Los Angeles, Calif. Address: by L. A. DuBRIDGE, President, California Institute of Technology, Pasadena, Calif.

The 1953 Nominating Committee is to meet for two days, June 29-30, 1953, at the Hotel Statler in Los Angeles, California, where the Semi-Annual Meeting will be held. Open hearings will be held so that members may speak in behalf of their candidates for the office of President, Regional Vice-President, and Directors at Large any time between the hours of 10:30 a.m. to 12 noon; and from 2 p.m. to 5 p.m. on Monday, June 29, and on Tuesday, June 30, from 9:30 a.m. to 12 noon and, if necessary from 2 p.m. to 5 p.m. Following the close of business of the 1953 Nominating Committee there will be held an Organization Meeting of the 1954 Committee presided over by Mr. A. R. Weigel, Chairman of the 1953 Committee. This meeting will take place on Tuesday afternoon or evening, June 30, following the Business Meeting of the 1953 Committee or, if necessary to extend the Business Meeting through Tuesday evening, the Organization Meeting will be held on Wednesday morning, July 1st.

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Wednesday, JULY 1, 1953

8:30 a.m. ***Registration***

9:30 a.m. ***Machine Design I***

Twisting of Flexible Shafts.
K. E. BISSHOPP and D. C. DRUCKER, Brown University.

Methods Used in Investigating Geartooth Loading in the Colmol.
JAMES A. FLINT, The Jeffrey Manufacturing Co.

9:30 a.m. ***Aviation V — Gas Turbine Power III***

Propulsion Wind Tunnel of the Arnold Engineering Development Center at Tullahoma, Tennessee.
FRANK L. WATTENDORF, U. S. Air Force, JOHN NOYES, Sverdup & Parcel, Inc., and A. I. PONOMAREFF, Westinghouse Electric Corp.
(Paper No. 53-SA-32)

The Use of Stator Blade Control to Obtain Wide Range of Compressor Performance for Wind Tunnel Application.
A. W. McCOY, Sverdrup & Parcel, Inc., M. J. BRUNNER, Westinghouse Electric Corp.
(Paper No. 53-SA-35)

9:30 a.m. ***Boiler Feedwater Studies II Power V***

The Mitigation of Marine Fouling by Anaerobic Treatment.
H. T. DUPLICE, and R. C. ALEXANDER, Department of Water & Power, City of Los Angeles.
(Paper No. 53-SA-18)

Zeolite vs Soda Ash in Hot Process Softener at Firestone.
W. F. FIELDS, Firestone Tire & Rubber Co.
(Paper No. 53-SA-13)

Recirculation Cooling Water System at Tucson.
J. H. SAUNDERS, The Tucson Gas, Electric Light & Power Co. **(Paper No. 53-SA-14)**

Ion-Exchanger Equipment in the Treatment of Boiler Make-up Water.
A. A. LINGO, Highgrove Steam Power Co.

9:30 a.m. ***Production Engineering III***

Organization of Industrial Engineering in a Small Company.
A. M. ELLIOTT, Lenkurt Electric Co.

Organization for Production Engineering.
R. H. McCARTHY, Western Electric Co., Inc.

9:30 a.m. ***Fuels***

Smokeless Burning of Waste Process Gases.
ROBERT DeHART REED, John Zink Co.
(Paper No. 53-SA-29)

Offshore Deliveries of Fuel Oil from Tank Ships Through a Submarine Line at Moss Landing.
E. A. SALO, Pacific Gas & Electric Co., and S. P. JOHNSON, Standard Oil Company of California.
(Paper No. 53-SA-30)

Experimental Study of Combustion in Rockets.
CHARLES H. TRENT, Aerojet Engineering Corp.

Wednesday, continued

9:30 a.m. *Inspection Trip*

Lockheed Aircraft Corporation, Burbank, California.

9:30 a.m. *Heat Transfer and Fluid Mechanics Institute V*

Turbulent Forced Convection Heat Transfer in Circular Tubes Containing Molten Sodium Hydroxide.

H. W. HOFFMAN, Oak Ridge National Laboratory.

Free Convection in a Uniform Electric Field.

G. H. HALSEY and K. H. WEBER, General Electric Co.

Heat Transfer in Curved Flow Channels.

FRANK KREITH, University of California.

12:15 p.m. *Aviation and Gas Turbine Power Luncheon*

Presiding: R. Q. ROOSMAN, Design Engineer, Aviation Director, Local Division, Lockheed Aircraft Corporation, Burbank, California.

Speaker: GEORGE PRUDDEN, Director of Quality Control, Lockheed Aircraft Corp., Burbank, California.

Subject: "Adam Couldn't Fly."

2:30 p.m. *Heat Transfer and Fluid Mechanics Institute VI*

Status of Information on Nucleate Boiling.

WARREN ROHSENOW, Massachusetts Institute of Technology.

Formation of Bubbles at Simple Orifices.

R. R. HUGHES, A. E. HANDLOS, H. D. EVANS, and R. L. MAYCOCK, Shell Development Co.

Factors That Influence Heat Transfer in Boiling.

R. F. LARSON, University of Illinois.

2:30 p.m. *Aviation VI — Machine Design II — SAE I — IAS I*

Production Capabilities of Large Extrusion Presses and Auxiliary Equipment.

G. E. MONI, Reynolds Metals Co.
(Paper No. 53-SA-27)

Panel Extrusions in Aircraft Structures.

HOWARD KASTAN, Lockheed Aircraft Corp.
(Paper No. 53-SA-28)

Light Alloy Forging Design and Production Problems as Related to Heavy Press Operations.

A. E. FAVRE, Aluminum Company of America.
(Paper No. 53-SA-39)

Wednesday, continued

2:00 p.m. *Inspection Trips*

French Sardine Company, Exchange Lemon Products Company, C. F. Braun Corporation, Lever Brothers Company and Hyperion Treatment Plant.

8:00 p.m. *Aviation VII — Machine Design III — SAE II — IAS II*

Design Considerations Associated With Large Aluminum Forgings.

C. W. ANDREWS, Douglas Aircraft Co.

8:00 p.m. *Heat Transfer and Fluid Mechanics Institute VII*

Fluid Flow Analogues for Solving Heat Conduction Problems: A Fluid Mapper Lecture-Demonstration.

A. D. MOORE, University of Michigan.

The field of heat flow in a heat conduction case can be visually simulated in a fluid flow analogue. Such analogues, called "fluid mappers," have been developed in new forms by Professor Moore in recent years, at the University of Michigan. The fluid flow occurs between a glass plate, and a plaster slab tailored to fit the case.

A slab will be cast, finished, and operated in a fluid mapper to show the flow pattern. Audiences are invariably fascinated by the plaster-handling techniques, and the many beautiful flow patterns that are shown by the color slides. Nearly half a hundred fluid mapper demonstrations have been given throughout the country to colleges, research institutes, societies, and industrial firms.

Coming Meetings

Oil and Gas Power Conference	May 25-28	Milwaukee, Wis.
Applied Mechanics Conference	June 18-20	Minneapolis, Minn.
SEMI-ANNUAL MEETING	June 28-July 2	Los Angeles, Calif.
Joint IIRD-ISA Conference	Sept. 21-25	Chicago, Ill.
Petroleum Mechanical Engineering Conference	Sept. 28-30	Houston, Texas
FALL MEETING	Oct. 5-7	Rochester, N. Y.
Fuels-AIME Coal Conference	Oct. 29-30	Chicago, Ill.
ANNUAL MEETING	Nov. 29-Dec. 4	New York, N. Y.

TENTATIVE PROGRAM
1953 ASME SEMI-ANNUAL MEETING

Thursday, JULY 2, 1953

8:30 a.m. *Registration*

9:30 a.m. *Metal Processing I — Production Engineering IV Aviation VIII*

The Friction Terms in Metal Cutting.
WILLIAM C. LEONE, and EDWARD A. SAIBEL. Carnegie Institute of Technology.
(Paper No. 53-SA-16)

Machining Integrally Stiffened Structures.
J. C. BORGER, Lockheed Aircraft Corp.
(Paper No. 53-SA-21)

9:30 a.m. *Education*

Looking Ahead in Engineering.
L. M. K. BOELTER, University of California.

What are the Requirements of Post Graduate Education in Engineering.
WILLIAM BOLLAY, Aero Physics Development Corp.

9:30 a.m. *Oil & Gas Power*

Valve Gear Fundamentals for the Large Engine Designer.
J. A. NEWTON, and C. H. ALLEN, Thompson Products, Inc.
(Paper No. 53-OGP-2)

Crankwebs Including Arcweb Design.
S. W. NEWELL, The Union Diesel Engine Co.
(Paper No. 53-OGP-3)

9:30 a.m. *American Rocket Society I*

Correlation of Experimental Data on the Disintegration of Liquid Jets.
C. C. MIESSE, Aerojet-General Corp.

Combustion in Rocket Thrust Chambers as Investigated by a Mechanical Probe.
CHARLES TRENT, Aerojet-General Corp.

Rocket Powdered Wind Tunnel.
FRANK KREITH, P. B. STEWART, and E. S. STARKMAN, University of California.

9:30 a.m. *Instruments & Regulators I*

Development of an Automatic Data Plotter.
JOHN H. WEAVER, Telecomputing Corp.

The Oscar, a New Approach to the Analysis of Oscillographic Records.
BERNARD S. BENSON, Bernard-Lehner Corp.
(Paper No. 53-SA-50)

Automatic Calibration of Transducers.
JOHN KINKEL and R. MAWSON, Consolidated Engineering Corp.

Thursday, continued

9:30 a.m. *Heat Transfer and Fluid Mechanics Institute VIII*

Present Status of Cavitation Problem.
R. T. KNAPP, California Institute of Technology.

On the Normal Shock Wave in any Single Phase Fluid Substance.
S. J. KLINE, Stanford University, and ASCHER H. SHAPIRO, Massachusetts Institute of Technology.

Open Channel Flow of Water-Air Mixtures.
H. A. EINSTEIN and O. SIBUL, University of California.

12:15 p.m. *American Rocket Society Luncheon*

Presiding: B. L. DORMAN, Aerojet Engineering Corporation, Azusa, California.

Speaker: MAJOR C. E. YEAGER, Air Force, Experimental Flight Test Center, Edwards Air Force Base, California.

Subject: "Experiences in Rocket Propelled Aircraft."

12:15 p.m. *Heat Transfer Luncheon*

Presiding: H. B. NOTTAGE, Propulsion Research Corp., Inglewood, California.

Speaker: BENJAMIN PINKEL, Lewis Flight Propulsion Laboratory, NACA, Cleveland Airport, Cleveland. Ohio.

Subject: "Summary of NACA Research on Heat Transfer and Friction For Air Flowing Through Tubes With Large Temperature Differences."

2:30 p.m. *Metal Processing II — Production Engineering V*

Machining High Tensile Strength Steel.
FRED M. RAYBURN, Menasco Manufacturing Co.
(Paper No. 53-SA-33)

Predicting the Angle of Chip Flow For Single Point Cutting Tools.
L. V. COLWELL, University of Michigan.
(Paper No. 53-SA-17)

2:30 p.m. *Materials Handling II*

The Trend Toward Automation in Automatic Weighing and Bulk Materials Handling.
INGRAM H. RICHARDSON, Richardson Scale Co.
(Paper No. 53-SA-22)

TENTATIVE PROGRAM
1953 SEMI-ANNUAL MEETING

Thursday, continued

2:30 p.m. *Lubrication — Machine Design IV*

The Dynamics and Lubrication of a Miniature Turbine Rotor on Porus Bushings.

GEORGE SINES, University of California.

(Paper No. 53-A-36)

On the Solution of the Reynolds Equation for Silder Bearing Lubrication — Part VII, the Nonsteady State Operation of Tilting — Pad Slider-Bearings.

JOHN FLETCHER OSTERLE, A. CHARNES and EDWARD A. SAIBEL, Carnegie Institute of Technology. **(Paper No. 53-SA-1)**

(To be presented by WILLIAM LEONE, Carnegie Institute of Technology.)

2:30 p.m. *American Rocket Society II*

Application of Aerodynamic Theory in the Design of Large Unguided Artillery Rockets.

A. L. SHEF, Douglas Aircraft Corp.

An Airtransportable Liquid Oxygen Generator — Its Operation and Application.

C. L. JEWETT, G. A. BLEYLE, Jr. and RICHARD B. HINCKLEY, Arthur D. Little, Inc.

Solid Propellant Rockets — Basic Concepts, Present Status and Trends in Development.

C. E. BARTLEY, Grand Central Aircraft Co.

2:30 p.m. *Instruments & Regulators II Aviation IX*

Application of Magnetic Recording to Flight Instrumentation.

MYRON J. STOLAROFF, Ampex Electric Corp.

Multi-Channel Dynamic Recording — A Powerful Tool for the Design Engineers.

WILLIARD T. YOUNG and JOHN TARBOX, Consolidated Engineering Corp.

(Paper No. 53-SA-49)

The Momentum Principle Measures Mass Rate of Flow.

VINCENT A. ORLANDO and FREDERIC B. JENNINGS, General Electric Company.

2:30 p.m. *Heat Transfer and Fluid Mechanics Institute IX*

Recent Advances and Current Problems in the Theory of Flame Propagation.

MARTIN SUMMERFIELD, Princeton University.

One Dimensional Velocity Variation of a Burning Droplet.

C. C. MIESSE, Aerojet-General Corp.

Evaporation from Liquid Wall Films Into a Turbulent Gas Stream.

ELDON L. KNUTH, California Institute of Technology.

Ladies Program

SUNDAY, JUNE 28

9:00 a.m. Registration

MONDAY, JUNE 29

12:15 p.m. President's Luncheon
2:00 p.m. Studio Tour

TUESDAY, JUNE 30

12:00 noon Huntington Library — Bus Fare $2.40
6:15 p.m. Reception
7:00 p.m. Banquet

WEDNESDAY, JULY 1

10:00 a.m. Knott's Berry Farm
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