

HEAT TRANSFER BIBLIOGRAPHY

E. R. G. ECKERT, E. M. SPARROW and W. E. IBELE

Heat Transfer Laboratory, Department of Mechanical Engineering,
University of Minnesota, Minneapolis 14, Minnesota, U.S.A.

APPLICATIONS

- D. M. ADAMS, How Finned Streamlined Heat Exchanger Tubes Perform. *Heat. Pip. Air Condit.* **33**, No. 2, 131 (1961).
- E. L. ARMI and C. G. KIRKPATRICK, Temperature Control by Means of the Peltier Effect. *Aircr. Engng*, **33**, No. 383, 12 (1961).
- D. C. BRIGGS and A. L. LONDON, The Heat Transfer and Flow Friction Characteristics of Five Offset Rectangular and Six Plain Triangular Plate-Fin Heat Transfer Surfaces. *Dept. of Mechanical Engng, Stanford University, Stanford, Calif., Tech. Rep.* 49 (1960).
- S. C. BROWNING and J. J. S. SEBASTIAN, Ceramic Heat Exchangers for High-Temperature Heat Transfer from Helium. *Industr. Engng Chem.* **53**, No. 3, 191 (1961).
- D. BUSHNELL and A. D. KRAUS, Thermal Equilibrium of Space Vehicles. *Sperry Rev.* **13**, No. 4, 26 (1960).
- R. W. DETRA and H. HIDALGO, Generalized Heat Transfer Formulas and Graphs for Nose Cone Re-entry into the Atmosphere. *J. Amer. Rocket Soc.* **31**, No. 3, 318 (1961).
- B. N. DEVIYATOV, Transient Effects in Continuously Acting Thick-Walled Heat Exchangers. *Soviet Fiz. Dokl.* **5**, No. 1, 54 (1960).
- L. S. DZUNG, A Cooling Problem of Pebble-Bed Nuclear Reactors. *Int. J. Heat Mass Transfer*, **1**, Nos. 2/3, 236 (1960).
- F. C. GRANT, Modulated Entry. *NASA TND-452* (1960).
- R. I. HODGE, A Comparison Between the Measured and Predicted Cooling Performance of an Internally Spanwise Ventilated Turbine Nozzle Blade. *Aero. Res. Coun. Lond., Curr. Pap.* 494 (1960).
- R. I. HODGE, A Turbine Nozzle Cascade for Cooling Studies: Part I, The Measurement of Mean Nusselt Numbers at the Blade Surface. *Aero. Res. Coun. Lond., Curr. Pap.* 492 (1960).
- A. H. LEFEBVRE, Heat-Transfer Processes in Gas-Turbine Combustion Chambers. *Proc. Instn Mech. Engrs, Lond.* **174**, No. 12, 463 (1960).
- M. H. LEIPOLD and J. L. TAYLOR, Ultra-High-Frequency Oxide Induction-Heating Furnace. *Jet Propulsion Laboratory, California Institute of Technology, Pasadena, Calif., Tech. Rep.* 32-32 (1961).
- R. J. MARCUS and H. C. WOHLERS, A New Solar Furnace—Design and Operation. *Industr. Engng Chem.* **52**, No. 10, 825 (1960).
- R. MARLOW, Peltier Cooling of Electrical Components in Telemetering Packages. *J. Amer. Rocket Soc.* **31**, No. 2, 263 (1961).
- F. T. MCCLURE, R. W. HART and J. F. BIRD, Heat Release Rate, Temperature and Pressure in Solid Rocket Instability. *J. Amer. Rocket Soc.* **31**, No. 3, 367 (1961).
- L. D. NICHOLS, Effect of Shield Position and Absorptivity on Temperature Distribution of a Body Shielded from Solar Radiation in Space. *NASA TN D-578* (1961).
- D. R. OLANDER, Design of Direct Contact Cooler-Condensers. *Industr. Engng Chem.* **53**, No. 2, 121 (1961).
- W. S. PELLINI, Materials Requirements of Hypersonic Flight Vehicles. *J. Metals*, **12**, No. 12, 952 (1960).
- H. A. PERRY, Reinforced Plastics Pierce Heat Barrier. *Mater. Res. Stand.* **1**, No. 2, 122 (1961).
- E. T. PITKIN, Optimum Radiator Temperature for Space Power Systems. *J. Amer. Rocket Soc.* **29**, No. 8, 596 (1959).
- D. READSHAW, Predicting Temperature Rises Due to Aerodynamic Heating. *Aircr. Engng*, **33**, No. 383, 8 (1961).
- R. J. ROSA, Physical Principles of Magneto-hydrodynamic Power Generation. *AVCO Everett Research Laboratory, Everett, Mass., Research Rep.* 69, AFBMD TR-60-36 (1960).
- K. SCHACK, Wärmetausch von Gasen hoher Temperatur in kombiniertem Gleich- und Gegenstromverfahren. *Chem.-Ing.-Tech.* **33**, No. 3, 163 (1961).
- J. N. STEINMETZ, JR., Hydrogen Jets Match Re-entry Heat. *Missiles & Rockets*, **8**, No. 8, 24 (1961).
- A. M. STOLL, The Role of the Skin in Heat Transfer. *J. Heat Transfer*, **C 82**, No. 3, 239 (1960).
- S. L. SULLIVAN, JR. and C. D. HOLLAND, Double Pipe Heat Exchangers. *Industr. Engng Chem.* **53**, No. 4, 285 (1961).
- J. TAYLOR, Beating the Heat Barrier. *Royal Aircraft Establishment (Gi. Brit.), RAE Tech. Note Structures*, 286 (1960).
- C. L. WALKER, C. R. SMITH and D. G. GRITTON, Weight Optimization of Heat Rejection Systems for Space Applications. *Proc. Heat Transfer and Fluid Mechanics Institute, Stanford, Calif., June 15-17, 1960; Stanford University*, p. 244 (1960).
- E. L. WATSON, A. A. MCKILLOP, W. L. DUNKLEY and R. L. PERRY, Flow Characteristics—Plate Heat Exchangers. *Industr. Engng Chem.* **52**, No. 9, 733 (1960).
- C.-Y. WEN and E. N. MILLER, Heat Transfer in Solids-Gas Transport Lines. *Industr. Engng Chem.* **53**, No. 1, 51 (1961).
- L. D. WING and K. E. CAMERON, Solar Collectors for Use in Thermionic Power Supply Systems in Space. *J. Amer. Rocket Soc.* **31**, No. 3, 327 (1961).
- R. M. WOOD and T. J. ASHLEY, Missile Has Special Protective "Skin". *Missiles & Rockets*, **8**, No. 5, 42 (1961).

BOOKS

- Astronautics Information Open Literature Survey*, Vol. III, No. 4, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, Calif. (1961).
- C. W. BECKETT, W. S. BENEDICT, L. FANO, J. HILSENKRATH, H. J. HOGE, J. F. MASI, R. L. NUTTALL and Y. S. TOULOUKIAN, *Tables of Thermodynamic and Transport*

- Properties of Air, Argon, Carbon Dioxide, Carbon Monoxide, Hydrogen, Nitrogen, and Steam.* Pergamon Press, Lond. (1960).
- J. L. DELCROIX, *Introduction to the Theory of Ionized Gases.* Interscience, New York (1960).
- N. A. FUCHS, *Evaporation and Droplet Growth in Gaseous Media.* Pergamon Press, New York (1959).
- B. GEBHART, *Heat Transfer.* McGraw-Hill, New York (1961).
- T. R. HARRISON, *Radiation Pyrometry and Its Underlying Principles of Radiant Heat Transfer.* John Wiley, New York (1960).
- B. G. KORENEV, *Certain Problems in Theory of Elasticity and Heat Conduction Solved in Terms of Bessel Functions.* Gosudarstvennoe Izdatel'stvo Fiziko-Matematicheskoi Literatury, Moscow (1960).
- Precision Measurement and Calibration, Selected Papers: Vol. 2, Heat and Mechanics.* U.S. NBS Handbook 77, U.S. Government Printing Office (1961).
- A. I. VEINIK, *Approximate Calculation of Heat Conduction Processes.* Gosudarstvennoe Energeticheskoe Izdatel'stvo, Moscow (1959).

BOUNDARY LAYER FLOW

- J. R. BARON and P. B. SCOTT, The Laminar Diffusion Boundary Layer with External Flow Field Pressure Gradients. *Massachusetts Institute of Technology, Naval Supersonic Laboratory, AFOSR TN 59-1268* (1959).
- I. E. BECKWITH and N. B. COHEN, Application of Similar Solutions to Calculation of Laminar Heat Transfer on Bodies with Yaw and Large Pressure Gradient in High-Speed Flow. *NASA TN D-625* (1961).
- R. P. BERNICKER, An Experiment with a Transpiration-Cooled Nozzle. *Massachusetts Institute of Technology, Naval Supersonic Laboratory, Tech. Rep. 447, AFOSR TN 60-1484* (1960).
- M. H. BLOOM and M. H. STEIGER, Perturbed Boundary Layer Solutions Applied to the Wall Jet and Blasius Profile. *Polytechnic Institute of Brooklyn, Dept. of Aerospace Engng and Applied Mechanics, PIBAL Rep. 471, AFOSR TN 60-1340* (1960).
- L. J. CHALLIS, K. DRANSFELD and J. WILKS, Heat Transfer Between Solids and Liquid Helium II. *Proc. Roy. Soc. A* **259**, No. 1299, 31 (1961).
- P. M. CHUNG and A. D. ANDERSON, Heat Transfer to Surfaces of Finite Catalytic Activity in Frozen Dissociated Hypersonic Flow. *NASA TN D-350* (1961).
- W. H. DORRANCE, Dissociation Effects Upon Compressible Turbulent Boundary Layer Skin Friction and Heat Transfer. *J. Amer. Rocket Soc.* **31**, No. 1, 61 (1961).
- A. FERRI and V. ZAKKAY, Measurements of Stagnation Point Heat Transfer at Low Reynolds Numbers. *Polytechnic Institute of Brooklyn, Dept. of Aerospace Engng and Applied Mechanics, ARL Rep. 38* (1961).
- G. E. GADD, W. F. COPE and J. L. ATTRIDGE, Heat-Transfer and Skin-Friction Measurements at a Mach Number of 2.44 for a Turbulent Boundary Layer on a Flat Surface and in Regions of Separated Flow. *Aero. Res. Coun. (Gr. Brit.), ARC R & M 3148* (1960).
- A. F. GOLLNICK, JR., Heat Transfer Rates and Insulated Wall Temperatures for a Transpiration Cooled Hemisphere. *Massachusetts Institute of Technology, Naval Supersonic Laboratory, Tech. Rep. 433, AFOSR TN 60-1483* (1960).
- R. A. GRANVILLE and G. BOXALL, Measurement of Convective Heat Transfer by Means of the Reynolds Analogy. *Brit. J. Appl. Phys.* **11**, No. 10, 471 (1960).
- G. R. GUINN, Aerodynamic Heating of Plane Bodies of Low Thermal Diffusivity. *J. Amer. Rocket Soc.* **31**, No. 1, 158 (1961).
- C. R. GUNN, Heat-Transfer Measurements on the Apexes of Two 60° Sweptback Delta Wings (Panel Semiapex Angle of 30°) Having 0° and 45° Dihedral at a Mach Number of 4.95. *NASA TN D-550* (1961).
- J. G. HALL and T. C. GOLIAN, Heat Transfer to Sharp and Blunt Yawed Plates in Hypersonic Airflow. *Cornell University, Cornell Aero. Laboratory, Inc., Rep. AD-1052-A-11, AFOSR TN 60-938* (1960).
- F. K. HILL, Turbulent Boundary Layer Measurements at Mach Numbers from 8 to 10. *Phys. Fluids*, **2**, No. 6, 668 (1959).
- J. P. IRVING and J. M. SMITH, Heat Transfer in a Chemically Reacting System (Nitrogen Tetroxide-Dioxide). *J. Amer. Inst. Chem. Engrs.* **7**, No. 1, 91 (1961).
- H. KENNET and S. L. STRACK, Stagnation Point Radiative Transfer. *J. Amer. Rocket Soc.* **31**, No. 3, 370 (1961).
- J. KESTIN, P. F. MAEDER and H. H. SOGIN, The Influence of Turbulence on the Transfer of Heat to Cylinders Near the Stagnation Point. *Z. Angew. Math. Phys.* **12**, No. 2, 115 (1961).
- J. KESTIN and P. D. RICHARDSON, Heat Transfer Across Turbulent Incompressible Boundary Layers. *Division of Engineering, Brown University, Providence, R.I., Rep. AF-774911* (1961).
- O. KRISCHER, Wärme- und Stoffaustausch bei überströmten oder durchströmten Körpern verschiedener geometrischer Form. *Chem.-Ing.-Tech.* **33**, No. 3 155 (1961).
- T. Y. LI, Effect of Surface Mass-Transfer on the Impulsive Motion of an Infinite Plate at Hypersonic Speeds in a Viscous Compressible Fluid. *Rensselaer Polytechnic Institute, Dept. of Aeronautical Engng, TR AE 6005, AFOSR TN 60-956* (1960).
- T. Y. LI, Recent Advances in Nonequilibrium Dissociating Gasdynamics. *J. Amer. Rocket Soc.* **31**, No. 2, 170 (1961).
- J. G. MARVIN, Surface Pressures and Heat Transfer on Unsweped Blunt Plates in Helium at High Mach Numbers. *NASA TN D-688* (1961).
- F. W. MATTING, D. R. CHAPMAN, J. R. NYHOLM and A. G. THOMAS, Turbulent Skin Friction at High Mach Numbers and Reynolds Numbers in Air and Helium. *NASA TR R-82* (1960).
- J. P. MORAN and P. B. SCOTT, A Mass Transfer Finite Difference Formulation Employing Crocco Variables. *Massachusetts Institute of Technology, Naval Supersonic Laboratory, Tech. Rep. 443, AFOSR TN 60-846* (1960).
- R. A. NEWLANDER, Effect of Shock Impingement on the Distribution of Heat-Transfer Coefficients on a Right Circular Cylinder at Mach Numbers of 2.65, 3.41 and 4.44. *NASA TN D-642* (1961).
- W. S. NORMAN and V. MCINTYRE, Heat Transfer to a Liquid Film on a Vertical Surface. *Trans. Instn Chem. Engrs, Lond.* **38**, No. 6, 301 (1960).
- A. A. POMERANTSEV, Wall Heating by a Supersonic Gas Flow. *Int. J. Heat Mass Transfer*, **2**, Nos. 1/2, 8 (1961).
- R. I. ROTHENBERG and J. M. SMITH, Heat Transfer to a Surface Reacting Fluid in Turbulent Flow. *Canad. J. Chem. Engng.* **38**, No. 1, 184 (1960).
- S. M. SCALA and C. W. BAULKNIGHT, Transport and Thermodynamic Properties in a Hypersonic Laminar

- Boundary Layer: Part 2, Applications. *J. Amer. Rocket Soc.* **30**, No. 4, 329 (1960).
- J. P. SELLERS, JR., Effect of Two-Dimensional Heat Transfer on Wall Temperatures in a Tubular Thrust Chamber. *J. Amer. Rocket Soc.* **31**, No. 3, 445 (1961).
- V. A. SMIRNOV, G. E. VERVOCHKIN and P. M. BRDLICK, Heat Transfer Between a Jet and a Held Plate Normal to Flow. *Int. J. Heat Mass Transfer*, **2**, Nos. 1/2, 1 (1961).
- D. B. SPALDING, Mass Transfer Through Laminar Boundary Layers—1. The Velocity Boundary Layer. *Int. J. Heat Mass Transfer*, **2**, Nos. 1/2, 15 (1961).
- P. C. STAINBACK, Heat-Transfer Measurements at a Mach Number of 4.95 on Two 60° Swept Delta Wings with Blunt Leading Edges and Dihedral Angles of 0° and 45°. *NASA TN D-549* (1961).
- T. TENDELAND, H. L. NIELSEN and M. J. FOHRMAN, The Flow Field Over Blunted Flat Plates and Its Effect on Turbulent Boundary-Layer Growth and Heat Transfer at a Mach Number of 4.7. *NASA TN D-689* (1961).
- J. WILKINSON, The Steady Incompressible Boundary-Layer Flow Past a Flat Plate with a Parabolic Leading Edge. *Quart. J. Mech. Appl. Math.* **13**, No. 2, 199 (1960).

CHANGE OF PHASE

- M. ALTMAN, R. H. NORRIS and F. W. STAUB, Local and Average Heat Transfer and Pressure Drop for Refrigerants Evaporating in Horizontal Tubes. *J. Heat Transfer*, **C 82**, No. 3, 189 (1960).
- C. W. BOWMAN, D. M. WARD, A. I. JOHNSON and O. TRASS, Mass Transfer from Fluid and Solid Spheres at Low Reynolds Numbers. *Canad. J. Chem. Engng.* **39**, No. 1, 9 (1961).
- R. D. CESS, Laminar-Film Condensation on a Flat Plate in the Absence of a Body Force. *Z. Angew. Math. Phys.* **11**, No. 5, 426 (1960).
- J. F. DAVIDSON and B. O. G. SCHULER, Bubble Formation at an Orifice in a Viscous Liquid. *Trans. Instn Chem. Engrs, Lond.* **38**, No. 3, 144 (1960).
- J. DLOUHY and W. H. GAUVIN, Evaporation Rates in Spray Drying. *Canad. J. Chem. Engng.* **38**, No. 4, 113 (1960).
- T. FREDERKING, Wärmeübergang bei der Verdampfung der verflüssigten Gase Helium und Stickstoff. *Forsch. IngWes.* **27**, No. 1, 17 (1961).
- A. FRIEDMAN, Free Boundary Problems for Parabolic Equations: Part 3, Dissolution of a Gas Bubble in Liquid. *J. Math. Mech.* **9**, No. 3, 327 (1960).
- J. C. Y. KOH, E. M. SPARROW and J. P. HARTNETT, The Two Phase Boundary Layer in Laminar Film Condensation. *Int. J. Heat Mass Transfer*, **2**, Nos. 1/2, 69 (1961).
- A. J. MADDEN and F. J. HALFEN, Temperature Depressions for Evaporating Spheres at Low Pressures. *J. Amer. Chem. Engrs.* **7**, No. 1, 160 (1961).
- P. F. MASSIER, A Forced-Convection and Nucleate-Boiling Heat-Transfer Test Apparatus. *Jet Propulsion Laboratory, California Institute of Technology, Pasadena, Calif., JPL TR 32-47* (1961).
- B. METAIS, Einfluss der Gesausscheidung auf den Wärmeübergang bei der Erwärmung von Flüssigkeiten. *Chem.-Ing.-Tech.* **33**, No. 3, 182 (1961).
- V. V. MIRKOVICH and R. W. MISSEN, Non-Filmwise Condensation of Binary Vapors of Miscible Liquids. *Canad. J. Chem. Engng.* **39**, No. 2, 86 (1961).
- K. NIU, Flow of Condensing Vapour with Temporary Supersaturated State Due to Heat-Removal Effect. *J. Phys. Soc. Japan*, **16**, No. 4, 798 (1961).
- H. F. STEINLE, An Experimental Study of the Transition from Nucleate to Film Boiling Under Zero Gravity Conditions. *Proc. Heat Transfer and Fluid Mechanics Institute, Stanford, Calif., June 15-17, 1960; Stanford University*, p. 208 (1960).
- M. S. STYRIKOVICH and E. I. NEVSTRUEVA, Investigation of Vapour-Content Distribution in Boiling Boundary Layers by the Beta-Radioscopy Method. *Soviet Fiz. Dokl.* **5**, No. 1, 58 (1960).
- T. WOODWARD, Heat Transfer in a Spray Column. *Chem. Engng Progr.* **57**, No. 1, 52 (1961).
- N. ZUBER, The Dynamics of Vapor Bubbles in Nonuniform Temperature Fields. *Int. J. Heat Mass Transfer*, **2**, No. 1/2, 83 (1961).
- N. ZUBER, On the Variable-Density Single-Fluid Model for Two-Phase Flow. *J. Heat Transfer*, **C 82**, No. 3, 255 (1960).
- S. A. ZWICK, Growth of Vapor Bubbles in a Rapidly Heated Liquid. *Phys. Fluids*, **3**, No. 5, 715 (1960).

CHANNEL FLOW

- C. F. BONILLA, J. S. BUSCH, H. G. LANDAU and L. L. LYON, Formal Heat Transfer Solutions. *Nucl. Sci. Engng.* **9**, No. 3, 323 (1961).
- P. BRO and S. STEINBERG, Entrance Effects in the High Temperature Heat Transfer From Dissociated Gases. *J. Amer. Rocket Soc.* **31**, No. 3, 375 (1961).
- G. FRANKE, Wärmeübergang und Geschwindigkeitsverlauf bei pulsierender Rohrströmung. *Allg. Wärmetechnik.* **10**, No. 2, 36 (1961).
- J. I. GONZALEZ, Air-Gap Heat Transfer. *Mach. Design*, **33**, No. 3, 131 (1961).
- S. C. GUPTA, A Variational Principle for Fully Developed Laminar Heat Transfer in Uniform Channels. *Appl. Sci. Res. A* **10**, No. 2, 85 (1961).
- F. C. HAAS and A. H. NISSAN, Experimental Heat Transfer Characteristics of a Liquid in Couette Motion and with Taylor Vortices. *Proc. Roy. Soc. A* **261**, No. 1305, 214 (1961).
- R. LEMLICH and C.-K. HWU, The Effect of Acoustic Vibration on Forced Convective Heat Transfer. *J. Amer. Inst. Chem. Engrs.* **7**, No. 1, 102 (1961).
- L. M. MACK, The Compressible Viscous Heat-Conducting Vortex. *J. Fluid Mech.* **8**, No. 2, 284 (1960).
- S. D. NIGAM and S. N. SINGH, Heat Transfer by Laminar Flow Between Parallel Plates Under the Action of Transverse Magnetic Field. *Quart. J. Mech. Appl. Math.* **13**, No. 1, 85 (1960).
- S. PAHOR and J. STRNAD, Heat Transfer from Laminar Flow Through Cylindrical Tubes. *Z. Angew. Math. Phys.* **12**, No. 1, 80 (1961).
- S. PAHOR and J. STRNAD, A Note on Heat Transfer in Laminar Flow Through a Gap. *Appl. Sci. Res. A* **10**, No. 1, 81 (1961).
- A. REYNOLDS, On the Dynamics of Turbulent Vortical Flow. *Z. Angew. Math. Phys.* **12**, No. 2, 149 (1961).
- E. M. ROSEN and T. J. HANRATTY, Use of Boundary-Layer Theory to Predict the Effect of Heat Transfer on the Laminar-Flow Field in a Vertical Tube with a Constant-Temperature Wall. *J. Amer. Inst. Chem. Engrs.* **7**, No. 1, 112 (1961).
- H. SENFLEBEN and P. SCHNABEL, Heat Transfer Between Concentric Cylinders in Liquids and Gases. *Z. Angew. Phys.* **11**, No. 11, 428 (1959). (In German).
- D. G. THOMAS, Heat and Momentum Transport Characteristics of Non-Newtonian Aqueous Thorium Oxide

Suspensions. *J. Amer. Inst. Chem. Engrs*, **6**, No. 4, 631 (1960).

W. G. VINCENTI, Calculations of the One-Dimensional Nonequilibrium Flow of Air Through a Hypersonic Nozzle—Interim Report. *Arnold Engng Development Center, Air Force Systems Command, USAF, AEDC-TN-61-65* (1961).

CONDUCTION

E. I. ANDRIANKIN, Propagation of Thermal Waves from the Boundary of Two Media. *Appl. Math. Mech.* **23**, No. 5, 1420 (1959).

A. E. BERGLES and J. KAYE, Solutions to the Heat-Conduction Equation with Time-Dependent Boundary Conditions. *J. Aero. Space Sci.* **28**, No. 3, 251 (1961).

S.-Y. CHEN, One-Dimensional Heat Conduction with Arbitrary Heating Rate. *J. Aero. Space Sci.* **28**, No. 4, 336 (1961).

J. R. DAVIDSON and J. F. DALBY, Optimum Design of Insulated Compression Plates Subjected to Aerodynamic Heating. *NASA TN D-520* (1961).

E. DEEG and I. HERTWECK-CRONE, Computation of Non-Stationary Temperature Distribution in Layered Media, with the Help of Electric Analog Computers. *Z. Angew. Phys.* **12**, No. 4, 184 (1960). (In German).

H. R. ELROD, JR., Improved Lumped Parameter Method for Transient Heat Conduction Calculations. *J. Heat Transfer*, **C 82**, No. 3, 181 (1960).

R. E. GIBSON, A Linear Heat Problem with a Moving Interface. *Z. Angew. Math. Phys.* **11**, No. 3, 198 (1960).

W. J. GRAFF, Thermal Conductance Across Metal Joints. *Mach. Design*, **32**, No. 19, 166 (1960).

R. S. HARRIS, JR. and J. R. DAVIDSON, An Analysis of Exact and Approximate Equations for the Temperature Distribution in an Insulated Thick Skin Subjected to Aerodynamic Heating. *NASA TN D-519* (1961).

D. W. JORDAN, Method for Calculating Boundary Value Problems in Heat Conduction for the Cylindrical Cavity and the Half Space, by Means of Convolution Integrals. *Brit. J. Appl. Phys.* **12**, No. 1, 14 (1961).

P. K. KONAKOV, On the Regularities of Composite Heat Transfer. *Int. J. Heat Mass Transfer*, **2**, Nos. 1/2, 136 (1961).

D. KUNII and J. M. SMITH, Heat Transfer Characteristics of Porous Rocks: II. Thermal Conductivities of Unconsolidated Particles with Flowing Fluids. *J. Amer. Inst. Chem. Engrs*, **7**, No. 1, 29 (1961).

C. E. LUND and R. M. LANDER, Heat Transfer Through Mineral Wool in Combination with Reflective Surfaces. *ASHRAE Journal*, **3**, No. 3, 47 (1961).

R. E. NETTLETON, Density Fluctuations and Heat Conduction in a Pure Liquid. *Phys. Fluids*, **4**, No. 1, 74 (1961).

T. P. NEWCOMB, Flow of Heat in a Composite Solid. *Brit. J. Appl. Phys.* **10**, No. 5, 204 (1959).

G. F. C. ROGERS, Heat Transfer at the Interface of Dissimilar Metals. *Int. J. Heat Mass Transfer*, **2**, Nos. 1/2, 150 (1961).

A. I. ROZLOVSKII, Refinement of the Solution to the Equation of Heat Conduction in a Flame. *Proc. Acad. Sci. USSR*, **136**, No. 5, 1150 (1961).

C. TIEN, Approximate Solutions of Conduction of Heat Through Non-Homogeneous Medium. *Canad. J. Chem. Engng*, **39**, No. 1, 42 (1961).

G. A. TIRSKII, Two Exact Solutions of Stefan's Nonlinear Problem. *Soviet Fiz. Dokl.* **4**, No. 2, 288 (1959).

T. TSANG, Transient State Heat Transfer and Diffusion Problems. *Industr. Engng Chem.* **52**, No. 8, 707 (1960).

R. M. ZAIDEL', O. S. RYZHOV and E. I. ANDRIANKIN, The Propagation of an Approximately Spherical Heat Front. *Soviet Fiz. Dokl.* **4**, No. 1, 65 (1959).

FLOW WITH SEPARATED REGIONS

J. J. BERNARD and R. SIESTRUNCK, Heat Transfer in Separated Flow. *Advances in Aeronautical Sciences*, Vol. 1 (*Proc. First International Congress in the Aeronautical Sciences, Madrid, Sept. 8-13, 1958*), Pergamon Press (1959). (In French).

M. H. BLOOM and S. RUBIN, High-Speed Viscous Corner Flow. *J. Aero. Space Sci.* **28**, No. 2, 145 (1961).

J. G. HALL and T. C. GOLIAN, Heat Transfer to Sharp and Blunt Yawed Plates in Hypersonic Airflow. *J. Aero. Space Sci.* **28**, No. 4, 345 (1961).

J. C. Y. KOH and J. P. HARTNETT, Measured Pressure Distribution and Local Heat Transfer Rates for Flow Over Concave Hemispheres. *J. Amer. Rocket Soc.* **31**, No. 1, 71 (1961).

N. C. LAMBOURNE and D. W. BRYER, Some Measurements in the Vortex Flow Generated by a Sharp Leading Edge Having 65 Degree Sweep. *Aero. Res. Coun. Lond., Curr. Pap.* 477 (1960).

I. S. PASTERNAK and W. H. GAUVIN, Turbulent Heat and Mass Transfer from Stationary Particles. *Canad. J. Chem. Engng*, **38**, No. 2, 35 (1960).

LOW-DENSITY HEAT TRANSFER

S. ABARBANEL, Radiative Heat Transfer in Free-Molecule Flow. *J. Aero. Space Sci.* **28**, No. 4, 299 (1961).

J. P. HARTNETT, A Survey of Thermal Accommodation Coefficients. *The RAND Corporation, Santa Monica, Calif., U.S. Air Force Project Rand, Res. Memo. RM-2585* (1960).

YU. N. LUNKIN, Boundary-Layer Equations and Their Boundary Conditions in the Case of Motion at Supersonic Velocities in a Moderately Rarefied Gas. *NASA TT F-28* (1960).

H. T. NAGAMATSU and T. Y. LI, Hypersonic Flow Near the Leading Edge of a Flat Plate. *Phys. Fluids*, **3**, No. 1, 140 (1960).

D. N. VACHON, On the Erosion of Satellite Surfaces Due to Sputtering in the Free Molecular Flow Region. *Missile and Space Vehicle Dept., Space Sciences Laboratory, General Electric Co., Technical Information Series R61SD041* (1961).

G. WHITNAH, J. UPTON, R. GRIFFITH, G. MORFITT, G. JORGENSEN and D. ROTENBERG, Research on the Effects of Collisions of Small Particles with Bodies Moving at Hypersonic Speeds: Part III, Erosion and Heat Transfer Effects. *Mechanical Division of General Mills, Inc., Research Dept., Minneapolis, Minn., WADC TR 58-498*, Part III (1960).

LIQUID METALS

A. A. ANDREEVSKII, Heat Transfer in Transverse Flow of Molten Sodium Around a Single Cylinder. *Soviet J. Atomic Energy*, **7**, No. 3, 745 (1961).

A. J. FRIEDLAND and C. F. BONILLA, Analytical Study of Heat Transfer Rates for Parallel Flow of Liquid Metals Through Tube Bundles, Part II. *J. Amer. Inst. Chem. Engrs*, **7**, No. 1, 107 (1961).

W. MIALKI, Heat Transmission Through Boiling Metal, Particularly Mercury. *Metall.* **15**, No. 1, 1 (1961).

MAGNETOHYDRODYNAMICS

- A. BAUER, M. A. COOK and R. T. KEYES, Detonation-Generated Plasmas. *Proc. Roy. Soc. A* **259**, No. 1299, 508 (1961).
- G. BEKEFI and S. C. BROWN, Microwave Measurements of the Radiation Temperature of Plasmas. *J. Appl. Phys.* **32**, No. 1, 25 (1961).
- R. D. CESS, Magnetohydrodynamic Effects Upon Heat Transfer for Laminar Flow Across a Flat Plate. *J. Heat Transfer*, C **82**, No. 2, 87 (1960).
- R. G. DEISSLER, A One-Dimensional Analysis of Magnetohydrodynamic Energy Conversion. *NASA TN D-680* (1961).
- D. G. DRAKE, Rayleigh's Problem in Magnetohydrodynamics for Non-Perfect Conductor. *Appl. Sci. Res.* **B8**, No. 5-6, 467 (1960).
- R. R. JOHN and W. L. BADE, Recent Advances in Electric Arc Plasma Generation Technology. *J. Amer. Rocket Soc.* **31**, No. 1, 4 (1961).
- V. D. KIRILLOV, Radiation Energy Losses in a Plasma. *Soviet Fiz.-Tekh. Fiz.* **5**, No. 3, 295 (1960).
- Y. NAKAGAWA and I. R. GOROFF, Experiments on Heat Transport by Convection in Presence of a Magnetic Field. *Phys. Fluids*, **4**, No. 1, 349 (1961).
- J. L. NEURINGER, L. KRAUS and H. MALAMUD, Electromagnetic Diffusion into a Cylindrical Plasma Column During the Early Stages of Pinch Formation. *Plasma Propulsion Laboratory, Republic Aviation Corp., Farmingdale, N. Y.*, AFOSR TN 320 (1961).
- K. B. PAVLOV, Nekotorye svoistva Statsionarnykh Tsechenii v Magnitnoi Gazodinamike. *Zh. Eksperimental'noi i Teoreticheskoi Fiz.* **39**, No. 2, 304 (1960).
- G. POOTS and L. SOWERBY, Axially Symmetric Stagnation Point Flow with Heat Transfer in Magnetohydrodynamics. *Quart. J. Mech. Appl. Math.* **13**, Pt. 4, 385 (1960).
- J. A. SHERCLIFF, One-Dimensional Magnetogasdynamics in Oblique Fields. *J. Fluid Mech.* **9**, Pt. 4, 481 (1960).
- R. P. TREAT, Ionization in an Electrodeless Discharge. *Plasmadyne Corporation, Santa Ana, Calif.*, AFOSR 473 (1961).
- P. K. WATSON, Influence of an Electric Field Upon the Heat Transfer from a Hot Wire to an Insulating Liquid. *Nature, Lond.* **189**, No. 4764, 563 (1961).
- H. YOSHIHARA, Plasma Flow Over a Thin Charged Conductor. *J. Aero. Space Sci.* **28**, No. 2, 141 (1961).
- V. N. ZHIGULEV, Theory of the Magnetic Boundary Layer. *Soviet Fiz. Dokl.* **4**, No. 1, 57 (1959).

MEASUREMENT TECHNIQUES

- B. ABELES, G. D. CODY and D. S. BEERS, Apparatus for the Measurement of the Thermal Diffusivity of Solids at High Temperatures. *J. Appl. Phys.* **31**, No. 9, 1585 (1960).
- T. T. ARAI and J. R. MADIGAN, Response of a Thermocouple Circuit to Non-Steady Currents. *J. Appl. Phys.* **32**, No. 4, 609 (1961).
- C. R. BARBER and W. BLANKE, A Platinum Resistance Thermometer for Use at High Temperatures. *J. Sci. Instrum.* **38**, No. 1, 17 (1961).
- J. E. BAUERLE, Analysis of "Immersed" Thermocouple Error. *Rev. Sci. Instrum.* **32**, No. 3, 313 (1961).
- I. I. D'YAKONOV, Certain Problems in Measuring the Temperature of Rotating Objects. *Measurement Techniques* 1960, No. 1, 44 (1961).
- L. M. FINGERSON and P. L. BLACKSHEAR, Characteristics of Heat Flux Meter for Use in High Temperature Atmospheres. *University of Minnesota, Dept. of Mechanical Engng, Combustion Laboratory Tech. Rep.* 61-1 (1961).
- L. M. FINGERSON and P. L. BLACKSHEAR, Heat Flux Probe for Dynamic Measurements in High Temperature Gases. *University of Minnesota, Dept. of Mechanical Engng, Combustion Laboratory Tech. Rep.* 61-2 (1961).
- G. E. GADD, A Note on the Theory of the Stanton Tube. *Aero. Res. Coun. Lond., Rep. Mem.* 3147 (1960).
- L. L. GORELIK and E. A. LOBIKOV, The Measure of Energy Lost in Plasma by Means of Bolometer Method. *Zh. Tekh. Fiz.* **31**, No. 1, 125 (1961).
- A. P. HATTON, Thermal Conductivity and Diffusivity Measurements by an Unsteady-State Method with Application to Insulating Materials Containing Moisture and Ice. *J. Mech. Engng Sci., Lond.* **2**, No. 1, 45 (1960).
- H. J. HOGE, Temperature Measurement Based on the Viscous Flow of Gas in a Wheatstone-Bridge Network. *Rev. Sci. Instrum.* **32**, No. 1, 1 (1961).
- G. M. LEVIN and V. I. VOL'MIR, Methods for Testing Thermal Inertia in Thermocouples and Resistance Thermometers. *Measurement Techniques* 1960, No. 4, 309 (1961).
- M. R. NADLER and C. P. KEMPTER, Thermocouples for Use in Carbon Atmospheres. *Rev. Sci. Instrum.* **32**, No. 1, 43 (1961).
- R. G. NAGLER, Application of Spectroscopic Temperature Measuring Methods to Definition of a Plasma Arc Flame. *Jet Propulsion Laboratory, California Institute of Technology, Pasadena, Calif., Tech. Rep.* 32-66 (1961).
- J. R. PHILIP, The Theory of Heat Flux Meters. *J. Geophys. Res.* **66**, No. 2, 571 (1961).
- J. SAGOSCHEN, Temperature Measurement with Thermoelements of Platinum Metal. *Metall* **15**, No. 1, 34 (1961).
- H. SCHNEIDER, Strahlungsmessgeräte. *Z. Ver. Dtsch. Ing.* **103**, No. 8, 360 (1961).
- F. SCHULTZ-GRUNOW and G. WORTBERG, Interferometrisch messungen an einer ebenen laminaren Flamme. *Int. J. Heat Mass Transfer*, **2**, Nos. 1/2, 56 (1961).
- C. M. STOVER, Method of Making Small Pointed Thermocouples. *Rev. Sci. Instrum.* **32**, No. 3, 366 (1961).
- D. A. VAN MEEL and H. VERMIL, A Method for Flow Visualization and Measurement of Velocity Vectors in Three-Dimensional Flow Patterns Water Models by Using Colour Photography. *Appl. Sci. Res. A* **10**, No. 2, 109 (1961).
- R. E. WALKER and S. E. GRENLESKI, JR., Instrument for Measuring Total Incident Radiant Heat Transfer to a Jet Engine Surface. *J. Amer. Rocket Soc.* **31**, No. 1, 77 (1961).
- R. W. ZIEMER, Heat Transfer Gage for Use in Highly Ionized Gases. *J. Amer. Rocket Soc.* **31**, No. 1, 78 (1961).

NATURAL CONVECTION

- W. H. BRAUN, S. OSTRACH and J. E. HEIGHWAY, Free-Convection Similarity Flows About Two-Dimensional and Axisymmetric Bodies with Closed Lower Ends. *Int. J. Heat Mass Transfer*, **2**, No. 1/2, 121 (1961).
- E. R. G. ECKERT and W. O. CARLSON, Natural Convection in an Air Layer Enclosed Between Two Vertical Plates with Different Temperatures. *Int. J. Heat Mass Transfer*, **2**, Nos. 1/2, 106 (1961).
- T. W. JACKSON, J. M. SPURLOCK and K. R. PURDY, Combined Free and Forced Convection in a Constant

- Temperature Horizontal Tube. *J. Amer. Inst. Chem. Engrs.* **7**, No. 1, 38 (1961).
- T. R. MUNSON and R. J. SPINDLER, Transient Thermal Behavior of Decomposing Materials: Part 1, General Theory and Application to Convective Heating. *Research and Development Division, AVCO Corporation, Wilmington, Mass., Tech. Rep. RAD-TR-61-10* (1961).
- A. K. RAO, Unsteady Natural Convection from a Vertical Flat Plate with Suction. *Appl. Sci. Res.* **A 10**, No. 2, 141 (1961).
- W. R. WILCOX, Simultaneous Heat and Mass Transfer in Free Convection. *Chem. Engng Sci.* **13**, No. 3, 113 (1961).
- ### PROPERTIES
- F. H. BROCK, Estimation of Specific Heats at Normal Temperatures. *J. Amer. Rocket Soc.* **31**, No. 2, 265 (1961).
- P. CARRUTHERS, Theory of Thermal Conductivity of Solids at Low Temperatures. *Rev. Mod. Phys.* **33**, No. 1, 92 (1961).
- W. D. ERICKSON, Real-Gas Correction Factors for Hypersonic Flow Parameters in Helium. *NASA TN D-462* (1960).
- P. HAMMERLING, J. D. TEARE and B. KIVEL, Non-equilibrium Electrical and Radiative Properties of High Temperature Air, Nitrogen and Oxygen. *Proc. Fourth International Conference on Ionization Phenomena in Gases (Uppsala, August 17-21, 1959)*, p. 1092, North-Holland Publishing Company, Amsterdam (1960).
- C. F. HANSEN and M. E. HODGE, Constant Entropy Properties for an Approximate Model of Equilibrium Air. *NASA TN D-352* (1961).
- R. A. HARTUNIAN and P. V. MARRONE, Viscosity of Dissociated Gases from Shock-Tube Heat-Transfer Measurements. *Phys. Fluids*, **4**, No. 5, 535 (1961).
- YU. A. KIRICHENKO, Measurements of Temperature Conductivity by the Method of Radial Temperature Waves in a Cylinder. *Measurement Techniques* 1960, No. 5, 406 (1961).
- J. R. MCCARTHY and H. WOLF, The Heat Transfer Characteristics of Gaseous Hydrogen and Helium. *Rocketdyne, Canoga Park, Calif., Res. Rep. RR-60-12* (1960).
- E. J. OWENS and G. THODOS, Thermal Conductivity: Reduced State Correlation for Ethylene and Its Application to Gaseous Aliphatic Hydrocarbons and Their Derivatives at Moderate Pressures. *J. Amer. Inst. Chem. Engrs.* **6**, No. 4, 676 (1960).
- T.-C. PENG and W. F. AHTYE, Experimental and Theoretical Study of Heat Conduction for Air up to 5000°C. *NASA TN D-687* (1961).
- R. A. SAENGER and G. E. HUDSON, Periodic Shock Waves in Resonating Gas Columns. *J. Acoust. Soc. Amer.* **32**, No. 8, 961 (1960).
- C. SAGAN, The Planet Venus. *Science*, **133**, No. 3456, 849 (1961).
- TH. E. SCHMIDT, Über die Wärmeleitfähigkeit von Isolierstoffen. *Forsch. IngWes.* **27**, No. 1, 10 (1961).
- M. E. STEPHENSON, JR. and M. MARK, Thermal Conductivity of Porous Materials. *ASHRAE Journal*, **3**, No. 2, 75 (1961).
- T. S. STORVICK and J. M. SMITH, Application of the Principle of Corresponding States for Polar Substances. *J. Chem. Engng Data*, **6**, No. 1, 28 (1961).
- H. TAUTZ, Determination of Thermal Conductivity of Vulcanized Rubbers in Relationship to Elongation. *Exp. Technik Phys.* **7**, No. 1, 1 (1959). (In German).
- N. B. VARGAFIK and A. A. TARZIMANOV, Experimental Investigation of the Thermal Conductivity of Water-Vapour with High Parameters. *Teploenergetika*, **6**, No. 9, 15 (1959).
- ### RADIATION
- S. S. ABARBANEL, Time Dependent Temperature Distribution in Radiant Solids. *J. Math. Phys.* **34**, No. 4, 246 (1960).
- S. M. BERMAN, Impurity Radiant Energy Loss. *Physical Research Laboratory, Space Technology Laboratories, Los Angeles, Calif., STL/TR-60-0000-GR435* (1960).
- J. C. BOEHRINGER and R. J. SPINDLER, Radiant Heating of Semi-Transparent Materials. *Research and Advanced Development Division, AVCO Corporation, Wilmington, Mass., Tech. Rep. RAD-TR-61-8* (1961).
- R. GOULARD, A Comment on "Radiation From Hot Air and Its Effect on Stagnation-Point Heating". *J. Aero. Space Sci.* **28**, No. 2, 158 (1961).
- I. GRANET and W. MCLROY, Optimum Radiant Straight Fin with Exponential Sides. *J. Amer. Rocket Soc.* **31**, No. 1, 80 (1961).
- P. HAMMERLING, Ionization Effects of Precursor Radiation From Shocks in Air. *AVCO Everett Research Laboratory, Everett, Mass., Res. Rep. 98* (1960).
- P. L. HARTMAN and R. C. MERRILL, Reflectivity of Silver Chloride in the Ultraviolet. *J. Opt. Soc. Amer.* **51**, No. 2, 168 (1961).
- T. S. HOLDEN, Ways to Calculate Incident Low Temperature Radiation. *ASHRAE Journal*, **3**, No. 4, 51 (1961).
- L. P. KADANOFF, Radiative Transport Within an Albatwing Body. *AVCO Everett Research Laboratory, Everett, Mass., Res. Rep. 61* (1959).
- J. C. KECK, J. C. CAMM, B. KIVEL and T. WENTINK, JR., Radiation from Hot Air: Part II. Shock Tube Study of Absolute Intensities. *Ann. Phys.* **7**, No. 1, 1 (1959).
- H. KENNET and S. L. STRACK, Stagnation Point Radiative Transfer. *J. Amer. Rocket Soc.* **31**, No. 3, 370 (1961).
- B. KIVEL, Radiation From Hot Air and Its Effect on Stagnation-Point Heating. *J. Aero. Space Sci.* **28**, No. 2, 96 (1961).
- C.-Y. LIU, On Optimum Rectangular Cooling Fins. *Quart. Appl. Math.* **19**, No. 1, 72 (1961).
- H. T. MANTIS, Observation of Infrared Cooling of a Tropical Air Mass. *J. Geophys. Res.* **66**, No. 2, 465 (1961).
- A. D. MOORE, An Electrical Essay—The Radiant Heat Pump. *Elect. Engng.* **80**, No. 2, 118 (1961).
- D. G. MURCRAY, F. H. MURCRAY, W. J. WILLIAMS and F. E. LESLIE, Study of 1.4 μ and 6.3 μ Water Vapor Bands at High Altitudes. *J. Opt. Soc. Amer.* **51**, No. 2, 186 (1961).
- L. D. NICHOLS, Effect of Shield Position and Absorptivity on Temperature Distribution of a Body Shielded from Solar Radiation in Space. *NASA TN D-578* (1961).
- U. P. OPPENHEIM, Experimental Verification of Theoretical Relations Between Total Gas Absorptivities and Total Gas Emissivities for CO. *J. Appl. Phys.* **30**, No. 6, 803 (1959).
- E. W. PARKES, Influence Coefficients for Radiation in a Circular Cylinder. *Int. J. Heat Mass Transfer*, **2**, Nos. 1/2, 155 (1961).
- P. M. REYNOLDS, Spectral Emissivity of 99.7% Aluminum Between 200 and 540°C. *Brit. J. Appl. Phys.* **12**, No. 3, 111 (1961).

- W. H. ROBBINS, An Analysis of Thermal Radiation Heat Transfer in a Nuclear-Rocket Nozzle. *NASA TN D-586* (1961).
- C. SAGAN, The Radiation Balance of Venus. *Jet Propulsion Laboratory, California Institute of Technology, Pasadena, Calif., JPL TR 32-34* (1960).
- V. V. SOBOLEV, Diffusion of the Radiation in a Medium Whose Boundary Reflects the Rays as a Mirror. *Proc. Acad. Sci. USSR*, **136**, No. 3, 571 (1961).
- R. H. TOURIN, Measurements of Infrared Spectral Emissivities of Hot Carbon Dioxide in the 4-3 μ Region. *J. Opt. Soc. Amer.* **51**, No. 2, 175 (1961).
- R. C. WEATHERSTON and W. E. SMITH, A New Type of Thermal Radiator for Space Vehicles. *Aero. Space Engng.* **20**, No. 1, 16 (1961).
- C. S. WILLIAMS, Discussion of the Theories of Cavity-Type Sources of Radiant Energy. *J. Opt. Soc. Amer.* **51**, No. 5, 564 (1961).

ROTATING SURFACES

- E. A. KEARSLEY, Bounds on the Dissipation of Energy in Steady Flow of a Viscous Incompressible Fluid Around a Body Rotating within a Finite Region. *Arch. Rational Mech. Anal.* **5**, No. 4, 347 (1960).
- C. L. TIEN, Heat Transfer by Laminar Flow From a Rotating Cone. *J. Heat Transfer*, **C 82**, No. 3, 252 (1960).
- M. VINOKUR, Kinematic Formulation of Rotational Gas Flow. *J. Fluid Mech.* **9**, No. 4, 533 (1960).

TRANSFER MECHANISMS

- J. M. BIDWELL, Use of the Roughness Criterion to Refute Roughness as the Cause of Reported Transition Reversal. *J. Aero. Space Sci.* **27**, No. 8, 622 (1960).
- R. G. DESSLER, Analysis of Multipoint-Multitime Correlations and Diffusion in Decaying Homogeneous Turbulence. *NASA TR R-96* (1961).
- C. A. EDWARDS and D. M. HIMMELBLAU, Mass Transfer Between Liquid Phases. *Industr. Engng Chem.* **53**, No. 3, 229 (1961).
- F. H. GARNER and J. M. HOFFMAN, The Transition from Free to Forced Convection in Mass Transfer from Solid Spheres. *J. Amer. Inst. Chem. Engrs.* **6**, No. 4, 579 (1960).
- L. LEES and C.-Y. LIU, Kinetic Theory Description of Plane, Compressible Couette Flow. *Guggenheim Aeronautical Laboratory, California Institute of Technology, Hypersonic Research Project, Mem. 58* (1960).
- D. E. ROSNER, Diffusion and Chemical Surface Catalysis in Flow Systems. *Aero Chem Research Laboratories, Inc., Princeton, N.J., Tech. Pub. 14*, AFOSR TN-60-887 (1960).
- J. R. STERRETT and J. C. EMERY, Extension of Boundary-Layer-Separation Criteria to a Mach Number of 6.5 by Utilizing Flat Plates with Forward-Facing Steps. *NASA TN D-618* (1960).
- E. R. VAN DRIEST and C. B. BLUMER, Effect of Roughness on Transition in Supersonic Flow. *North American Aviation, Inc., Aero-Space Laboratory, MD 60-329*, AFOSR TN 60-1164 (1960).
- L. M. VAUGHAN, The Prediction of Atmospheric Diffusion by Using an Eddy Diffusivity Based on the Vertical Transfer of Heat. *J. Meteorol.* **18**, No. 1, 43 (1961).
- R. J. WISNIEWSKI and J. R. JACK, Recent Studies on the Effect of Cooling on Boundary-Layer Transition at Mach 4. *J. Aero. Space Sci.* **28**, No. 3, 250 (1961).

TRANSPIRATION AND MASS TRANSFER COOLING

- S. BLECHER and G. W. SUTTON, Comparison of Some Approximate Methods for Calculating Re-entry Ablation of a Subliming Material. *J. Amer. Rocket Soc.* **31**, No. 3, 433 (1961).
- M. R. DENISON, Estimating Transient Temperature Distributions During Ablation. *J. Amer. Rocket Soc.* **30**, No. 6, 562 (1960).
- S. EVNOCHIDES and G. THODOS, Simultaneous Mass and Heat Transfer in the Flow of Gases Past Single Spheres. *J. Amer. Inst. Chem. Engrs.* **7**, No. 1, 78 (1961).
- H. GLASER, Experimentelle Untersuchungen auf dem Gebiet der Wärme- und Stoffübertragung. *Chem.-Ing.-Tech.* **33**, No. 3, 146 (1961).
- V. KOLAR, Heat and Mass Transfer in a Turbulent Medium. *Coll. Trav. Chim. Tchécosl.* **26**, No. 2, 335 (1961).
- T. KUBOTA, Ablation with Ice Model at $M = 5.8$. *J. Amer. Rocket Soc.* **30**, No. 12, 1164 (1960).
- E. LEGRIVES and P. SARRAT, Untersuchung der Mischungs- und Verbrennungsvorgänge zwischen konzentrischen Strömungen. *Z. Flugw.* **9**, No. 2, 46 (1961).
- P. A. LIBBY and R. J. CRESCI, Experimental Investigation of the Downstream Influence of Stagnation-Point Mass Transfer. *J. Aero. Space Sci.* **28**, No. 1, 51 (1961).
- J. P. MORAN, Application of Covert's Approximations for the Binary Boundary-Layer to a Porous Cone with a Solid Tip. *Massachusetts Institute of Technology, Naval Supersonic Laboratory, Tech. Rep. 442*, AFOSR TN 60-834 (1960).
- A. PALLONE, Non-Similar Solutions of the Compressible Laminar Boundary Layer Equations, with Applications to the Upstream Transpiration Cooling Problem. *AVCO Corporation, Research and Advanced Development Division, Wilmington, Mass., RAD-TR-9-60-2* (1960).
- L. ROBERTS, Mass Transfer Cooling Near the Stagnation Point. *NASA TR R-8* (1959).
- L. ROBERTS, Stagnation-Point Shielding by Melting and Vaporization. *NASA TR R-10* (1959).
- L. ROBERTS, A Theoretical Study of Stagnation-Point Ablation. *NASA TR R-9* (1959).
- C. J. SCOTT, Experimental Investigations of Laminar Heat Transfer and Transition with Foreign Gas Injection—A 16° Porous Cone at $M = 5$. *University of Minnesota, Rosemount Aeronautical Laboratories, UMRAL Res. Rep. 174*, AFOSR TN-60-1370 (1960).
- D. L. TURCOTT, The Melting of Ice in a Hot Humid Stream of Air. *J. Fluid Mech.* **8** No. 1, 123 (1960).