

HEAT TRANSFER BIBLIOGRAPHY

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APPLICATIONS

- J. E. ANDERSON and E. F. STRESINO, Heat transfer from flames impinging on flat and cylindrical surfaces, *J. Heat Transfer C* **85**, No. 1, 49 (1963).
- S. W. ANGRIST, A Nernst effect power generator, *J. Heat Transfer C* **85**, No. 1, 41 (1963).
- R. E. BOYER, Room temperature dynamics of radiant ceiling and air conditioning comfort systems, *ASHRAE J.* **4**, No. 12, 59 (1962).
- L. BROGLIO, A method for solving non-linear thermal problems in re-entry of space vehicles, *Aero Quart. XIII*, Part 4, 291 (1962).
- W. F. BROWN, R. W. FISHER and H. M. BLACK, Heat conductivity fins for gas cooled liquid-metal heat exchangers. Ames Lab., Iowa State Univ. of Science and Tech. 15-587 (1963).
- R. B. BURDITT, Salt bath heat transfer rates for uranium plate. Union Carbide Nuclear Co., Oak Ridge, Tenn., Y-1410 (1962).
- W. H. CARDEN, Some aspects of energy transfer in the electrode and settling sections of an arc-heated wind tunnel. Arnold Engineering Development Centre, Air Force Systems Command, USAF, AEDC-TDR-63-72 (1963).
- W. F. CARROLL, Development of stable temperature control surfaces for spacecraft. *Progr. Rep. No. 1*. Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena, Calif. JPL-TR-32-340 (1962).
- S. W. CHURCHILL, Heat transfer rates and temperature fields for underground storage tanks, *Soc. Pet. Engrs J.* p. 28 (1962).
- S. W. CHURCHILL, Heat leakage and wall temperature profiles for above ground low-temperature storage tanks, *Chem. Engng Progr.* **58**, No. 11, 55 (1962).
- W. E. DEMPSTER, R. L. EVANS and J. R. OLIVER, Lunar storage of liquid propellants. *NASA TN D-1117* (1962).
- C. DUHNE and H. GARCIA, A hydraulic analogue computer for regenerator calculations, *Brit. Chem. Engng Lond.* **7**, No. 1, 39 (1962).
- S. B. DUNKELBERG, A dimensionless method for determining shell-tube heat exchanger tube sheet geometry, *ASHRAE J.* **4**, No. 12, 48 (1962).
- W. E. EMLEY, Jr., A pebble-bed air heater for hypersonic research, *Bull. Amer. Ceram. Soc.* **41**, No. 5, 332 (1962).
- V. S. ERMakov et al., On the temperature distribution in a cylindrically shaped element of a reactor with turbulent flow cooling it (in Russian), *Engng Phys. J.* **5**, No. 9, 38 (1962).
- F. E. FULLER, Feasibility of a solar energy device. Part I: Design and performance consideration. Aeronautical Research Laboratories, Office of Aerospace Research, USAF, ARL 62-360 (1962).
- D. GOETZE and C. B. GROSCH, Earth-emitted infrared radiation incident upon a satellite, *J. Aero. Space Sci.* **29**, No. 5, 521 (1962).
- P. O. HEDMAN, Solution of heat transfer problems in solid propellant motor design, *Chem. Engng Progr.* **58**, No. 12, 68 (1962).
- F. HUNDEID, Criteria for selecting thermoelement materials for thermoelectric Peltier devices, *ASHRAE J.* **5**, No. 3, 80 (1962).
- J. M. JACOBS, Reactor hot channel factors and burnout. Atomic Energy Commission, Div. of Technical Information, Washington, D.C. TID-3574 (1962).
- R. M. JANSSON, Apollo guidance and navigation. The heat transfer properties of structural elements for space instruments. Mass. Inst. of Tech., Instrumentation Lab., Cambridge, Mass., E-1173 (1962).
- A. L. JOHNSON, Spacecraft radiators, *Space/Aero.* **37**, No. 1, 76 (1962).
- B. V. KANTOROVICH and G. N. DELYAGIN, Heat and mass transfer in the process of fuel combustion in an air stream, *Int. J. Heat Mass Transfer.* **5**, 11 (1962).
- K. KARAMCHETI, W. VALI, J. B. KYSER and M. L. RASMUSSEN, Measurements of pressure and speed of flow in a spark-heated hypersonic wind tunnel, Stanford Univ., California, AEDC-TDR-62-218 (1962).
- N. N. KAURA and M. N. RAO, Spray drier design, *J. Sci. Engng Res., India* **6**, No. 1, 96 (1962).
- K. A. KITOVER, The problem of calculating circular tubular grids in heat exchangers, *Int. Chem. Engng* **3**, No. 2, 220 (1963).
- T. J. LARDNER, Approximate solutions for melting and ablation problems. Poly. Inst. Brooklyn, Dept. Aerospace Engng Appl. Mech. Rep. 654 (1962).
- J. LEWIS and S. HUANG, High temperature furnace with a sharp temperature gradient, *Rev. Sci. Instrum.* **34**, No. 3, 271 (1963).
- B. Y. H. KU and R. C. JORDAN, Analysis of solar energy data applicable to building design, *ASHRAE J.* **4**, No. 12, 31 (1962).
- J. A. LORETT and W. DRUMMOND, Hydraulic analogue for condenser design, *Engineering* **193**, 733 (1962).
- G. MAIDANIK, Radiation efficiency of panels, *J. Acoust. Soc. Amer.* **35**, No. 1, 115 (1963).
- C. J. MAIDEN and M. STEINBERG, Infrared radiation from low ablating hypervelocity bodies, General Motors

- Corp., Defense Research Labs., Santa Barbara, Calif., TR62-209G (1962).
- C. R. MORSE and R. O. HICKEL, Experimental investigation of lithium hydride as a heat-sink material. *NASA TN D-1198* (1962).
- J. B. McCORMICK and T. W. WALSH, Investigation of unconventional cooling techniques. Rome Air Development Center, Appl. Res. Lab., Griffiss AFB, N.Y. RAS-TM-62-6 (1962).
- J. NANIGIAN, Temperature measurements and heat transfer calculations in rocket nozzle throats and exit-cones. Naval Propellant Plant, Indian Head, Maryland, Tech. Rept. 122, NavWeps-8022 (1962).
- R. A. NOBLE, Research and development on induction heating methods of simulating aerodynamic heating, Tech. Documentary Rep. WADC-TR 59-523, Florida Univ., Gainesville, Fla. (1962).
- W. E. OLSTEAD and S. RAYNOR, Solar heating of a rotating spherical space vehicle, *Int. J. Heat Mass Transfer*, **5**, 1165 (1962).
- S. OSTRACH, A. W. GOLDSTEIN and J. HAMMAN, Analysis of melting boundary layers on decelerating bodies. *NASA TN D-1312* (1962).
- P. F. PASQUA, P. N. STEVENS, J. E. MOTT, H. C. ROLAND and J. C. ROBINSON, Analytical studies on nozzle throat cooling. Arnold Engineering Development Center, Air Force Systems Command, USAF, AEDC-TDE-63-58 (1963).
- R. M. PATRICK and W. E. POWERS, Plasma flow in a magnetic annular arc nozzle. AVCO-Everett Research Lab., AMP 86 (1962).
- C. M. PELLANE and C. B. BRADLEY, A rapid heat-flow meter thermal-conductivity apparatus, *Mat. Res. Stands.* **2**, No. 7, 549 (1962).
- R. P. PELOUBET and P. G. WANER, Uniform heating effects on the response of a high speed vehicle to discrete and continuous gusts. Wright-Patterson AFB, Ohio, Flight Dynamics Lab., ASD-TR 61-328 (1962).
- J. D. PIERCE, Application of fin-tube radiation to modern hot-water heating systems, *ASHRAE J.* **5**, No. 2, 72 (1963).
- M. N. REDDY and R. KAPARTHI, Heat transfer coefficients of clay slurries. *J. Sci. Industr. Res., India* **21 D**, No. 1, 1 (1962).
- S. M. RIPS, A determination of the temperature field and the heat losses in the insulation barrier of compressed-gas tanks. Air Force Systems Command, Foreign Tech. Div., Wright-Patterson AFB, Ohio, FTD-11-62-1459/1 + 2 + 4 (1962).
- R. ROSMAN, Beitrag zur Ermittlung von Temperaturspannungen bei Hochbauten, *Öst. Ing. Z.* **6**, No. 2, 45 (1963).
- D. E. ROSNER, Scale effects for nonequilibrium convective heat transfer with simultaneous gas phase and surface chemical reactions: applications to hypersonic flight at high altitudes. AeroChem Research Labs., Inc., Princeton, N.J., TP-54 (1962).
- Z. ROTEM, J. GILDOR and A. SOLAN, Transient heat dissipation from storage reservoirs, *Int. J. Heat Mass Transfer*, **6**, No. 2, 129 (1963).
- T. SATŌ, I. MICHIYOSHI and R. MATSUMOTO, On the local heat release rate in a combustion chamber of gas turbine, *Bull. JSME* **5**, No. 19, 505 (1962).
- L. A. SCHLAGEL and M. P. ROPE, Development of manufacturing methods for light-weight metal for heat exchangers. Solar, San Diego, Calif., Contract AF 33 (567)-8766 (1962).
- H. B. SCHULZ, On the calculation of the cooling-out of containers (in German), *Brennstoff-Wärme-Kraft* **14**, No. 2, 56 (1962).
- J. P. SELLERS, Jr., Two-dimensional heat conduction in a tubular thrust chamber, *J. Amer. Rocket Soc.* **32**, No. 7, 1111 (1962).
- K. E. SPELLS and O. J. BLUNT, The air-ventilated suit-- experiments to investigate the improvements in the thermal insulation due to air flow through the material. Royal Air Force, Inst. of Aviation Medicine, Farnborough, Great Britain, FPRC/1202 (1962).
- F. J. STERMOLE and M. A. LARSON, Dynamic response of heat exchangers to flow rate changes, *I/EC Fundamentals* **2**, No. 1, 62 (1963).
- S. L. STRACK, Radiant heat transfer around re-entry bodies, *J. Amer. Rocket Soc.* **32**, No. 5, 744 (1962).
- F. W. SWALLEY, Thermal radiation incident on an earth satellite. *NASA TN D-1524* (1962).
- D. T. SWIFT-HOOK, Large-scale magnetohydrodynamic power generation, *Brit. J. Appl. Phys.* **14**, No. 2, 69 (1963).
- R. E. TAYLOR and M. M. NAKATA, Thermal properties of refractory materials (First Quarterly Progress Report). Atomics International, Canoga Park, Calif., AI-8058 (1962).
- E. TORIELLI and M. CALCAGNO, The dynamics of distributed parameter thermal systems, with reference to heat exchangers in the nuclear power plant of Latina (in Italian), *Termotecnica* **16**, No. 1, 11 (1962).
- L. P. TRAVIS, Heat transfer and particle trajectories in solid-rocket nozzles. Aerojet-General Corp., Sacramento, Calif., Rept. 0162-01TN-17; AFBD-TDR-62-165 (1962).
- A. UPMALIS, The dimensioning of fin length in fin tubes of air heaters (in German), *Brennstoff-Wärme-Kraft* **14**, No. 6, 285 (1962).
- P. A. USHAKOV, V. I. SUBBOTIN, B. N. GABRIANOVICH, V. D. TALANOV and I. P. SVIRIDENKO, Heat transfer and hydraulic resistance in tightly-packed corridor bundles of rods, *Soviet J. Atomic Energy* **13**, No. 2, 761 (1963).
- I. A. VAKHRUSHEV, Y. A. BOTNIKOV and N. G. ZENCHENKOV, Heat transfer from a fluidized bed of hot coke to the surface of horizontal tubes, *Int. Chem. Engng.* **3**, No. 2, 207 (1963).
- R. A. WASKO, Heat transfer to a sphere with a retrorocket exhausting into a free stream: Mach 2·0 and 0·8. *NASA TN D-1535* (1962).
- A. B. WITTE and E. Y. HARPER, Experimental investigations of heat transfer rates in rocket thrust chambers. *AIAA J.* **1**, No. 2, 443 (1963).
- I. P. ZHUK, Heat transfer in buildings, No. I (in Russian). *Engng Phys. J.* **V**, No. 5, 119 (1962).
- I. P. ZHUK, Heat transfer in buildings, No. II (in Russian). *Engng Phys. J.* **V**, No. 6, 121 (1962).

BOOKS

- R. ARIS, *Vectors, Tensors, and the Basic Equations of Fluid Mechanics*. Prentice-Hall Inc., New York (1962).
- A. G. BLOKH, *Fundamentals of Radiation Heat Transfer*. Gosenergoizdat, Moscow-Leningrad (1962).
- J. S. CAMMERER, *Der Wärme- und Kälteschutz in der Industrie* (4th Edition). Springer-Verlag, Berlin (1962).
- N. CURLE, *The Laminar Boundary Layer Equations*. Clarendon Press, Oxford (1962).
- W. H. DORRANCE, *Viscous Hypersonic Flow*. McGraw-Hill, New York (1962).
- H. L. DRYDEN and TH. VON KÁRMÁN, *Advances in Applied Mechanics*, Vol. 7. Academic Press, New York (1962).
- H. F. GRAVE, *Electric Measurement of Nonelectric Quantities*. Geest and Portig K.-G., Leipzig (1962).
- J. HILSENRAH and G. G. ZIEGLER, *Tables of Einstein Functions—Vibrational Contributions to the Thermo-dynamic Functions*. Natl. Bureau of Standards Monograph 49, Washington, D.C., Supt. of Documents, U.S. Government Printing Office (1962).
- J. P. HOLMAN, *Heat Transfer*. McGraw-Hill, New York (1963).
- D. H. MENZEL, *Selected Papers on Physical Processes in Ionized Plasmas*. Dover Publications, New York (1962).
- L. G. NAPOLITANO and G. CONTRUSI, *Magneto-Fluid Dynamics—Current Papers and Abstracts* (Bibliography I). Pergamon Press, Oxford (1962).
- S. S. PENNER, *Chemical Rocket Propulsion and Combustion Research*. Gordon and Breach Science Publishers, New York (1962).
- Proceedings of the NASA-University Conference on the Science and Technology of Space Exploration*, Vol. 1, Chicago, November 1-3, 1962. NASA Sp.-11, Vol. 1 (1962).
- A. SCHACK, *Der Industrielle Wärmeübergang*, 6th Improved and Enlarged Edition. Verlag Stahleisen M.B.H., Düsseldorf (1962).
- Temperature: Its Measurement and Control in Science and Industry*, Vol. 3, Part I: *Basic Concepts, Standards and Methods*; Part II: *Applied Methods and Instruments*; Part III: *Biology and Medicine*. Reinhold Book Division, New York (1962).
- H. W. VAN TYEN, *Method for Calculation of Cylinder Linear Temperature in Diesel Engines*. Utgiverij Waltman, Delft (1962).
- P. P. YUSHKOV, *Bessel's Functions and their Application to Problems on Cylinder Cooling*. Byelorussian Academy of Science Press, Minsk (1962).
- Report. Polytechnic Inst. of Brooklyn, New York, PIBAL-773 (1962).
- M. G. ALISHAEV, Forced convection of a compressible viscous gas near a heat source, *J. Appl. Math. Mech.* 26, No. 1, 264 (1962).
- J. J. BERNARD and T. MOULIN, Paradoxical aspects of protection by ablation (in French), *ONERA Publ.* 86, p. 29 (1962).
- P. B. BURBANK, R. A. NEWLANDER and IDA K. COLLINS, Heat transfer and pressure measurements on a flat-plate surface and heat-transfer measurements on attached protuberances in a supersonic turbulent boundary layer at Mach numbers of 2.65, 3.51 and 4.44. *NASA TN D-1372* (1962).
- A. N. CHAPLINA, Experimental investigation of heat exchange of a plate with longitudinal air flow directed around it. Air Force Systems Command, Foreign Technology Div., Wright-Patterson AFB, Ohio, FTD-11-62-1413/1+2 (1962).
- W. L. CHOW and H. H. KORST, Influence on base pressures by heat and mass addition, *J. Amer. Rocket Soc.* 32, No. 7, 1094 (1962).
- P. M. CHUNG, Chemically frozen boundary layer with surface reactions behind a strong moving shock, *Phys. Fluids* 6, No. 4, 550 (1963).
- P. M. CHUNG, S. W. LIU and H. MIRELS, Effect of discontinuity of surface catalycity on boundary layer flow of dissociated gas, *Int. J. Heat Mass Transfer*, 6, No. 3, 193 (1963).
- D. E. COLES, The turbulent boundary layer in a compressible fluid. Rand Corp. R-403-Pr (1962).
- N. CURLE, Heat transfer through a constant-property laminar boundary layer. Part I. Calculations based on Startford's method. Aeronautical Research Council (Great Britain) ARC-R. & M. 3300 (1962).
- C. ECONOMOS, Ablation tests on plastic models in a hypersonic wind tunnel, *J. Amer. Rocket Soc.* 32, No. 7, 1074 (1962).
- R. H. EDGERTON, A class of similarity solutions to the boundary-layer energy equation, *J. Heat Transfer C* 85, No. 1, 78 (1963).
- D. G. ELLIOTT, D. R. BARTZ and S. SILVER, Calculation of turbulent boundary-layer growth and heat transfer in axi-symmetric nozzles. Jet Propulsion Lab., California Institute of Technology, Pasadena, Rep. No. 32-387 (1963).
- C. E. FEILER and E. B. YEAGER, Effect of large-amplitude oscillations on heat transfer, *NASA TR R-142* (1962).
- A. FERRI, V. ZAKKAY and L. TING, On blunt-body heat transfer at hypersonic speed and low Reynolds numbers, *J. Aero. Space Sci.* 29, 7, 882 (1962).
- H. FOX and M. H. STEIGER, Some mass transfer effects on the wall jet, *J. Fluid Mech.* 15, Part 3, 321 (1963).
- S. I. FREEDMAN, J. R. RADBILL and J. KAYE, supersonic laminar boundary layer with gas injection, *AIAA J.* 1, No. 1, 148 (1963).
- B. LE FUR, New method to solve by iteration the dynamical and heat equation of a laminar boundary layer (in French). *Publ. Scient. Tech. Min. Air, France* No. 383 (1962).
- G. O. GARDINER and J. KESTIN, Calculation of the

BOUNDARY-LAYER FLOW

- A. ACRIVOS and T. D. TAYLOR, Heat and mass transfer from single spheres in Stokes flow, *Phys. Fluids* 5, No. 4, 387 (1962).
- E. W. ADAMS, Heat transfer in laminar flows of incompressible fluids with $Pr \rightarrow 0$ and $Pr \rightarrow \infty$. *NASA TN D-1527* (1963).
- G. F. AIELLA, An investigation of a three-dimensional turbulent boundary layer in hypersonic flow. Interim

- Spalding function over a range of Prandtl numbers, *Int. J. Heat Mass Transfer*, **6**, No. 4, 289 (1963).
- H. W. HAHNEMANN, Exact solution of the complete equation of motion and the energy equation for laminar flow around a plane wedge-shaped body (in German), *Int. J. Heat Mass Transfer*, **5**, 189 (1962).
- O. T. HANNA, Step-wall heat flux superposition for heat transfer in boundary layer flows, *Chem. Engng Sci.* **17**, 1041 (1962).
- O. T. HANNA and J. E. MYERS, Heat transfer in boundary-layer flows past a flat plate with a step in wall-heat flux, *Chem. Engng Sci.* **17**, 1053 (1962).
- P. HARRIOTT, A review of mass transfer to interfaces, *Canad. J. Chem. Engng* **40**, No. 2, 69 (1962).
- R. S. HICKMAN, The influence of shock wave-boundary layer interaction on heat transfer to an axisymmetric body. Aeronautical Research Laboratories, Office of Aerospace Research, USAF, ARL 62-442 (1962).
- R. S. HICKMAN and W. H. GIEDT, Heat transfer to a hemisphere-cylinder at low Reynolds numbers, *AIAA J.* **1**, No. 3, 665 (1963).
- E. HORI, Experiments on the boundary layer of an oscillating circular cylinder, *Trans. Japan Soc. Mech. Engrs* **28**, No. 192, 890 (1962).
- E. HORI, Unsteady boundary layers, *Bull. Japan Soc. Mech. Engrs* **5**, No. 19, 461 (1962).
- H. G. HORNUNG and P. N. JOUBERT, The mean velocity profile in three-dimensional turbulent boundary layers, *J. Fluid Mech.* **15**, Part 3, 368 (1963).
- G. R. INGER, Dissociated laminar boundary-layer flows over surfaces with arbitrary continuous distributions of catalicity. Aerospace Corp., Aerodynamics and Propulsion Research Lab., El Segundo, Calif., ATN-63(9206)-2 (1962).
- G. R. INGER, General Research: Nonequilibrium-dissociated stagnation point boundary layers with arbitrary surface catalicity. Aerospace Corp., Aerodynamics and Propulsion Research Lab., El Segundo, Calif. ATN-63(9206)-3 (1963).
- J. H. JUDD, Skin-friction—work recovery by aerodynamic heating of skin coolants, *AIAA J.* **1**, No. 2, 477 (1963).
- J. N. KAPUR, The motion of a power-law fluid past a suddenly accelerated plane wall, *J. Phys. Soc. Japan* **18**, No. 3, 438 (1963).
- J. N. KAPUR and R. C. SRIVASTAVA, Axially-symmetric and two-dimensional stagnation point flows of a certain visco-elastic fluid, *J. Phys. Soc. Japan* **18**, No. 3, 441 (1963).
- J. KESTIN and P. D. RICHARDSON, Heat transfer across turbulent, incompressible boundary layers, *Int. J. Heat Mass Transfer*, **6**, No. 2, 147 (1963).
- E. L. KNUTH, Use of reference states and constant-property solutions in predicting mass-, momentum-, and energy-transfer rates in high-speed laminar flows, *Int. J. Heat Mass Transfer*, **6**, No. 1, 1 (1963).
- J. C. Y. KOH and C. N. DESILVA, Interaction between radiation and convection in the hypersonic boundary layer on a flat plate, *J. Amer. Rocket Soc.* **32**, No. 5, 739 (1962).
- O. O. KREMNEV and M. T. DUKHNENKO, Heat transfer of wave strips in a longitudinal air stream. Air Force Systems Command, Foreign Technology Div., Wright-Patterson AFB, Ohio, FTD-TT-62-971/1+2 (1962).
- P. A. LIBBY, Treatment of partial equilibrium in chemically reacting flows, *J. Amer. Rocket Soc.* **32**, No. 7, 1090 (1962).
- V. P. MATULEVICH, Heat and mass transfer at a frontal point of blunt bodies for gas flow in the presence of heterogeneous chemical reactions, *Int. J. Heat Mass Transfer*, **5**, 489 (1962).
- W. J. MCCROSKEY, Experimental investigation of boundary layer transition on a flat plate with a point heat source at the leading edge. James Forrestal Research Center, Princeton Univ. Aeronautical Engng Rept. 623 (1962).
- S. MORIOKA, Supersonic jet of an ideal dissociating gas with finite reaction rate, *J. Phys. Soc. Japan* **18**, No. 2, 297 (1963).
- M. J. NOWAK, Comments on the boundary conditions at an ablating surface. General Dynamics Corp. General Atomic Div., San Diego, Calif., GAMD-3639 (1962).
- W. PECHAU, Approximate method for calculating the compressible laminar boundary layer, *AIAA J.* **1**, No. 4, 933 (1963).
- G. M. PROK, Nitrogen and oxygen atom recombination at oxide surfaces and effect of Telsa discharge on recombination heat transfer. NASA TN D-1567 (1962).
- B. RASHIS and R. N. HOPKO, An analytical investigation of ablation. NASA TM X 300 (1962).
- J. REINHEIMER, Ablation with volume distribution of heat sources, *J. Amer. Rocket Soc.* **32**, No. 7, 1106 (1962).
- A. T. ROBINSON, R. L. McALEXANDER, J. D. RAMSEY, and M. R. WOLFSON, Transpiration cooling with liquid metals, *AIAA J.* **1**, No. 1, 89 (1963).
- D. E. ROSNER, Fundamental solution to the diffusion boundary layer equation for nearly separated flow over solid surfaces at very large Prandtl numbers. Aero. Chem. Research Labs., Inc., Princeton, N.J. TP-52 (1962).
- S. M. SCALA, The hypersonic environment-heat transfer in multicomponent gases. General Electric Co., Space Sciences Lab., Philadelphia, Pa., R62SD987 (1962).
- S. M. SCALA and L. M. GILBERT, Thermal degradation of a char-forming plastic during hypersonic flight, *J. Amer. Rocket Soc.* **32**, No. 6, 917 (1962).
- V. I. SHAH, Heat transfer through an incompressible laminar boundary layer. College of Aeronautics, Cranfield, Great Britain, COA N-130 (1962).
- C. P. SHORE, S. C. DIXON and G. E. GRIFFITH, Experimental pressures and turbulent heat-transfer coefficients associated with sinusoidal protuberances on a flat plate at a Mach number of 3. NASA TN D-1626 (1963).
- A. G. SMITH and V. L. SHAH, The calculation of wall and fluid temperature for the incompressible turbulent boundary layer, with arbitrary distribution of wall heat flux, *Int. J. Heat Mass Transfer*, **5**, 1179 (1962).
- D. B. SPALDING, A new analytical expression for the drag of a flat plate valid for both the turbulent and laminar regimes, *Int. J. Heat Mass Transfer*, **5**, 1133 (1962).
- E. M. SPARROW, E. R. G. ECKERT and W. J. MINKOWYCZ, Heat transfer and skin friction for turbulent

- boundary-layer flow longitudinal to a circular cylinder, *J. Appl. Mech.* **E** *30*, No. 1, 37 (1963).
- C. L. TIEN and C. GEE, Hypersonic viscous flow over a sweat-cooled flat plate, *AIAA J.* *1*, No. 1, 159 (1963).
- L. K. TOWER, An analytical study of the continuous chemical regeneration of surfaces, *NASA TN D-1194* (1962).
- M. VAN DYKE, Higher approximations in boundary-layer theory. Part 2. Application of leading edges, *J. Fluid Mech.* *14*, Part 4, 481 (1962).
- W. R. VIETH, J. H. PORTER and T. K. SHERWOOD, Mass transfer and chemical reaction in a turbulent boundary layer, *I/EC Fundamentals* *2*, No. 1, 1 (1963).
- N. S. VOJVODICH, The performance of ablative materials in a high-energy partially dissociated, frozen nitrogen stream, *NASA TN D-1205* (1962).
- L. A. VULIS and V. P. KASHKAROV, Local redistribution of the total energy in the boundary layer of a compressible gas at the surface of a burning body, *Soviet Phys.-Tech. Phys.* *6*, No. 12, 1079 (1962).
- I. WEINSTEN, Heat transfer and pressure distributions on a hemisphere-cylinder and a bluff-afterbody model in methane-air combustion products and in air, *NASA TN D-1503* (1962).
- C. W. WINTERS, W. G. WITTE, B. RASHIS and R. N. HOPKO, A free-flight investigation of ablation of a blunt body to a Mach number of 13.1, *NASA TN D-1500* (1962).
- S. M. YEN and N. A. THYSON, An integral method for calculation of supersonic laminar boundary layer with heat transfer on yawed cone, *AIAA J.* *1*, No. 3, 672 (1963).
- V. N. ZHIGULEV, On the relaxation boundary-layer effect, *Soviet Fiz. Dokl.* *7*, No. 6, 463 (1962).

CHANNEL FLOW

- J. ADLER and D. VORTMYER, The effect of axial diffusion process on the optimum yield of tubular reaction. I. Isothermal reactors with simple reversible reaction $A = C$, *Chem. Engng Sci.* *18*, No. 2, 99 (1963).
- H. C. AGRAWAL, A variational method for combined free and forced convection in channels, *Int. J. Heat Mass Transfer*, *5*, 439 (1962).
- A. R. BARBIN and J. B. JONES, Turbulent flow in the inlet region of a smooth pipe, *J. Basic Engng D* *85*, No. 1, 29 (1963).
- J. F. BITTEN and E. G. FOCHTMAN, Flow of liquids in horizontal capillary tubes, *J. Amer. Inst. Chem. Engrs* *9*, No. 2, 279 (1963).
- W. D. CAMPBELL and J. C. SLATTERY, Flow in the entrance region of a tube, *J. Basic Engng D* *85*, No. 1, 41 (1963).
- A. I. CHAPLINA, Experimental research on heat transfer at a longitudinally-flown plate (in Russian), *Inz. Fiz. Zh.* *5*, No. 7, 34 (1962).
- M. COLLINS and W. R. SCHOWALTER, Behavior of non-Newtonian fluids in the inlet region of a channel, *J. Amer. Inst. Chem. Engrs* *9*, No. 1, 98 (1963).
- I. B. DANILOV and V. E. KEILIN, Heat transfer and hydraulic resistance in flow along tubes with spiral fins, *Int. Chem. Engng* *3*, No. 1, 95 (1963).
- D. F. DIPPREY and R. H. SABERSKY, Heat and momentum transfer in smooth and rough tubes at various Prandtl numbers, *Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena, Calif., JPL-TR-32-269* (1962).
- O. E. DWYER, Equations for bilateral heat transfer of a fluid flowing in a concentric annulus, *Nucl. Sci. Engng* *15*, No. 1, 52 (1963).
- M. A. FARRELL and E. F. LEONARD, Dispersion in laminar flow to simultaneous convection and diffusion, *J. Amer. Inst. Chem. Engrs* *9*, No. 2, 190 (1963).
- L. E. FRAENKEL, Laminar flow in symmetric channels with slightly curved walls. II. An asymptotic series for the stream function, *Proc. Roy. Soc.* *272*, No. 1350, 406 (1963).
- W. R. GAMBILL and R. D. BUNDY, High-flux heat-transfer characteristics of pure ethylene glycole and axial and swirl flow, *J. Amer. Inst. Chem. Engrs* *9*, No. 1, 55 (1963).
- W. N. GILL and M. S. SUWANDI, Some aspects of isothermal laminar flow reactors, *J. Amer. Inst. Chem. Engrs* *9*, No. 2, 273 (1963).
- G. W. GORTON, K. R. PURDY and C. J. BELL, Non-isothermal velocity profiles, *J. Amer. Inst. Chem. Engrs* *9*, No. 2, 141 (1963).
- W. B. HALL, J. D. JACKSON and P. H. PRICE, Note on the forced convection in a pipe having a heat flux which varies exponentially along its length, *J. Mech. Engng Sci.* *5*, No. 1, 48 (1963).
- Heat transfer in the region of thermal stabilization for liquid metals flowing turbulently in a tube (translation). Aerospace Information Div., Library of Congress, AID Report T-63-22 (1963).
- S. A. KAGANOV, Establishing laminar flow for an incompressible liquid in a horizontal channel and a curved cylindrical tube with corrections for frictional head and the temperature dependence of viscosity, *Int. Chem. Engng* *3*, No. 1, 33 (1963).
- V. M. KAPINOS and N. I. NIKITENKO, Heat transfer in a channel with an unheated length, *Int. J. Heat Mass Transfer*, *6*, No. 4, 271 (1963).
- L. B. KOPPEL and J. M. SMITH, Laminar flow heat transfer for variable physical properties, *J. Heat Transfer* *C* *84*, No. 2, 157 (1962).
- L. M. KOVALENKO, A study of the process of convective heat transfer in winding slit channels. Air Force Systems Command, Foreign Technology Div., Wright-Patterson AFB, Ohio, FTD-TT-62-1175/1+2+4 (1962).
- H. W. KROPHOLLER and A. D. CARR, The prediction of heat and mass transfer coefficients for turbulent flow in pipes at all values of the Prandtl or Schmidt number, *Int. J. Heat Mass Transfer*, *5*, 1191 (1962).
- E. LOGAN Jr. and J. B. JONES, Flow of a pipe following an abrupt increase in surface roughness, *J. Basic Engng D* *85*, No. 1, 35 (1963).
- J. MADEJSKI, Temperature distribution in channel flow with friction, *Int. J. Heat Mass Transfer*, *6*, 49 (1963).
- I. I. MEZHIROV, Calculation of unidirectional gas flow in a channel of varying cross sectional area including the effect of friction and heat exchange, *Int. Chem. Engng* *3*, No. 1, 52 (1963).

- J. N. MUELLER, Ideal-gas tables for helium flow in the Mach number range from 40 to 100. *NASA TN D-1252* (1962).
- P. R. OWENS and W. R. THOMSON, Heat transfer across rough surfaces, *J. Fluid Mech.* **15**, Part 3, 321 (1963).
- H. PEARSON and B. M. L. HEURTEUX, The losses at sudden expansions and contraction in ducts, *Aero. Quart.* **XIV**, Part 1, 63 (1962).
- R. SIEGEL and M. PERLMUTTER, Heat transfer for pulsating laminar duct flow, *J. Heat Transfer C* **84**, No. 2, 111 (1962).
- E. M. SPARROW and S. H. LIN, Turbulent heat transfer in a parallel-plate channel, *Int. J. Heat Mass Transfer* **6**, No. 3, 248 (1963).
- K. STEPHAN, Wärmeübergang bei turbulenter und bei laminarer Strömung in Ringspalten, *Chem.-Ing.-Tech.* **34**, No. 3, 207 (1962).
- J. L. STOLLERY and J. E. SMITH, A note on the variation of vibrational temperature along a nozzle, *J. Fluid Mech.* **13**, No. 2, 225 (1962).
- R. J. WETHERN and R. S. BRODKEY, Heat and momentum transferring in laminar flow: helium initially at plasma temperatures, *J. Amer. Inst. Chem. Engrs* **9**, No. 1, 49 (1963).
- P. S. WILLIAMS and J. G. KNUDSEN, Local rates of heat transfer and pressure losses in the vicinity of annular orifices, *Canad. J. Chem. Engng* **41**, No. 2, 56 (1963).
- CHANGE OF PHASE**
- E. J. BARLOW and W. E. LANGLOIS, Diffusion of gas from a liquid into an expanding bubble, *IBM J. Res. Devel.* **6**, No. 3, 329 (1962).
- K. M. BECKER, Burnout conditions for flow of boiling water in vertical rod clusters, *J. Amer. Inst. Chem. Engrs* **9**, No. 2, 216 (1963).
- L. D. BERMAN and Y. A. TUMANOV, Investigation of condensation heat transfer for steam flowing in a horizontal pipe (in Russian), *Teploenergetika*, No. 10, 77 (1962).
- M. V. BUKOV, Diffusion and thermal relaxation of an evaporating drop (in Russian), *Inz. Fiz. Zh.* **5**, No. 4, 78 (1962).
- P. M. CHUNG, Unsteady laminar film condensation on vertical plate, *J. Heat Transfer C* **85**, No. 1, 63 (1963).
- J. F. CLARKE, Temperature-time histories at the interface between a gas and a solid, *J. Fluid Mech.* **13**, No. 1, 47 (1962).
- D. W. FALETTI and R. W. MOULTON, Two-phase critical flow of steam-water mixtures, *J. Amer. Inst. Chem. Engrs* **9**, No. 2, 247 (1963).
- H. K. FAUSKE, Contribution to the theory of two-phase, one-component critical flow. Argonne Natl. Lab., Illinois, ANL-6633 (1962).
- T. H. K. FREDERICKING, Stability of film boiling two-phase flow in cryogenic systems. California Univ., Los Angeles. *NASA Grant NsG-237-62* (1962).
- L. E. GILL, G. F. HEWITT and J. W. HITCHON, Sampling probe studies of the gas core in annular two-phase flow. Part 1. The effect of length on phase and velocity distribution. Chemical Engineering Div., Atomic Energy Research Establishment, Harwell, Berkshire (England) AERE-R 3954 (1962).
- W. R. GAMBILL, A survey of boiling burn-out, *Brit. Chem. Engng* **8**, No. 2, 93 (1963).
- N. V. GLIKI, A. A. ELISEEV and N. M. MARCHENKA, Transformation of cloud drops into ice crystals, *Soviet Phys. Dokl.* **7**, No. 4, 283 (1962).
- R. W. GRAHAM and R. C. HENDRICKS, A study of the effect of multi-G accelerations on nucleate-boiling ebullition. *NASA TN D-1196*.
- P. GRIFFITH, The prediction of low quality boiling voids. Dept. Mechanical Engineering, Mass. Inst. of Tech. Report No. 7-7673-23 (1963).
- D. HARRISON and L. S. LEUNG, The rate of rise of bubbles in fluidized beds, *Trans. Inst. Chem. Engrs* **40**, No. 3, 146 (1962).
- Y. Y. HSU and R. W. GRAHAM, A visual study of a two-phase flow in a vertical tube with heat addition. *NASA TN D-1564* (1962).
- V. P. ISACHENKA, Mechanism and governing heat transfer equations for dropwise condensation of steam (in Russian), *Teploenergetika*, No. 9, 81 (1962).
- R. D. INGEOBO, Vaporization rates of ethanol sprays in a combustor with low-frequency fluctuations of combustion-gas pressure. *NASA TN D-1408* (1962).
- H. S. ISBIN and G. R. GAVALAS, Two-phase flow through an aperture. Proceedings of the 1962 Heat Transfer and Fluid Mechanics Institute, Stanford, Stanford Univ. Press (1962).
- J. KIWAKI, A study on the boiling heat transfer from flat surfaces under high heat flux, *Trans. Japan Soc. Mech. Engrs* **28**, No. 192, 912 (1962).
- W. KAST, Wärmeübertragung bei Tropfenkondensation. *Chem.-Ing.-Tech.* **35**, No. 3, 163 (1963).
- M. KORACH and G. SASVARI, Drying in the ceramic industry (in German), *Acta Tech. Acad. Sci. Hungaricae, Budapest* **39**, 195 (1962).
- J. P. LEWIS, J. H. GOODYKOONTZ and J. F. KLINE, Boiling heat transfer to liquid hydrogen and nitrogen in forced flow. *NASA TN D-1314* (1962).
- J. H. LIENHARD, A semi-rational nucleate boiling heat flux correlation, *Int. J. Heat Mass Transfer*, **6**, No. 3, 215 (1963).
- A. V. LYKOV, Heat and mass transfer in evaporation, *Int. Chem. Engng* **3**, No. 2, 195 (1963).
- P. W. McFADDEN and P. GROSSMANN, The relation between bubble frequency and diameter during nucleate pool boiling, *Int. J. Heat Mass Transfer*, **5**, 169 (1962).
- J. E. MEYER and E. A. REINHARD, A small perturbation approach to the study of parallel channel boiling flow oscillations. Bettis Atomic Power Lab., Westinghouse Elec. Corp., Pittsburgh, Pa., WAPD-TM-342 (1963).
- J. E. MEYER and R. P. ROSE, Application of a momentum integral model to the study of parallel channel boiling flow oscillations, *J. Heat Transfer C* **85**, No. 1, 1 (1963).
- V. V. MIRKOVICH and R. W. MISSEN, A study of the condensation to binary vapors of miscible liquids: Part 2. Heat transfer coefficients for filmwise and non-filmwise condensation, *Canad. J. Chem. Engng* **41**, No. 2, 73 (1963).
- V. G. MOROZOV, An experimental investigation of the

- cessation of film boiling of a liquid on a submerged heating surface, *Int. Chem. Engng* **3**, No. 1, 48 (1963).
- B. OTTERMAN, A photographic study of bubble dimensions and boiling action. Proceedings Heat Transfer Fluid Mech. Inst., Seattle, Wash., June 13-15, 1962; Stanford Univ. Press, Stanford, California (1962).
- J. A. PADILLA, W. MYERS and L. R. SMITH, Investigation of liquid metal boiling heat transfer second quarterly progress report. Michigan Univ. Coll. of Engineering, Ann Arbor, Report 04526-4-5 (1962).
- S. S. PAPELL, Subcooled boiling heat transfer under forced convection in a heated tube. *NASA TN D-1583* (1963).
- M. S. PLESSET, Bubble dynamics. California Inst. Tech., Div. of Engineering and Applied Sciences, Pasadena, Report 85-23 (1963).
- K. E. PORTER and G. V. JEFFREYS, The design of cooler-condensers for the condensation of binary vapours in the presence of a non-condensable gas, *Trans. Instn. Chem. Engrs* **41**, No. 3, 126 (1963).
- M. D. REEBER, Heat transfer to boiling helium, *J. Appl. Phys.* **34**, No. 3, 481 (1963).
- T. SATŌ, I. MICHIVOSHI and K. TAKEUCHI, Experimental studies on transient boiling. Technical Reports of the Engineering Research Institute, Kyoto University, Vol. XII, No. 8, Report No. 98 (1962).
- R. SEMERIA, Caractéristiques des bulles de vapeur sur une paroi chauffante dans l'eau en ebullition à haute pression. *C.R. Acad. Sci. Paris*, **256**, 1227 (1963).
- B. M. SMOL'SKI and P. A. NOVIKOV, The mechanism of heat and mass transfer during sublimation under vacuum, *Int. Chem. Engng* **3**, No. 2, 203 (1963).
- G. F. SOMERVILLE (M.S. Thesis), Downflow boiling of *n*-butanol in a uniformly heated tube. California Univ., Livermore. Lawrence Radiation Lab. UCRL-10527 (1962).
- O. T. STUETZER, Gas bubbles in a charged liquid, *J. Appl. Phys.* **34**, No. 4, 958 (1963).
- M. A. STYRIKOVICH, Z. L. MIROPOŁSKII and V. K. EVA, The influence of local raised heat fluxes along the length of a channel on the boiling crisis, *Soviet Phys. Dokl.* **7**, No. 7, 597 (1963).
- F. G. TENN and R. W. MISSEN, A study of the condensation of binary vapors of miscible liquids. Part 1. The equilibrium relations, *Canad. J. Chem. Engng* **41**, No. 1, 12 (1963).
- L. J. THOMAS and J. W. WESTWATER, Microscopic study of solid-liquid interfaces during melting and freezing, *Chem. Engng Progr. Symp. Series* **59**, No. 41, 155 (1963).
- F. E. TIPPETS, Critical heat flux and flow pattern characteristics of high pressure boiling water in forced convection. General Electric Co., Atomic Power Equipment Dept., San Jose, Calif., GEAP-3766 (1962).
- R. VISKANTA and P. A. LOTTES, Nucleate and boiling from a liquid-liquid interface, Proc. Heat Transfer and Fluid Mech. Inst., Seattle, Wash., June 13-15, 1962, Stanford Univ. Press (1962).
- U. H. VON GLAHN, An empirical correlation of critical boiling heat flux in forced flow upward through uniformly heated tubes. *NASA TN D-1285* (1962).
- W. G. VULLIET, The kinetics of vaporization below the critical point. General Dynamics Corp., John Jay Hopkins Lab. for Pure and Applied Sciences, San Diego, Calif., GA 3633 (1962).
- J. K. WALTERS and J. F. DAVISON, The initial motion of a gas bubble formed in an inviscid liquid. Part 1: The two-dimensional bubble, *J. Fluid Mech.* **12**, No. 3, 408 (1962).
- E. D. WATERS, J. K. ANDERSON, W. L. THORNE and J. M. BATCHE, Experimental observations of upstream boiling burnout. Hanford Atomic Products Operation, Richland, Wash., HW-73902 (1962).
- J. K. WILKINSON, Heat transfer to boiling water, *Brit. Coal Util. Res. Ass. Mo. Bull.* **26**, No. 4, 109 (1962).
- T. P. YANG and D. M. HIMMELBLAU, Velocity distribution for isothermal two-phase co-current laminar flow in a horizontal rectangular duct. *Chem. Engng Sci.* **18**, No. 2, 143 (1963).
- N. ZUBER, Nucleate boiling. The region of isolated bubbles and the similarity with natural convection, *Int. J. Heat Mass Transfer*, **6**, No. 1, 53 (1963).

COMBINED HEAT AND MASS TRANSFER

- A. ACRIVOS, The asymptotic form of the laminar boundary-layer mass-transfer rate for large interfacial velocities, *J. Fluid Mech.* **12**, No. 3, 337 (1962).
- E. R. BARTLE and B. M. LEADON, Effectiveness as a universal measure of mass transfer cooling for a turbulent boundary layer. Proc. Heat Transfer and Fluid Mechanics Inst., Seattle, Wash., June 13-15, 1962. Stanford Univ. Press (1962).
- H. BRENNER, Forced convection heat-mass transfer at small Péclet numbers from a particle of arbitrary shape, *Chem. Engng Sci.* **18**, No. 2, 109 (1963).
- H. BURNAGE, Contribution to the study of turbulent flow in a cylindrical pipe with porous walls (in French). Available from SDIT, 2 Ave. de la Porte d'Illy, Paris (15^e), France (1962).
- P. M. CHUNG and S. W. LIU, Gas-phase and surface atom recombination for stagnation boundary layer, *AIAA J.* **1**, No. 4, 929 (1963).
- F. E. CULICK, Integral method for calculating heat and mass transfer in laminar boundary layers, *AIAA J.* **1**, No. 4, 783 (1963).
- R. E. DANNNENBERG, Helium film cooling on a hemisphere at a Mach number of 10. *NASA TN D-1550* (1962).
- E. R. G. ECKERT, W. J. MINKOWYCZ, E. M. SPARROW and W. E. IBELE, Heat transfer and friction in two-dimensional stagnation flow of air with helium injection, *Int. J. Heat Mass Transfer*, **6**, No. 3, 245 (1963).
- F. FETTING, Chemische Reaktion und Stofftransport bei heterogenen Gasreaktionen im Stromungsrohr, *Chem.-Ing.-Tech.* **35**, No. 3, 185 (1963).
- N. I. GAMAIUNOV, Certain problems of heat and mass transfer (in Russian), *Inz. Fiz. Zh.* **5**, No. 2, 79 (1962).
- H. H. GEORGE Jr., Heat transfer and water removal in cylinder drying. II. Felted cylinders. Rensselaer Polytechnic Inst., Troy, New York. *NASA Grant NSG-100-60*.

- H. J. HOGE, On the theory of mixing of fluid streams, *J. Aero. Space Sci.* **29**, No. 1, 118 (1962).
- C. J. HUANG and C. H. KUO, General mathematical model for mass transfer accompanied by chemical reaction, *J. Amer. Inst. Chem. Engrs* **9**, No. 2, 161 (1963).
- E. L. KNUTH, Use of reference states and constant-property solutions in predicting mass-, momentum- and energy-transfer rates in high-speed laminar flows, *Int. J. Heat Mass Transfer*, **6**, No. 1, 1 (1963).
- L. S. KOTOUsov, On the connection of the thermal-diffusion coefficient with the thermodynamic properties of binary mixtures: Part II. The pressure dependence of thermal diffusion in a gaseous mixture in the range of 0.01–0.5 atm, *Soviet Phys. Tech. Phys.* **7**, No. 2, 159 (1962).
- P. A. LIBBY and C. ECONOMOS, A flame zone model for chemical reaction in a laminar boundary layer with application to the injection of hydrogen–oxygen mixtures, *Int. J. Heat Mass Transfer*, **6**, No. 2, 113 (1963).
- A. V. LUIKOV, Heat and mass transfer in processes involving evaporation (in Russian), *Engng Phys. J.* **V**, No. 11, 12 (1962).
- S. A. MAROLO, Properties and characteristics of ablative plastic chars. Part I. Organic fiber-reinforced plastics. Directorate of Materials and Processes, Aeronautical Systems Div., Air Force Systems Command, Wright-Patterson AFB, Ohio, ASD-TDR-62-1028 (1963).
- G. MORDCHELLES-REGNIER, Analogy between transpiration of mass and of quantity of movement in flow with suction through the porous wall of the conduit (in French), *C.R. Acad. Sci. Paris* **254**, No. 16, 2931 (1962).
- R. PROBER and W. E. STEWART, Transport phenomena in wedge flows: perturbation solutions for small mass transfer rates, *Int. J. Heat Mass Transfer*, **6**, No. 3, 221 (1963).
- R. PRUSCHEK, Der Transport von Wärme und Stoff in der turbulenten Strömung durch Fullkörperrohre. Teil 1: Theorie und Versuche, Versuchsergebnisse. *Forsch. Ing. Wes.* **29**, No. 1, 11 (1963).
- Z. P. SHULMAN, The calculation of a laminar boundary layer with heat and mass transfer in incompressible fluid (in Russian), *Inz.-Fiz. Zh.* **5**, No. 5, 102 (1962).
- A. H. P. SKELLAND and A. R. H. CORNISH, Mass transfer from spheroids to an air stream, *J. Amer. Inst. Chem. Engrs* **9**, No. 1, 73 (1963).
- C. G. M. SLESSER and D. CLELAND, Surface evaporation by forced convection: Part 1. Simultaneous heat and mass transfer, *Int. J. Heat Mass Transfer*, **5**, 735 (1962).
- L. S. SLOBODKIN, Heat and mass transfer between a gas and a single granule, *Int. Chem. Engng* **3**, No. 2, 175 (1963).
- W. E. STEWART and R. PROBER, Heat transfer and diffusion in wedge flows with rapid mass transfer, *Int. J. Heat Mass Transfer*, **5**, 1149 (1962).
- F. THOMAS, Investigations concerning the boundary layer downstream from an exhaust slot (in German). Deutsche Forschungsanstalt für Luft- und Raumfahrt. Inst. für Aerodynamik, Brunswick, W. Germany, DFL-168 (1962).
- A. N. TIFFORD, On surface mass transfer effects in a binary fluid. Aeronautical Research Labs., Wright-Patterson AFB, Ohio, ARL-62-396 (1962).
- E. P. VAULIN and N. N. GVOZDKOV, On the diffusive heat-shielding of a porous plate in a gas-dynamic flow by the seeping through of liquid and by physico-chemical reactions in the laminar boundary layer, *Soviet Phys. Tech. Phys.* **8**, No. 2, 169 (1962).
- W. WUEST, Laminar boundary layer in the case of blowing off to another medium (in German), *Ing.-Arch.* **31**, No. 2, 125 (1962).
- J. YARON and D. HASSON, Heat transfer by forced convection between a free liquid sheet and air in crossflow, *Bull. Res. Council Israel* **11 C**, No. 1, 89 (1962).

CONDUCTION

- C. W. BERT, Nonsymmetric temperature distributions in varying-thickness circular fins, *J. Heat Transfer C* **85**, No. 1, 77 (1963).
- P. L. BUTZER, The dependence of the solution of the equation of heat conduction upon its initial temperature distributions; asymptotic expansions, *Arch. Math.* **13**, No. 4, 302 (1962).
- F. DENNERY and R. GUENOT, Contribution to the study of heat sources in problems of conduction (in French). Service de Documentation et d'Information Technique de l'Aeronautique (SDIT), Paris, France (1962).
- H. FENECH and W. M. ROHSENOW, Prediction of thermal conductance of metallic surfaces in contact, *J. Heat Transfer C* **85**, No. 1, 15 (1963).
- R. IZUMI and H. KOYAMA, Some applications of Laplace-transformation to the heat transfer problems. *Bull. Yamagata Univ. Engng* **1**, No. 1, 213 (1962).
- A. KACNER, Heat conduction equations for thin plates, *Bull. Acad. Polonaise Sci. Ser. Sci. Tech.* **10**, No. 3, 101 (1962).
- T. J. LARDNER, Biot's variational principle in heat conduction, *AIAA J.* **1**, No. 1, 196 (1963).
- J. T. MILLER, Solution for the transient one-dimensional heat conduction in an infinite slab. Arnold Engineering Development Center, AEDC-TDR 63-43 (1963).
- W. D. MURPHY and F. LANDIS, The effect of spacewise lumping on the solution accuracy of the one-dimensional diffusion equation, *J. Appl. Mech. E* **29**, No. 4, 629 (1962).
- J. E. PHYTHIAN, Cylindrical heat flow with arbitrary heating rates, *AIAA J.* **1**, No. 4, 925 (1963).
- S. N. PLYAT, Contribution to the solution of transient heat conduction problems in hollow cylinders by the method of Grinberg (method of finite integral transformations) (in Russian), *Inz. Fiz. Zh.* **6**, 81 (1962).
- G. POOTS, An approximate treatment of a heat conduction problem involving a two-dimensional solidification front, *Int. J. Heat Mass Transfer*, **5**, 339 (1962).
- R. W. POWELL, R. P. TYE and B. W. JOLLIFFE, Heat transfer at the interface of dissimilar materials: evidence of thermal-comparator experiments, *Int. J. Heat Mass Transfer*, **5**, 897 (1962).
- ALICE M. STOLL, Flame contact studies. II. Experimental validation of mathematical analysis of heat flow.

- Naval Air Development Center, Aviation Medical Acceleration Lab., Johnsville, Pa. NADC-MA-6216 (1962).
- J. TAVERNIER, Physical aspects of heat conduction in solids (in French), *Rev. Gen. Thermique* **1**, No. 1, 19 (1962).
- C. L. TAI and J. R. M. RADOK, Linear flow of heat in a growing rod, *J. Appl. Mech. E* **29**, No. 4, 756 (1962).
- R. L. TRIMPI, A preliminary theoretical study of the expansion tube, a new device for producing high-enthalpy short-duration hypersonic gas flows. *NASA TR R-133* (1962).
- V. VODICKA, Heat conduction in infinite cylinders whose surface is impervious to heat, *Arch. Mech. Stos.* **14**, No. 2, 211 (1962).
- S. ZAKANYCZ and J. J. SALAMONE, Nomographs for unsteady state heat transfer, *I/EC* **55**, No. 1, 27 (1963).
- FLOW WITH SEPARATED REGIONS**
- C. BISCH, Convection forcée dans un coude, *J. Recherches C.N.R.S.* No. 60, 195 (1962).
- F. K. DEAVER, W. R. PENNEY and T. B. JEFFERSON, Heat transfer from an oscillating horizontal wire to water, *J. Heat Transfer C* **84**, No. 3, 251 (1962).
- G. B. DIEP and B. LE FUR, Étude aérodynamique de l'écoulement supersonique autour de cylindres circulaires en attaque oblique, *J. Recherches C.N.R.S.* No. 59, 143 (1962).
- N. I. GEL'PERIN, V. G. AINSHTEIN and F. D. ARONOVICH, The effect of screening on heat transfer in a fluidized bed, *Int. Chem. Engng* **3**, No. 2, 185 (1963).
- J. M. KENDALL Jr., Experimental study of cylinder and sphere wakes at a Mach number of 3.7. Jet Propulsion Lab., California Inst. of Tech., Pasadena, Tech. Rept. No. 32-363 (1962).
- J. T. L. McCONNACHIE and G. THODOS, Transfer processes in the flow of gases through packed and distended beds of spheres, *J. Amer. Inst. Chem. Engrs* **9**, No. 1, 60 (1963).
- L. S. SLOBODKIN, Experiment in heat and mass transfer between gas and isolated grains (in Russian), *Engng Phys. J.* **V**, No. 10, 26 (1962).
- M. Y. SOLNTSEV, L. S. BOBE and G. K. KOROTAEVA, Determination of the coefficients of heat transfer from a gas to a bed of free-flowing materials, *Int. Chem. Engng* **3**, No. 2, 215 (1963).
- N. J. THEMELIS and W. H. GAUVIN, Heat transfer to clouds of particles, *Canad. J. Chem. Engng* **41**, No. 1, 1 (1963).
- S. TOYAMA, Heat transfer of packed bed extending over wide temperature range, *Chem. Engng* **26**, No. 9, 976 (1962).
- C. A. WENTZ Jr. and G. THODOS, Pressure drops in the flow of gases through packed and distended beds of spherical particles, *J. Amer. Inst. Chem. Engrs* **9**, No. 1, 81 (1963).
- S. S. ZABRODSKY, Heat transfer between solid particles and a gas in a non-uniformly aggregated fluidized bed, *Int. J. Heat Mass Transfer* **6**, No. 1, 23 (1963).
- S. ZURAKOWSKI, Heat-transfer efficiency in gas-solid suspension systems, *Int. Chem. Engng* **3**, No. 2, 178 (1963).

LIQUID METALS

- H. DE LA CUESTA S. and W. F. AMES, Techniques for determination of heat transfer in fields and non-homogeneous bodies, *I/EC Fundamentals* **2**, No. 1, 21 (1963).
- O. E. DWYER, Eddy transport in liquid-metal heat transfer, *J. Amer. Inst. Chem. Engrs* **9**, No. 2, 261 (1963).
- O. E. DWYER and P. S. TU, Unilateral heat transfer to liquid metals flowing in annuli, *Nucl. Sci. Engng* **15**, No. 1, 58 (1963).
- V. I. SUBBOTIN, M. K. IBRAGIMOV and E. V. NOMOFILOV, Heat transfer in a region of thermal stabilization in the turbulent flow of liquid metals in a tube, *Soviet J. Atomic Energy* **13**, No. 2, 754 (1963).

LOW DENSITY

- G. D. ARNEY Jr. and D. E. BOYLAN, A calorimetric investigation of some problems associated with a low-density hypervelocity wind tunnel. Arnold Engineering Development Center, Air Force Systems Command, USAF, Tech. Documentary Report No. AEDC-TDR-63-19 (1963).
- R. H. AUSTIN and J. E. CHRISTOPHER, State-of-the-art literature survey of methods for production of molecular beams in the energy range. Virginia Univ., Research Labs. for the Engineering Sciences, Charlottesville, Va., SP-620-101-62U (1962).
- A. B. BAILEY, Further experiments on impact-pressure probes in a low-density, hypervelocity flow. Arnold Engineering Development Center, Air Force Systems Command, USAF, Tech. Documentary Report No. AEDC-TDR-62-208 (1962).
- A. B. BAILEY and W. H. SIMS, The shock shape and shock detachment distance for spheres and flat-faced bodies in low-density, hypervelocity, Argon flow. Arnold Engineering Development Center, Air Force Systems Command, USAF, Tech. Documentary Report No. AEDC-TDR-63-21 (1963).
- E. A. BRUN, L. FACY and J. TROTEL, Étude de la traînée d'un réseau de fils dans un courant de gaz raréfié, *C.R. Acad. Sci. Paris*, **255** 1184 (1962).
- E. B. CARTER and R. H. DAVIS, He-, H₂- and other negative ion beams available from a duoplasmatron ion source with gas charge exchange, *Rev. Sci. Instrum.* **34**, No. 1, 93 (1963).
- H. K. CHENG and A. L. CHANG, Stagnation region in rarefied high Mach number flow, *AIAA J.* **1**, No. 1, 231 (1963).
- S. DATZ, G. E. MOORE and E. H. TAYLOR, The reflection of modulated helium and deuterium molecular beams from platinum surfaces. Oak Ridge Natl. Lab., Oak Ridge, Tenn. Presented at the Third Int. Symp. of Rarefied Gas Dynamics, Paris, June 25-29 (1962).
- J. DECKERS and J. B. FENN, High intensity molecular beam apparatus, *Rev. Sci. Instrum.* **34**, No. 1, 96 (1963).

- G. L. DEPOORTER (M.S. Thesis), Energy exchange between cold gas molecules and a hot tungsten surface. Calif. Univ., Berkeley, Lawrence Radiation Lab., UCRL-10504 (1962).
- K. R. ENKENHUS, First order slip effects on the plane Couette flow of a dissociating gas. Naval Ordnance Lab., White Oak, Md. Presented at the Third Int. Symp. on Rarefied Gas Dynamics, Paris, June 25-30 (1962).
- E. T. FLORANCE, Kinetic methods and the free expansion problem. Geophysics Corp. of America, Bedford, Mass., GCA-TR 62-63 A; AFCRL-62-1086 (1962).
- O. GERMAN, The equations for the density of molecular flow, *Soviet Fiz. Tekh. Fiz.* **7**, No. 9, 834 (1963).
- J. K. HAVILAND, Determination of shock wave thickness by the Monte Carlo method. Mass Inst. of Tech., Cambridge. Presented at the Third Int. Symp. on Rarefied Gas Dynamics, Paris, June 25-30 (1962).
- W. A. JANOS, On the convergence and error estimation of the iterative solution to the non-linear Boltzmann equation. Raytheon Co., Wayland, Mass. Presented at the Third Int. Symp. on Rarefied Gas Dynamics, Paris, June 26-29 (1962).
- M. KINSLOV and J. L. POTTER, The drag of spheres in rarefied hypervelocity flow. Arnold Engineering Development Center, Air Force Systems Command, USAF, Tech. Documentary Report No. AEDC-TDR-62-205 (1962).
- M. N. KOGAN, Transport reversibility theorem for the case of an almost-free molecular flow, *Soviet Phys. Dokl.* **7**, No. 6, 466 (1962).
- S. I. KOSTERIN, N. I. YUSHCHENKOVA, N. T. BELOVA and B. D. KAMAEV, An investigation into the effect of the rarefaction of a supersonic stream on the readings of a total-head probe, *Int. Chem. Engng* **3**, No. 2, 251 (1963).
- R. Y. KUCHEROV, L. E. RIKENGLAZ and T. S. TSULAYA, Kinetic theory of condensation transfer at low temperature difference, *Soviet Fiz. Tekh. Fiz.* **7**, No. 11, 1027 (1963).
- M. D. LADYZHENSKIY, On the efflux of a viscous gas into a vacuum, *Appl. Math. Mech.* **26**, No. 4, 965 (1963).
- A. D. LEWIS and G. D. ARNEY Jr., Vibrational non-equilibrium with nitrogen in low-density flow. Arnold Engineering Development Center, Air Force Systems Command, USAF, Tech. Documentary Report No. AEDC-TDR-63-31 (1963).
- V. I. LOZGACHEV, The theory of molecular flow. II. Passage through ducts of arbitrary form, *Soviet Fiz. Tekh. Fiz.* **7**, No. 9, 827 (1963).
- V. I. LOZGACHEV, Distribution of molecular flow on a surface during evaporating vacuum. *Soviet Fiz. Tekh. Fiz.* **7**, No. 8, 736 (1963).
- M. LUNC, Criterion of the degree of removal of the state of equilibrium and its consequences for a rarefied gas (in French). Warsaw Univ., Poland. Presented at the Third Int. Symp. on Rarefied Gas Dynamics, Paris, June 26-29 (1962).
- R. C. MACARTHUR, LEROY M. STEVENSON and JOHN BUDELL, Flow visualization and quantitative gas density measurements in rarefied gas flows (final technical documentary report). Cornell Aeronautical Lab., Inc., Buffalo, New York. Wright-Patterson AFB, Ohio, Directorate of Engineering Test, ASD-TDR-62-793 (1962).
- G. J. MASLACH and S. A. SCHAAF, Cylinder drag in the transition from continuum to free-molecule flow. *Phys. Fluids* **6**, No. 3, 315 (1963).
- M. W. MILLIGAN and J. F. BAILEY, Low-density hypervelocity wind tunnel diffuser performance. Arnold Engineering Development Center, Air Force Systems Command, USAF, Tech. Documentary Report No. AEDC-TDR-63-30 (1963).
- T. F. MOORE, Energy and momentum exchange between non-equipartition gases. Aeronautical Research Assn. of Princeton, Inc., Princeton, N.J. Tech. Rept. ARAP-5-P (1963).
- E. S. MOULIC, Flat plate skin friction in low density hypersonic flow-preliminary results. Aeronautical Research Lab., Office of Aerospace Research, USAF ARL 63-24 (1963).
- A. NIKURADSE and H. J. MADER, Slip flow in rarefied gases. Institut für Elektronen und Ionenforschung, Munich (W. Germany). Presented at the Third Int. Symp. on Rarefied Gas Dynamics, Paris, June 25-30 (1962).
- A. S. PLESHANOV, The temperature division for free molecular experiment in a vacuum, *Soviet Phys. Dokl.* **7**, No. 10, 869 (1963).
- J. L. POTTER and J. T. MILLER, Total heating load on blunt axisymmetric bodies in low-density flow. *AIAA J.* **1**, No. 2, 480 (1963).
- N. ROTT and M. LENARD, The effect of slip, particularly for highly cooled walls, *J. Aero. Space Sci.* **29**, No. 5, 591 (1962).
- J. N. SMITH Jr. and W. L. FITE, Recent investigations of gas-surface interactions using modulated-atomic-beam technique. Presented at the Third Int. Symp. on Rarefied Gas Dynamics, Paris, June 25-30, 1962. General Atomic Div., General Dynamics Corp., San Diego, Calif. (1962).
- R. E. STREET, Effect of slip on the laminar boundary layer near the leading edge of a flat plate in hypersonic rarefied gas flow. Boeing Scientific Research Labs., Seattle, Wash. Flight Sciences Lab. Tech. Memo 8. Addendum to Boeing Document D1-82-0138; Flight Sciences Lab. Rept. 49 (1962).
- K. TAKAO, Heat transfer from a sphere in rarefied gases. Defense Academy, Yokosuka (Japan). Presented at the Third Int. Symp. on Rarefied Gas Dynamics, Paris, June 25-30 (1962).
- H. Y. WACHMAN, The thermal accommodation coefficient: A critical survey, *J. Amer. Rocket Soc.* **32**, No. 1, 2 (1962).
- R. WILLIS, Heat transfer in a rarefied gas between parallel plates at large temperature ratio. Princeton Univ., New Jersey. Presented at the Third Int. Symp. on Rarefied Gas Dynamics, Paris, June 25-30, Contract AF 49 (638)-465 (1962).
- H. WISE, Energy exchange between gases and solids. Stanford Research Inst., Menlo Park, Calif., Tech. Report SRI-15-P (1963).

MAGNETOHYDRODYNAMICS

- L. J. F. BROER and L. VAN WIJNGAARDEN, Magnetohydrodynamics flow along wavy walls, *Appl. Sci. Res.* **B 9**, No. 6, 451 (1963).
- A. E. BRYSON and J. ROSCISZEWSKI, Influence of viscosity, fluid conductivity, and wall conductivity in the magnetohydrodynamic Rayleigh problems, *Phys. Fluids* **5**, No. 2, 175 (1962).
- I. B. CHEKAREV, On the steady flow of a viscous electrically conducting gas in a plane channel in the presence of transverse fields, *Appl. Math. Mech.* **26**, No. 4, 1194 (1963).
- S. CHILDRESS, On the flow of a conducting fluid of small viscosity. Jet Propulsion Lab., California Inst. of Tech., Pasadena. Tech. Report No. 32-351 (1963).
- R. B. CLARK, D. T. SWIFT-HOOK and J. K. WRIGHT, The prospects for alternating current magnetohydrodynamic power generation, *Brit. J. Appl. Phys.* **14**, No. 1, 10 (1963).
- G. H. A. COLE, Hydromagnetic scaling laws for fluids temperature distribution, *Phys. Fluids* **5**, No. 5, 628 (1962).
- K. R. KRAMER, Several magnetohydrodynamic free-convection solutions, *J. Heat Transfer C* **85**, No. 1, 35 (1963).
- D. M. DIX, The magnetohydrodynamic flow past a non-condensing flat plate in the presence of a transverse magnetic field, *J. Fluid Mech.* **15**, Part 3, 449 (1963).
- G. L. HAND, Results from the conservation laws for magnetohydrodynamic flow. Air Force Cambridge Research Labs., Geophysics Research Directorate, Bedford, Mass. AFCRL-62-1112 (1962).
- P. F. JACOBS, Turbulent mixing in a partially ionized gas. Technical Report. Guggenheim Labs. for the Aerospace Propulsion Sciences, Princeton Univ., N.J., Aeronautical Engineering Report 625 (1962).
- M. H. JACQUELIN, Effet d'un champ magnétique axial sur l'écoulement dans la tuyere d'un générateur de plasma, *Genie Chimique* **88**, No. 3, 67 (1962).
- V. F. KITAEVA, V. N. KOLESNIKOV, V. V. OBUKHOV-DENISOV and N. N. SOBOLEV, Structure of the column in an argon arc. I. Local electrical characteristics of the column, *Soviet Fiz. Tekh. Fiz.* **7**, No. 9, 796 (1963).
- V. N. KOLESNIKOV and N. N. SOBOLEV, Structure of the column in an argon arc. II. Radius of the column and shape of the radial distributions, *Soviet Fiz. Tekh. Fiz.* **7**, No. 9, 801 (1963).
- G. POOTS, Effect of an electric field on heat transfer in a paraelectric gas, *J. Fluid Mech.* **15**, Part 2, 187 (1963).
- V. J. RAELSON and P. J. DICKERMAN, Heat transfer from partially ionized gases in the presence of an axial magnetic field, *J. Heat Transfer C* **84**, No. 2, 169 (1962).
- G. SCHMITZ and J. UHLENBUSCH, Computation of temperature distribution and characteristics of cylindrical arc (in German), *Z. Phys.* **166**, 460 (1962).
- K. R. SINGH and T. G. COWLING, Thermal convection in magnetohydrodynamics. I. Boundary-layer flows up a hot vertical plate, *Quart. J. Mech. Appl. Math.* **XVI**, Part 1, 1 (1963).
- K. R. SINGH and T. G. COWLING, Thermal convection in magnetohydrodynamics. II. Flow in a rectangular box, *Quart. J. Mech. Appl. Math.* **XVI**, Part 1, 17 (1963).
- R. N. SUDAN, Interaction of a conducting fluid stream with a travelling wave of magnetic field of finite extension, *J. Appl. Phys.* **34**, No. 4, 641 (1963).

MEASUREMENT TECHNIQUES

- G. D. ARNEY Jr and D. E. BOYLAN, A calorimetric investigation of some problems associated with a low-density hypervelocity wind tunnel. Aro, Inc., Arnold Air Force Station, Tenn., AEDC-TDR-63-19 (1963).
- J. V. BECK, Thermocouple temperature disturbances in low conductivity materials, *J. Heat Transfer C* **84**, No. 2, 124 (1962).
- E. C. BENNETT, H. L. WOOD, L. D. JAFFE and H. E. MARTENS, Thermal properties of a simulated lunar material in air and in vacuum. Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena, JPL-TR-32-369 (1962).
- A. B. BULIHA and T. N. ABRAMENKO, The influence of temperature gradient in thermistor on the error calculation in semi-conductor instruments (in Russian), *Engng Phys J.* **V**, No. 6, 48 (1962).
- L. S. BUNTING and F. KREITH, Flow visualization method for three-dimensional incompressible fluid flow, *Rev. Sci. Instrum.* **34**, No. 4, 447 (1963).
- J. DAVIS and G. LANZA, Conventional and plasma thermocouples. Scientific Report No. 1. Northeastern U., Boston, Mass., AFCRL-62-630 (1962).
- A. K. GHOSH, An automatic rapid spinning spectrophotometer in steady thermoluminescence spectra, *Appl. Optics* **2**, No. 3, 243 (1963).
- M. E. GOELL and T. A. LAPENAS, Operation and maintenance instructions off axis double pass Schlieren system (final technical report). Wacine, Inc., Optron Lab., Dayton, Ohio, Wright-Patterson AFB, Ohio, Aeronautical Research Labs., ARL-62-463 (1962).
- P. GRASSMAN, Elektrische Verfahren zur Messung von Wärme- und Stoffaustausch, *Chem.-Ing.-Tech.* **35**, No. 3, 158 (1963).
- J. GREY, Sensitivity analysis for the calorimetric probe. Guggenheim Labs. for the Aerospace Propulsion Sciences, Princeton U., New Jersey, Aeronautical Eng. Lab. Rept. 633 (1962).
- F. A. GUEVARA, R. M. POTTER and W. E. WAGEMAN, An absolute mass rate flowmeter. Los Alamos Scientific Lab., New Mexico, LA-2812 (1963).
- K. HOFFMAN, Feuchtemessung durch Infrarotreflexion, *Chem.-Ing.-Tech.* **35**, No. 1, 55 (1963).
- C. A. HOLLINGSWORTH and W. T. GRANQUIST, Theory of measurement of flow birefringence by use of the Senarmont compensator, *J. Opt. Soc. Amer.* **52**, No. 5, 562 (1962).
- F. HORN and M. WILSKI, Messung der Temperaturleitfähigkeit mit Hilfe von zylindrischen Wärmewellen, *Chem.-Ing.-Tech.* **35**, No. 1, 19 (1963).
- J. D. JACKSON, A note on the relationship between static hole error and velocity distribution on the boundary layer, *Appl. Sci. Res. A* **11**, No. 2, 218 (1962).
- A. KANTROWITZ, Shock tubes for high temperature gas

- kinetics. AVCO-Everett Research Lab., Research Report 141 (1962).
- I. N. KANEVSKII, A simple method for the visualization of ultrasonic fields and streams, *Soviet Phys. Acoustics* **7**, No. 4, 352 (1962).
 - H. J. KARAM, Viscometers and their use, *I/EC* **55**, No. 2, 38 (1963).
 - L. KEAN, A contribution to the theory of Schlieren sensitivity and quantitative evaluation. Directorate of Engineering Test, Aeronautical Systems Div., Wright-Patterson AFB, Ohio, ASD-TDR 62-924 (1962).
 - A. F. KLEIN, Some results using optical interferometry for plasma diagnostics. Labs. Div., Aerospace Corp., SSD-TDR-62-155. Report No. TDR-169 (3210-06) TN-1 (1962).
 - R. A. LANGWORTHY, The design and calibration of a total temperature probe for use in a Mach 5 turbulent boundary layer with heat transfer. Defense Research Lab., Univ. of Texas, Austin, DRL-483 (1962).
 - J. LOHRENZ and F. KURATA, Design and evaluation of a new body for falling cylinder viscometers, *J. Amer. Inst. Chem. Engrs* **8**, No. 2, 190 (1962).
 - R. S. LOWDER and F. C. HOH, *Rev. Sci. Instrum.* **32**, No. 11, 1236 (1962).
 - W. P. MANOS and D. E. TAYLOR, Analysis of interpretation of data on thin-skinned heat-transfer models, *J. Heat Transfer C* **84**, No. 2, 191 (1962).
 - P. D. MAYCOCK (M.S. Thesis) and G. C. DANIELSON, Thermal diffusivity measurements on a finite disk. Ames Lab., Iowa State Univ. of Science and Tech. Contract W-7505 Eng-82 (1962).
 - D. J. MCNEILL, Measure of thermal conductivity using the Peltier effect, *Brit. J. Appl. Phys.* **14**, No. 2, 113 (1963).
 - A. R. MENDELSON, The effect of heat loss on the flash method of determining thermal diffusivity, *Appl. Phys. Letters* **2**, No. 1, 19 (1963).
 - C. E. MILLER, R. B. JACOBS and J. MACINKO, Instrument for the continuous measurement of the density of flowing fluids, *Rev. Sci. Instrum.* **34**, No. 1, 24 (1963).
 - HAROLD MIRELS, Test time in low pressure shock tubes. Aerospace Corp. Aerodynamics and Propulsion Research Lab., El Segunda, Calif. TDR-169 (3230-12) TN-5; SSD-TDR-62-204 (1962).
 - R. D. MORRISON and R. R. LACHENMAYER, Thin film thermocouples for substrate temperature measurement, *Rev. Sci. Instrum.* **34**, No. 1, 106 (1963).
 - K. M. NICOLL, Transient "thin-wall" technique in measuring heat transfer rates in hypersonic separated flows, *AIAA J.* **1**, No. 4, 940 (1963).
 - H. J. OSKAM, R. W. CARLSON and T. OKUDA, Studies of the dynamic properties of Langmuir probes. Univ. of Minn., Minneapolis, ARL-62-417 (1962).
 - K. A. RATHJEN, Heat transfer probe measurements as a technique to demonstrate MHD containment. Magnetogasdynamics Lab., Mass. Inst. of Tech., Cambridge, Magnetogasdynamics Lab. Rept. 62-3; AFCRL-62-857 (1962).
 - T. A. DE ROCHEFORT, J. DECOMBE and R. GOETHALS, On a new optical optimizing method of three-dimensional flow (in French), *C.R. Acad. Sci. Paris* **254**, No. 5, 815 (1962).
 - R. ROSCOE, The end correction for rotation viscometers, *Brit. J. Appl. Phys.* **13**, No. 7, 362 (1962).
 - D. E. ROTHE and J. H. DELEEUV, The free-molecule impact-pressure probe of arbitrary length, *AIAA J.* **1**, No. 1, 220 (1963).
 - R. L. RUDKIN, W. J. PARKER and R. J. JENKINS, Thermal diffusivity measurements on metals and ceramics at high temperatures. Naval Radiological Defense Lab., San Francisco, Calif., ASD-TDR 62-24 (1962).
 - R. SANDRI, R. J. BRIBESBOIS and J. K. S. WONG, On the measurement of the average temperature of a fluid stream in a tube by means of a special type of resistance thermometer. Natl. Res. Council, Canada, Mech Engng. Rep. MI-826 (1962).
 - EARL S. SCHIEGEL, Apparatus for determining temperature profiles in microstructures, *Rev. Sci. Instrum.* **34**, 4, 360 (1963).
 - Shock Tubes:** Their application in the study of physical and chemical reactions. A bibliography, 1950-1962. AVCO-Everett Research Lab., Everett, Mass. (1962).
 - F. D. SINCLAIR, Inexpensive all-metal vacuum valve, *Rev. Sci. Instrum.* **34**, No. 4, 437 (1963).
 - G. T. SKINNER, A new method of calibrating thin film gauge backing materials. Cornell Aeronautical Lab., Inc., Buffalo, New York, CAL-105 (1962).
 - A. G. SMITH and T. A. CARBERRY, An experimental method of determining the mean heat transfer coefficient for the nozzle of a solid propellant rocket engine, by means of constant flow calorimetry. Coll Aero., Cranfield (England), Note 122 (1962).
 - Solutions for some problems of wall temperature determination (in French; English summary). Official Nationale d'Etudes et de Recherches Aeronautiques, Chatillon-sous-Bogoux France (1962).
 - T. SPRINKS, Influence of calorimeter heat transfer gages on aerodynamic heating, *AIAA J.* **1**, No. 2, 497 (1963).
 - J. A. STAMPER, Differential sensing controlled thermocouple, *Rev. Sci. Instrum.* **34**, No. 4, 444 (1963).
 - L. STROM, An absolute anemometer. Trans. Chalmers Univ. Technol., Gotenburg, Sweden, No. 259 (1962).
 - O. E. TEWFIK, Measurements of thermal conductivity of porous anisotropic materials. *AIAA J.* **1**, No. 4, 919 (1963).
 - P. THUREAU and M. DE CASTELJAU, Determination of the wall temperature of a shock wave by the use of thin thermo-resisting metal foils (in French), *C.R. Acad. Sci., Paris* **254**, No. 6, 996 (1962).
 - A. VAN ITTERBEEK, H. ZINK and O. VAN PAEMEL, Viscosity measurements in liquified gases, *Cryogenics* **2**, No. 4, 210 (1962).
 - The measurement of temperature in mercury arc using the method of Bartels (in Russian). *Engng Phys. J.* **V**, No. 8, 87 (1962).

NATURAL CONVECTION

- G. A. DZHIGIT, Operation of a natural circulation loop at different loadings and pressures (in Russian), *Teploenergetika* No. 9, 42 (1962).

- B. GEBHART, On inflection points in natural-convection profiles, *J. Aero. Space Sci.* **29**, No. 4, 485 (1962).
- B. GEBHART, Transient natural convection from vertical elements—Appreciable thermal capacity, *J. Heat Transfer C* **85**, No. 1, 10 (1963).
- B. GEBHART and D. E. ADAMS, Measurements of transient natural convection on flat vertical surfaces, *J. Heat Transfer C* **85**, No. 1, 25 (1963).
- S. HASEGAWA, K. YAMAGATA and K. NISHIKAWA, Heat transfer in an open thermosyphon. (1) Observations of flow pattern, *Trans. Japan Soc. Mech. Engrs* **28**, No. 192, 930 (1962).
- S. HASEGAWA and M. MORISUE, Heat transfer in an open thermosyphon. (2) Experimental results in circular passage, *Trans. Japan Soc. Mech. Engrs* **28**, No. 192, 940 (1962).
- S. HASEGAWA, Heat transfer in an open thermosyphon. (3) Mechanism of heat transfer, *Trans. Japan Soc. Mech. Engrs* **28**, No. 192, 947 (1962).
- D. A. KIRK, The effect of gravity on free convection heat transfer. The feasibility of using an electromagnetic body force. In Library of Congress. Science and Technology Div., Washington, D.C. Charles J. Cleary Awards for Papers on Material Sciences (1962).
- P. N. KUBANSKII, Acceleration of convective heat exchange by acoustic streaming, *Soviet Phys. Acoustics* **8**, No. 1, 62 (1962).
- D. K. LILLY, On the numerical simulation of buoyant convection, *Tellus* **14**, No. 2, 148 (1962).
- I. MABUCHI, The effect of blowing and suction on heat transfer by free convection from a vertical flat plate, *Trans. Japan Soc. Mech. Engrs* **28**, No. 192, 921 (1962).
- R. S. NANDA and V. P. SHARMA, Free-convection laminar boundary layers in oscillatory flow, *AIAA J.* **1**, No. 4, 937 (1963).
- M. SHIMIZU and N. MORITA, Rate of air flow caused by natural convection in a vertical cylinder, *Chem. Engng* **26**, No. 6, 687 (1962).
- P. L. SILVESTON, Convectional heat transport between rigid horizontal boundaries, *Phys. Fluids* **6**, No. 2, 313 (1963).
- P. VERNIER, Convection naturelle dans un canal vertical de section rectangulaire chauffé uniformément. Section des transferts thermiques, Centre d'Études Nucléaires de Grenoble C.E.A. No. 2197 (1962).
- R. VISKANTA, The axisymmetric free-convection heat transfer along a vertical thin cylinder with constant surface temperature. Argonne Natl. Lab., Illinois, ANL-6660 (1963).
- R. A. WOODING, Convection in a saturated porous medium at large Rayleigh number on Péclet number, *J. Fluid Mech.* **15**, Part 4, 527 (1963).
- R. A. WOODING, Free convection of fluid in a vertical tube filled with porous material, *J. Fluid Mech.* **13**, Part 1, 129 (1962).
- S. L. ZEIBERG and W. K. MUELLER, Transient laminar, combined free and forced convection in a duct, *J. Heat Transfer C* **84**, No. 2, 141 (1962).
- survey of tube and fin type radiators. Los Alamos Scientific Lab., New Mexico, LAMS-2793 (1963).
- L. BAKER Jr., E. M. MOURADIAN and J. D. BINGLE, Determinations of the total emissivity of polished and oxidized uranium surfaces, *Nucl. Sci. Engng* **15**, No. 2, 218 (1963).
- J. C. BOEHRINGER and R. J. SPINDLER, Radiant heating of semitransparent materials, *AIAA J.* **1**, No. 1, 84 (1963).
- J. C. CHEN and S. W. CHURCHILL, Radiant heat transfer in packed beds, *J. Amer. Inst. Chem. Engrs* **9**, No. 1, 35 (1963).
- D. R. CHURCHILL, S. A. HAGSTROM, J. D. WEISNER and B. H. ARMSTRONG, The spectral absorption coefficient of heated air. Lockheed Missiles and Space Co., Sunnyvale, Calif., DASA-1348 (1962).
- R. V. DUNKLE, Configuration factors for radiant heat-transfer calculations involving people, *J. Heat Transfer C* **85**, No. 1, 71 (1963).
- G. E. EWING, Infrared spectra of liquid and solid carbon monoxide, *J. Chem. Phys.* **37**, No. 10, 2250 (1962).
- C. C. FERRISO, Blackbody radiation tables. General Dynamics/Astronautics, Space Science Labs., San Diego, Calif., AE62-0862 (1962).
- J. P. GUIRAND, Irreversible behavior in a radiating gas. Stanford Univ. Dept. Aero Astronautics, No. 119. (1962).
- C. F. HANSEN, Radiation from non-equilibrium, molecular gases. Technical Report. General Motors Corp., Defense Research Lab., Santa Barbara, Calif., TR62-209A (1962).
- C. F. HANSEN and W. R. LEAK, Equilibrium stagnation region radiation from pure air for the 0.2-1.0 μ band. General Motors Corp., Defense Research Lab., Santa Barbara, Calif., TR62-209F (1962).
- R. S. HICKMAN, The measurement of radiation configuration factors with parabolic mirrors. Proc. Heat Transfer, Fluid Mechanics Inst., Seattle, Wash., June 13-15; Stanford Univ. Press, Stanford, Calif., (1962).
- H. C. HOTTEL, A. F. SAROFIM and C. TAKEUCHI, Radiant heat transfer in gas-filled cylindrical enclosure with temperature gradient, *Chem. Engng* **26**, No. 9, 962 (1962).
- D. A. HOWL and A. F. DAVIS, An apparatus for the determination of total hemispherical emissivities of metals, *Brit. J. Appl. Phys.* **13**, No. 5, 219 (1962).
- B. V. KARLEKAR and B. T. CHAO, Mass minimization of radiating trapezoidal fins with negligible base cylinder interaction, *Int. J. Heat Mass Transfer*, **6**, No. 1, 33 (1963).
- A. A. KON'KOV and V. P. IONOV, Study of radiation spectrum of gases heated by strong shock waves, *Int. J. Heat Mass Transfer*, **6**, No. 3, 211 (1963).
- M. KRONSTEIN, R. J. KRAUSHAAR and R. E. DEACK, Sulfur as a standard of reflectance in the infrared, *J. Opt. Soc. Amer.* **53**, No. 4, 458 (1963).
- T. S. LASZLO, Measurement and application of high heat fluxes in a solar furnace, *Solar Energy* **6**, No. 2, 69 (1962).
- W. R. LEAK and G. A. SHAW, Preliminary measurements of optical radiation from boundary layer flow about hemisphere-cylinder bodies at 5.2 km/s. General

RADIATION

R. C. ANDERSON and B. J. HENDERSON, A parametric

- Motors Corp., Defense Research Labs., Santa Barbara, Calif., TR62-209E (1962).
- T. J. LOVE Jr., An investigation of radiant heat transfer in absorbing, emitting and scattering media. Aeronautical Research Labs., Office of Aerospace Research, USAF, ARL-63-3 (1963).
- D. B. MACKAY, Space radiator analysis and design. North American Aviation, Inc., Space and Information Systems Div., Downey, Calif., ASD-TR-61-30 Pt. II. (1962).
- R. P. MADDEN, L. R. CANFIELD and G. HASS, On the vacuum-ultraviolet reflectance of evaporated aluminum before and during oxidation, *J. Opt. Soc. Amer.* **53**, No. 5, 620 (1963).
- A. G. MAKI and E. K. PLYLER, Method of measuring emissivities of metals in the infrared, *J. Res. Nat. Bur. Stands.* **66 C** (*Engng and Instrumentation*) No. 3, 283 (1962).
- N. T. MELAMED, Optical properties of powders. Part I. Optical absorption coefficients and the absolute values of the diffuse reflectance; Part II. Properties of luminescent powers, *J. Appl. Phys.* **34**, No. 3, 560 (1963).
- C. F. NORMAN, Solar simulation instrumentation. Arnold Engineering Development Center. Presented at the Summer General Meeting of the AIEE, Denver, AEDC-TDR-62-191 (1962).
- D. R. OLANDER, Rotating disk flow and mass transfer, *J. Heat Transfer C* **84**, No. 2, 185 (1962).
- R. R. PATTY and D. WILLIAMS, Pressure-modulation study of the absorption of non-black thermal radiation, *J. Opt. Soc. Amer.* **52**, No. 5, 546 (1962).
- M. PERLMUTTER and R. SIEGEL, Effect of specularly reflecting gray surface on thermal radiation through a tube and from its heated wall, *J. Heat Transfer C* **85**, No. 1, 55 (1963).
- J. S. PRESTON, Simple derivation of relative spectral power distribution from colour temperature, for tungsten radiation, *Brit. J. Appl. Phys.* **14**, No. 1, 43 (1963).
- R. F. PROBSTEIN, Radiation slip. Dept. of Mech. Engng., Mass. Inst. of Tech., Fluid Mechanics Lab., Publication No. 63-2 (1963).
- H. D. RABYNOVICH, The method for determining optical characteristics of selectively absorbing semitransparent materials (in Russian), *Engng Phys. J.* **V**, No. 9, 16 (1962).
- G. RASIGNI and P. ROUARD, On the variation with wavelength of the optical constants of thin metallic films, *J. Opt. Soc. Amer.* **53**, No. 5, 604 (1963).
- H. SATONE, Y. NAYATANI and M. MORITA, Application of luminous analogue computer to computation of thermal radiation system, *Oyo Buturi* **31**, No. 7, 517 (1962).
- F. G. SHERELL, Investigation of the contamination of reflector surfaces of infrared radiators to be used in space simulators. Aro, Inc., Arnold Air Force Station, Tenn., AEDC-TDR-62-233 (1962).
- R. SIEGEL, Combined radiation and forced convection for flow of a transparent gas in a tube with sinusoidal axial wall heat flux distribution. *NASA TN D-1441* (1962).
- D. L. SIMMS, R. W. PICKARD and P. L. HINKLEY, Modified Moll thermopiles for measuring thermal radiation of high intensity, *J. Sci. Instrum.* **39**, No. 5, 204 (1962).
- E. M. SPARROW and W. J. MINKOWYCZ, Heat-transfer characteristics of several radiator finned-tube configurations. *NASA TN D-1435* (1962).
- P. V. SUSI and H. C. DONOIAN, Research on absorbing infrared rays with plastics and attenuating infrared rays with coatings. Technical Documentary Report. American Cyanamid Co., Bound Brook, N.J., Wright-Patterson AFB, Ohio, Life Support Systems Lab. AMRL-TDR-62-92 (1962).
- M. SUZUKI and K. KATORI, A method for measurement of the spectral characteristics of an integrating sphere, *J. Illum. Engng Inst. Japan* **46**, No. 8, 383 (1962).
- H. TABOR, Research on optics of selective surfaces. Natl. Physical Lab. of Israel, Jerusalem, AFCRL-62-1045 (1962).
- O. E. TEWFIK and J. W. YANG, Emissivity measurement of porous materials, *J. Heat Transfer C* **85**, No. 1, 79 (1963).
- Y. N. VELUTSKII and A. T. ONUFRIEV, Radiation cooling of a gas flowing in a flat channel, *Int. Chem. Engng* **3**, No. 2, 230 (1963).
- R. G. WALKER, Tables of the blackbody radiation function for wavenumber calculations. Research Report. Air Force Cambridge Research Labs., Geophysics Research Directorate, Bedford, Mass. AFCRL-62-877 (1962).
- J. A. WIEBELT and S. Y. RUO, Radiant-interchange configuration factors for finite right circular cylinder to rectangular planes, *Int. J. Heat Mass Transfer* **6**, No. 2, 143 (1963).
- W. D. WOOD, H. W. DEEM and C. F. LUCKS, Thermal radiative properties of selected materials, Volumes I and II. Defense Metals Information Center, Battelle Memorial Inst., Columbus, Ohio, DMIC-177 (1962).
- K. K. YOSHIKAWA and D. R. CHAPMAN, Radiative heat transfer and absorption behind a hypersonic normal shock wave. *NASA TN D-1424* (1962).

ROTATING SURFACES

- R. G. HERING and R. J. GROSH, Laminar combined convection from a rotating cone, *J. Heat Transfer C* **85**, No. 1, 29 (1963).
- T. H. HUGHES and W. H. REID, On the stability of viscous flow between rotating cylinders. III. The effect of a transverse pressure gradient. Brown Univ. Div. Appl. Math. TR 50 (1962).
- L. M. MACK, The laminar boundary layer on a disk of finite radius in a rotating flow. Part II. A simplified momentum-integral method. Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena, Tech. Rept. No. 32-366 (1963).
- A. J. REYNOLDS, A note on vortex-tube flows, *J. Fluid Mech.* **14**, No. 1, 18 (1962).
- M. L. ROSENZWEIG, D. H. ROSS and W. J. LEWELLEN, On secondary flows in jet-driven vortex tubes, *J. Aero. Space Sci.* **29**, No. 9, 1142 (1962).

THERMODYNAMIC AND TRANSPORT PROPERTIES

- T. V. BAZHENOVA, An estimate of the dissociation relaxation time of carbon dioxide gas in experiments in shock tubes, *Soviet Phys. Dokl.* 7, No. 9, 783 (1963).
- A. L. BOBB, Transport properties of liquids and gases at high temperatures. Washington Univ. Coll. of Engng., Seattle, AROD-2380-25 (1962).
- F. BOSNIKOVIC, W. SPRINGE and K. E. KNOCHE, Ergänzung zu der Arbeit: Mollier-Enthalpie-Entropie-Diagramme für Hochtemperaturplasmen, *Z. Flugw.* 10, No. 11, 413 (1962).
- B. A. BURKE, C. P. LUCAS and J. F. TOSCANO, A magnetic tape library of thermodynamic data. Naval Ordnance Lab., White Oak, Md., NOLTR-62-84 (1962).
- C. C. COHN and G. H. GOLDEN, A table of thermodynamic properties of hydrogen for temperatures from 100 to 3000°K and pressures from 1 to 50 atmospheres. Argonne Natl. Lab., Ill., ANL-6673 (1963).
- S. H. FISHTINE, Reliable latent heats of vaporization, *I/EC* 55, No. 4, 20 (1963).
- J. HILSENRATH and G. G. ZIEGLER, Tables of Einstein functions—Vibrational contributions to the thermodynamic functions. Natl. Bur. of Standards Monograph 49 (1962).
- MICHAEL HOCH and JOSEPH VARDI, Thermal conductivity of anisotropic solids at high temperatures. Part I. The thermal conductivity of molded and pyrolytic graphites. Cincinnati Univ., Ohio, ASD-TDR-62-608 (1962).
- N. H. JOHANNESSEN, H. K. ZIENKIEWICZ, P. A. BLYTHE and J. H. GERRARD, Experimental and theoretical analysis of vibrational relaxation regions in carbon dioxide, *J. Fluid Mech.* 13, No. 2, 213 (1962).
- Y. KAGAN and A. M. AFANAS'EV, On the kinetic theory of gases with rotational degrees of freedom, *Soviet Phys. JETP* 14, No. 5, 1096 (1962).
- J. KESTIN and P. D. RICHARDSON, The viscosity of superheated steam up to 275°C. A refined determination. Univ., Providence, R.I., Tech. Rept. BRN-1-P (1962).
- J. KESTIN and J. H. WHITELAW, A relative determination of the viscosity of several gases by the oscillating disk method. Brown Univ., Providence, R.I., Tech. Rept. BRN-2-P (1962).
- Y. P. LUN'KIN, Measurement of entropy in the relaxation of a gas mixture behind a shock wave, *Soviet Phys. Tech. Phys.* 6, No. 9, 810 (1962).
- J. J. MARTIN, The constant volume heat capacity of gases. Progress in Int. Res. on Thermodynamic and Transport Properties (Second Symposium on Thermo-physical Properties sponsored by ASME, Jan. 24–26) Academic Press, New York (1962).
- A. MICHELS, J. V. SENGERS and P. S. VAN DER GULIK, The thermal conductivity of carbon dioxide in the critical region. I. The thermal conductivity apparatus. *Physica* 28, No. 12, 1201 (1962).
- A. MICHELS and J. V. SENGERS, The thermal conductivity of carbon dioxide in the critical region. II. Measurement and conclusions, *Physica* 28, No. 12, 1216 (1962).
- A. MICHELS and J. V. SENGERS, The thermal conductivity of carbon dioxide in the critical region. III. Verifica-
tion of the absence of convection, *Physica* 28, No. 12, 1238 (1962).
- F. K. MOORE, Viscosity of dissociated air, *J. Amer. Rocket Soc.* 32, No. 9, 1415 (1962).
- R. W. POWELL, R. P. TYE and MARGARET J. WOODMAN, The thermal conductivities and electrical resistivities of the platinum metals, *Platinum Metals Review* 6, No. 4, 138 (1962).
- R. W. POWELL, MARGARET J. WOODMAN and R. P. TYE, The thermal conductivity and electrical resistivity of indium, *Phil. Mag.* 7, No. 79, 1183 (1962).
- R. W. POWELL, R. P. TYE and MARGARET J. WOODMAN, The thermal conductivity and electrical resistivity of rhenium, *Journal of the Less-Common Metals*, Elsevier Publishing Company, Amsterdam (1963).
- E. H. RATCLIFFE, The thermal conductivity of ice: New data on the temperature coefficient, *Phil. Mag.* 7, No. 79, 1197 (1962).
- T. SATŌ and T. MINAMIYAMA, Viscosity of steam at high temperature and pressure. J.C.P.S. Report No. 2, The Japan Society of Mechanical Engineers, Tokyo (1962).
- V. E. SCHROCK, The status of transport properties of air. Lawrence Radiation Lab., California Univ., Livermore, UCRL-7052 (1962).
- W. E. SHARP, The thermodynamic functions for carbon dioxide in the range 40 to 1000°C and 1 to 1400 bars. Lawrence Radiation Lab., California Univ., Livermore, UCRL-7168 (1962).
- C. E. SMITH Jr., Thermodynamic properties of nitrogen. Technical Report: Physics. Lockheed Missiles and Space Co., Sunnyvale, Calif. (1962).
- L. I. STIEL and G. THODOS, The normal boiling points and critical constants of saturated aliphatic hydrocarbons, *J. Amer. Inst. Chem. Engrs* 8, No. 4, 527 (1962).
- T. R. STROBRIDGE, The thermodynamic properties of nitrogen from 64 to 300°K between 0.1 and 200 Atm. Cryogenic Engineering Lab., Natl. Bureau of Standards, Boulder, Colo., NBS-TN-129 (1962).
- S. SUGAWARA, T. SATŌ and T. MINAMIYAMA, Experimental research on the relation between pressure, temperature and specific volume of steam in high temperature and pressure. J.C.P.S. Report Bo. 1, The Japan Society of Mechanical Engineers, Tokyo (1962).
- E. THORNTON and W. A. D. BAKER, Viscosity and thermal conductivity of binary gas mixtures: Argon-neon, argon-helium, and neon-helium, *Proc. Phys. Soc. Lond.* 80, 5, No. 517, 1171 (1962).
- KURT L. WRAY, Shock tube study of the recombination of O-atoms by Ar catalysts at high temperatures. AVCO-Everett Research Lab., Research Report 142 (1962).

TRANSFER MECHANISMS

- S. CORRSIN, Turbulent dissipation fluctuations, *Phys. Fluids* 5, No. 10, 1301 (1962).
- C. J. CREMERS and E. R. G. ECKERT, Hot-wire measurements of turbulence correlations in a triangular duct, *J. Appl. Mech E* 29, No. 4, 609 (1962).
- R. G. DESSLER, Turbulent heat transfer and temperature fluctuations in a field with uniform velocity and temperature gradients, *Int. J. Heat Mass Transfer*, 6, No. 4, 257 (1963).

- D. E. ELRICK, Source functions for diffusion in uniform shear flow, *Aust. J. Phys.* **15**, No. 3, 283 (1962).
- J. FILLO, Approximate solution of the energy equation, *AIAA J.* **1**, No. 2, 481 (1963).
- M. M. GIBSON, Spectra of turbulence in a round jet, *J. Fluid Mech.* **15**, Part 2, 161 (1963).
- G. S. GOLITSYN, Dissipation fluctuations in locally isotropic turbulent flow, *Soviet Fiz. Dokl.* **7**, No. 5, 380 (1962).
- H. W. HAHNEMAN, Erklärung der Ranque-Erscheinung, *VDI Zeitschrift* **105**, No. 1, 13 (1963).
- N. M. HOWE Jr and C. W. SHIPMAN, Turbulent mass transfer in a field of developing inhomogeneous turbulence, *J. Amer. Inst. Chem. Engrs* **9**, No. 1, 85 (1963).
- H. H. KING, The diffusion of injected gas in separated flow, *J. Aero. Space Sci.* **29**, No. 4, 473 (1962).
- M. A. KOLPIN, Flow in the mixing region of a jet. Aero-elastic and Structures Research Lab., Dept. of Aeronautics and Astronautics, Mass. Inst. of Tech., ASRL TR 92-3 (1962).
- T. MATSUI, Transition in a laminar boundary layer due to an isolated roughness element. Res. Rep. Fac. Engng. Gifu Univ., No. 12, p. 66 (1962).
- H. MORIMOTO, Stability in the wave equation coupled with heat flow, *Numerische Math.* **4**, No. 2, 136 (1962).
- L. P. REISS and T. J. HANRATTY, An experimental study of the unsteady nature of the viscous sublayer, *J. Amer. Inst. Chem. Engrs* **9**, No. 2, 154 (1963).
- E. RESHOTKO, Transition reversal and Tollmien-Schlichting instability, *Phys. Fluids* **6**, No. 3, 335 (1963).
- S. TANEDA, The stability of two-dimensional laminar wake at low Reynolds numbers, *J. Phys. Soc. Japan* **18**, No. 2, 288 (1963).
- C. L. TIEN and D. T. WASAN, Law of the wall in turbulent channel flow, *Phys. Fluids* **6**, No. 1, 144 (1963).