

Chronological Index

T91-001 Effect of Electron Temperature and Impact Ionization on Martian Return AOTV Flowfields. Leland A. Carlson and Thomas A. Gally, *Texas A&M University* (5, 1, p. 9) Article based on AIAA Paper 89-1729

T91-002 Progressive Wave Analysis Describing Wave Motions in Radiative Magnetogasdynamics. Neelam Gupta, *Banaras Hindu University, India*; Vishnu D. Sharma, *Indian Institute of Technology*; Bishun D. Pandey and Rishi R. Sharma, *Ohio State University at Marion* (5, 1, p. 21) Article based on AIAA Paper 89-1917

T91-003 Gas-Assisted Laser-Metal Drilling: Experimental Results. R. S. Patel and M. Q. Brewster, *University of Illinois at Urbana-Champaign* (5, 1, p. 26) Article

T91-004 Gas-Assisted Laser-Metal Drilling: Theoretical Model. R. S. Patel and M. Q. Brewster, *University of Illinois at Urbana-Champaign* (5, 1, p. 32) Article

T91-005 Experimental and Numerical Study of Solidification and Melting of Pure Materials. Satish P. Ketkar, Masood Parang and Rao V. Arimilli, *University of Tennessee* (5, 1, p. 40) Article

T91-006 Freezing of a Binary Alloy Saturating a Packed Bed of Spheres. W-Z. Cao and D. Poulikakos, *University of Illinois at Chicago* (5, 1, p. 46) Article

T91-007 Modeling of Surface Roughness Effects on Glaze Ice Accretion. R. John Hansman Jr. and Keiko Yamaguchi, *Massachusetts Institute of Technology*; Brian Berkowitz, *Sverdrup Technology, Inc.*; and Mark Potapczuk, *NASA Lewis Research Center* (5, 1, p. 54) Article based on AIAA Paper 89-0734

T91-008 Effect of Gravity and Noncondensable Gas Levels on Condensation in Variable Conductance Heat Pipe. Yasunori Kobayashi, Akira Okumura and Toshihisa Matsue, *Institute of Engineering Mechanics, University of Tsukuba, Japan* (5, 1, p. 61) Article based on AIAA Paper 89-1747

T91-009 Vapor Condensation at the Free Surface of an Axisymmetric Liquid Mixed by a Laminar Jet. Chin-Shun Lin, *Analex Corporation, NASA Lewis Research Center* (5, 1, p. 69) Article

T91-010 Response of Laser Heat Exchangers to Unsteady Spatially Varying Input. A. K. Cousins, *Spectra Technology, Inc.* (5, 1, p. 76) Article

T91-011 Calculation of Fully Developed Flow and Heat Transfer in Streamwise-Periodic Dimpled Channels. Dipankar Choudhury, *Creare Inc.*; and Kailash C. Karki, *University of Minnesota* (5, 1, p. 81) Article

T91-012 Swirling Flow Effect on Film Cooling Performance Downstream of a Sudden Expansion. C. Gau, K. A. Yih and S. S. Chang, *National Cheng Kung University, Taiwan, ROC* (5, 1, p. 89) Article

T91-013 Linear Oscillatory Cellular Thermocapillary Convection in Liquid Layers. Kai-Hua Guo, *Chinese Academy of Sciences, PRC*; and Wen-Jei Yang, *University of Michigan* (5, 1, p. 96) Article

T91-014 Numerical Solution of Convection-Diffusion Problems in Irregular Domains Mapped onto a Circle. Makoto Asaba, Yutaka Asako and Hiroshi Nakamura, *Tokyo Metropolitan University, Japan*; and Mohammad Faghri, *University of Rhode Island* (5, 1, p. 103) Article

T91-015 Hyperbolic Heat Conduction with Convection Boundary Conditions and Pulse Heating Effects. David E. Glass, *Analytical Services & Materials*; Kumar K. Tamma and Sudhir B. Raikar, *University of Minnesota* (5, 1, p. 110) Article based on AIAA Paper 89-1683

T91-016 Mixed Convection About a Cylinder Embedded to a Wedge in Porous Media. D. B. Ingham, *University of Leeds, England, UK*; and I. Pop, *University of Cluj, Romania* (5, 1, p. 117) Technical Note

T91-017 Green's Function Solution to Radiative Heat Transfer Between Longitudinal Gray Fins. J. I. Frankel and J. J. Silvestri, *Florida Institute of Technology* (5, 1, p. 120) Technical Note

T91-018 Thermal Conductivity Enhancement of Solid-Solid Phase-Change Materials for Thermal Storage. C. H. Son and J. H. Morehouse, *University of South Carolina* (5, 1, p. 122) Technical Note based on AIAA Paper 89-0240

T91-019 Large Eddy Simulation of the Flow in a Transpired Channel. Ugo Piomelli, *University of Maryland*; Parviz Moin and Joel Ferziger, *Stanford University* (5, 1, p. 124) Technical Note

T91-020 Investigation of the Transient Characteristics of a Micro Heat Pipe. D. Wu and G. P. Peterson, *Texas A&M University* (5, 2, p. 129) Article based on AIAA Paper 90-0060

T91-021 Metal Hydride Heat Pumps for Upgrading Spacecraft Waste Heat. Hae-Jin Choi and Anthony F. Mills, *University of California, Los Angeles* (5, 2, p. 135) Article

T91-022 Optical Constants of Al_2O_3 Smoke in Propellant Flames. David L. Parry and M. Quinn Brewster, *University of Illinois at Urbana-Champaign* (5, 2, p. 142) Article

T91-023 Gas Composition Measurements in Arc Heated Flowfields via Mass Spectrometry. Ronald J. Willey and David J. Blake, *Northeastern University* (5, 2, p. 150) Article

T91-024 Titan Atmospheric Composition by Hypervelocity Shock-Layer Analysis. H. F. Nelson, *University of Missouri—Rolla*; Chul Park, *NASA Ames Research Center*; and Ellis E. Whiting, *Eloret Institute* (5, 2, p. 157) Article based on AIAA Paper 89-1770

T91-025 Effect of Nose Bluntness on Flowfield Over Slender Bodies in Hypersonic Flows. D. J. Singh, *Old Dominion University*; A. Kumar, *NASA Langley Research Center*; and S. N. Tiwari, *Old Dominion University* (5, 2, p. 166) Article based on AIAA Paper 89-0270

T91-026 Numerical Model for Turbulent Jets Impinging on a Surface with Throughflow. S. Polat, A. S. Mujumdar, A. R. P. van Heiningen and W. J. M. Douglas, *McGill University, Canada* (5, 2, p. 172) Article

T91-027 Jet-Wake Thermal Characteristics of Heated Turbulent Jets in Crossflow. S. A. Sherif, *University of Miami*; and R. H. Fletcher, *Iowa State University* (5, 2, p. 181) Article based on AIAA Paper 88-3725 CP888

T91-028 Heat and Fluid Flow Processes During the Coating of a Moving Surface. A. Rezaian and D. Poulikakos, *University of Illinois at Chicago* (5, 2, p. 192) Article

T91-029 Convective Heat Transfer with Buoyancy Effects from Thermal Sources on a Flat Plate. S. S. Tewari and Y. Jaluria, *Rutgers—The State University of New Jersey* (5, 2, p. 199) Article

T91-030 Effects of Geometry and Orientation on Laminar Natural Convection from Isothermal Bodies. S. Lee, M. M. Yovanovich and K. Jafarpur, *University of Waterloo, Canada* (5, 2, p. 208) Article based on AIAA Paper 89-1662

T91-031 Convection Heat Transfer Due to Protruded Heat Sources in an Enclosure. L. Chen, *Chongqing University, PRC*; M. Keyhani and D. R. Pitts, *University of Tennessee-Knoxville* (5, 2, p. 217) Article

T91-032 Radiation Convection in a Thermally Developing Duct Flow of Noncircular Cross Section. G. Yang, M. A. Ebadian and A. Campo, *Florida International University* (5, 2, p. 224) Article

T91-033 Hyperbolic Heat-Conduction Problems: Numerical Simulations via Explicit Lax-Wendroff-Based Finite Element Formulations. Kumar K. Tamma and Raju R. Namburu, *Institute of Technology, University of Minnesota* (5, 2, p. 232) Article based on AIAA Paper 89-1686

T91-034 Enthalpy Method for Ablation-Type Moving Boundary Problems. Lawrence W. Hunter and James R. Kuttler, *The Johns Hopkins University* (5, 2, p. 240) Technical Note

T91-035 Modification of COMMIX-1B for Simulation of Thermal- and Flowfields in Ultrahigh Temperature Vapor Core Reactor. James G. Zhang and Samim Anghaie, *University of Florida* (5, 2, p. 242) Technical Note based on AIAA Paper 89-1990 CP895

T91-036 Thermal Conductance of Two Space Station Cold Plate Attachment Techniques. G. P. Peterson, G. Starks and L. S. Fletcher, *Texas A&M University* (5, 2, p. 246) Technical Note based on AIAA Paper 89-1703

T91-037 Conjugate Mixed Convection-Conduction of Micropolar Fluids on a Moving Vertical Cylinder. Cha'o-Kuang Chen and Tsan-Hui Hsu, *National Cheng Kung University, Taiwan, ROC* (5, 2, p. 248) Technical Note

T91-038 Probability of Inelastic Collisions for the Larsen-Borgnakke Model to the Monte Carlo Simulation Method. K. Nanbu, T. Honda and S. Igarashi, *Tohoku University, Japan* (5, 2, p. 251) Technical Note

T91-039 Laminar Flow and Heat Transfer in a Channel with Lateral Injection. B. W. Webb and H. S. Heaton, *Brigham Young University* (5, 2, p. 253) Technical Note

T91-040 Nonequilibrium and Equilibrium Shock Front Radiation Measurements. Surendra P. Sharma, *NASA Ames Research Center*; and Walter Gillespie, *Stanford University* (5, 3, p. 257) Article based on AIAA Paper 90-0139

T91-041 Computation of Weakly Ionized Hypersonic Flows in Thermochemical Nonequilibrium. Graham V. Candler, *North Carolina State University*; and Robert W. McCormack, *Stanford University* (5, 3, p. 266) Article based on AIAA Paper

T91-042 Three-Dimensional, Upwind, Parabolized Navier-Stokes Code for Chemically Reacting Flows. Philip E. Buelow, John C. Tannehill and John O. Ievaults, *Engineering Analysis, Inc.*; and Scott L. Lawrence, *NASA Ames Research Center* (5, 3, p. 274) Article based on AIAA Paper 90-0394

T91-043 Model for Oxygen Recombination on Silicon-Dioxide Surfaces. W. A. Seward, *Air Force Institute of Technology, Wright-Patterson AFB*; and E. J. Jumper, *University of Notre Dame* (5, 3, p. 284) Article based on AIAA Paper 90-0054

T91-044 Direct Simulation Monte Carlo Analysis of Rarefied Flows on Parallel Processors. Richard G. Wilmoth, *NASA Langley Research Center* (5, 3, p. 292) Article based on AIAA Paper 89-1666

T91-045 Experimental and Predicted Pressure and Heating Distributions for Aeroassist Flight Experiment Vehicle. John R. Micol, *NASA Langley Research Center* (5, 3, p. 301) Article based on AIAA Paper 89-1731

T91-046 Adaptive Finite Element Analysis of Hypersonic Laminar Flows for Aerothermal Load Predictions. R. Ramakrishnan, *Old Dominion University*; E. A. Thornton, *University of Virginia*; and A. R. Wieting, *NASA Langley Research Center* (5, 3, p. 308) Article

T91-047 Heat Transfer Regimes in Nuclear-Reactor-Pumped Gas Lasers. J. R. Torczynski, *Sandia National Laboratories* (5, 3, p. 318) Article

T91-048 Exchange Factor Model for Radiative Heat Transfer Analysis in Rocket Engines. K. J. Hammad and M. H. N. Naraghi, *Manhattan College* (5, 3, p. 327) Article

T91-049 Three-Dimensional Spectral Radiative Heat Transfer Solutions by the Discrete-Ordinates Method. W. A. Fiveland and A. S. Jamaluddin, *Babcock & Wilcox Company* (5, 3, p. 335) Article

T91-050 Experimental Study of Enhanced Melting Process Under Ultrasonic Influence. K. J. Choi and J. S. Hong, *University of Illinois at Chicago* (5, 3, p. 340) Article

T91-051 Experimental and Analytical Study of Contact Melting in a Rectangular Cavity. Z. F. Dong, Z. Q. Chen and Q. J. Wang, *Xi'an Jiaotong University, PRC*; and M. A. Ebadian, *Florida International University* (5, 3, p. 347) Article

T91-052 Subcooled Forced Convection Film Boiling Drag and Heat Transfer of a Wedge. P. R. Chappidi, *Los Alamos National Laboratory*; F. S. Gunnerson, *University of Central Florida*; and K. O. Pasamehmetoglu, *Los Alamos National Laboratory* (5, 3, p. 355) Article based on AIAA Paper 90-1724

T91-053 Transport Processes and Associated Irreversibilities in Droplet Evaporation. S. K. Dash, S. P. Sengupta and S. K. Som, *Indian Institute of Technology* (5, 3, p. 366) Article

T91-054 Numerical Modeling of Heat-Pipe Transients. W. Jerry Bowman, *U.S. Air Force Academy* (5, 3, p. 374) Article based on AIAA Paper 90-0061

T91-055 Condensation in a Mixing Layer. Ian M. Kennedy, *University of California, Davis* (5, 3, p. 380) Article

T91-056 Experimental Study on Confined Two-Phase Jets. D. Albagli and Y. Levy, *Technion—Israel Institute of Technology* (5, 3, p. 387) Article

T91-057 Heterogeneous and Nonisothermal Mixing of a Lateral Jet with a Swirling Crossflow. Yei-Chin Chao, *National Cheng Kung University, Taiwan, ROC*; and Wu-Chi Ho, *Industrial Technology Research Institute, Taiwan, ROC* (5, 3, p. 394) Article based on AIAA Paper 88-3190

T91-058 Numerical Simulation of Time-Dependent Heat Transfer in Oscillating Pipe Flow. J. G. Zhang and U. H. Kurzweg, *University of Florida* (5, 3, p. 401) Article based on AIAA Paper 90-1774

T91-059 Natural Convective Flow Instability Between Horizontal Concentric Cylinders. D. B. Fant, *U.S. Air Force Office of Scientific Research*; A. Rothmayer and J. Prusa, *Iowa State University* (5, 3, p. 407) Article

T91-060 Mixed Convection of Opposing/Assisting Flows in Vertical Channels with Discrete Asymmetrically Heated Ribs. Tsang-Yuan Lin and Shou-Shing Hsieh, *National Sun Yat-Sen University, Taiwan, ROC* (5, 3, p. 415) Article

T91-061 Heat Transfer Enhancement Techniques for Space Station Cold Plates. G. P. Peterson and L. S. Fletcher, *Texas A&M University* (5, 3, p. 423) Article

T91-062 Multilayer Thermally Insulating Ceramic Contacts. R. F. Babus'Haq, C. Gibson, P. W. O'Callaghan and S. D. Probert, *Cranfield Institute of Technology, England, UK* (5, 3, p. 429) Article based on AIAA Paper 89-0430

T91-063 Thermodynamic Properties of Adsorbed Water on Silica Gel: Exergy Losses in Adiabatic Sorption Processes. W. M. Worek and W. Zheng, *University of Illinois at Chicago*; and J.-Y. San, *National Chung-Hsing University, Taiwan, ROC* (5, 3, p. 435) Article

T91-064 Novel Passive Thermal Mixer. Steven A. Idem, *Tennessee Technological University*; and Sastry S. Munukutla, *Tennessee Technological University* (5, 3, p. 441) Technical Note based on AIAA Paper 90-1789

T91-065 Heat Transfer to a Power Law Non-Newtonian Falling Liquid Film. Rama Subba Reddy Gorla, *Cleveland State University* (5, 3, p. 444) Technical Note

T91-066 Approximate Solution of the Thermal-Entry-Length Fluid Flow and Heat Transfer Characteristics in Annuli with Blowing at the Walls. A. Faghri and S. Thomas, *Wright State University* (5, 3, p. 446) Technical Note

T91-067 Recombination-Dominated Nonequilibrium Heat Transfer to Arbitrarily Catalytic Hypersonic Vehicles. G. R. Inger and J. Elder, *Iowa State University* (5, 4, p. 449) Article based on AIAA Paper 88-1859

T91-068 Aeroassist Flight Experiment Heating-Rate Sensitivity Study. W. C. Rochelle, P. C. Ting, S. A. Bouslog, S. R. Mueller and J. E. Colovin Jr., *Lockheed Engineering & Sciences Company*; D. M. Curry and C. D. Scott, *NASA Johnson Space Center* (5, 4, p. 456) Article based on AIAA Paper 89-1733

T91-069 Computations for Support Design of Measurements of Radiation from Low Velocity Shocked Air. D. A. Levin, *Institute for Defense Analyses*; Collins, R. J., *University of Minnesota*; and G. V. Candler, *North Carolina State University* (5, 4, p. 463) Article

T91-070 Rate Parameters for Coupled Rotation-Vibration-Dissociation Phenomena in H_2 . Surendra P. Sharma and David W. Schwenke, *NASA Ames Research Center* (5, 4, p. 469) Article based on AIAA Paper 89-1738

T91-071 Low-Pressure Plasma Spectroscopic Diagnostics. T. L. Eddy, *Georgia Institute of Technology* (5, 4, p. 481) Article based on AIAA Paper 89-2830

T91-072 Temperature Turbulence Spectrum for High-Temperature Radiating Gases. A. Soufiani, *Ecole Centrale Paris, France* (5, 4, p. 489) Article

T91-073 Transient Cooling of a Square Region of Radiating Medium. Robert Siegel, *NASA Lewis Research Center* (5, 4, p. 495) Article

T91-074 Radiation and Convection in Circular Pipe with Uniform Wall Heat Flux. J. M. Huang and J. D. Lin, *National Chiao Tung University, Taiwan, ROC* (5, 4, p. 502) Article

T91-075 Heat Transfer in Laminar Flow with Wall Axial Conduction and External Convection. R. O. C. Guedes, R. M. Cotta and N. C. L. Brum, *Universidade Federal do Rio de Janeiro, Brazil* (5, 4, p. 508) Article

T91-076 Measurements and Correlation of Two-Phase Pressure Drop Under Microgravity Conditions. I. Chen and R. Downing, *Sundstrand Corporation*; E. G. Keshock and M. Al-Sharif, *University of Tennessee* (5, 4, p. 514) Article based on AIAA Paper 89-0074

T91-077 Practical Expressions for Thermodynamic and Transport Properties of Commonly Used Fluids. Masao Furukawa, *National Space Development Agency, Japan* (5, 4, p. 524) Article

T91-078 Detailed Model for Transient Liquid Flow in Heat Pipe Wicks. J. H. Ambrose and L. C. Chow, *University of Kentucky*; and J. E. Beam, *Wright Research and Development Center, Wright-Patterson AFB* (5, 4, p. 532) Article based on AIAA Paper 90-0062

T91-079 Transient Experimental Investigation of Micro Heat Pipes. D. Wu and G. P. Peterson, *Texas A&M University*; and W. S. Chang, *Wright Research and Development Center, Wright-Patterson AFB* (5, 4, p. 539) Article based on AIAA Paper 90-1791

T91-080 Effective Thermal Conductivity of Sintered Metal Fibers. W. Joseph Mantle and Won Soon Chang, *Wright Laboratory, Wright-Patterson AFB* (5, 4, p. 545) Article

T91-081 Analysis of Thermal Constriction Resistance with Adiabatic Circular Gaps. Kek-Kiong Tio and Satwindar S. Sadhal, *University of Southern California* (5, 4, p. 550) Article

T91-082 Experimental Verification of Darcy-Brinkman-Forchheimer Flow Model for Natural Convection in Porous Media. N. Kladias and V. Prasad, *Columbia University* (5, 4, p. 560) Article

T91-083 Thermocapillary Convection in a Model Float Zone. J. R. Hyer, D. F. Jankowski and G. P. Neitzel, *Arizona State University* (5, 4, p. 577) Article based on AIAA Paper 90-0406

T91-084 Free Convection in a Square Cavity with a Partially Heated Wall and a Cooled Top. P. H. Oosthuizen and J. T. Paul, *Queen's University, Canada* (5, 4, p. 583) Article based on AIAA Paper 90-1722

T91-085 Finite Element Eigenvalue Method for Solving Phase-Change Problems. Jiakang Zhong, *Zhejiang University, PRC*; Louis C. Chow, *University of Kentucky*; and Won Soon Chang, *Wright Laboratory, Wright-Patterson AFB* (5, 4, p. 589) Article based on AIAA Paper 90-0544

T91-086 Evaluation of an Adaptive Unstructured Remeshing Technique for Integrated Fluid-Thermal-Structural Analysis. Pramote Dechaumphai, *NASA Langley Research Center* (5, 4, p. 599) Article based on AIAA Paper 90-0556

T91-087 Vapor Condensation on Liquid Surface Due to Laminar Jet-Induced Mixing. C. S. Lin, *Analex Corporation, NASA Lewis Research Center*; and M. M. Hasan, *NASA Lewis Research Center* (5, 4, p. 607) Article based on AIAA Paper 90-0354

T91-088 Analysis of Direct Liquid-Solid Contact Heat Transfer in Monodispersed Spray Cooling. Brian Delcorio and Kyung-Jin Choi, *University of Illinois at Chicago* (5, 4, p. 613) Article

T91-089 Heat Transfer to Turbulent Radial Wall Jets. David C. Johnson, *Massachusetts Institute of Technology*; and Lit S. Han, *Lockheed Missiles and Space Company* (5, 4, p. 621) Technical Note

T91-090 Thermal Charging and Discharging of Sensible and Latent Heat Storage Packed Beds. Mehmet Sözen, Kambiz Vafai and Lawrence A. Kennedy, *Ohio State University* (5, 4, p. 623) Technical Note

T91-091 Convective Heat Transfer Across a Duct with Asymmetric Blowing. H. J. Deacon Jr. and D. A. Wallace, *The Aerospace Corporation* (5, 4, p. 625) Technical Note

T91-092 Experimental Study of Natural Convection in Horizontal Porous Layers with Multiple Heat Sources. F. C. Lai and F. A. Kulacki, *Colorado State University* (5, 4, p. 627) Technical Note based on AIAA Paper 90-0257

U.S. Postal Service STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION <i>Required by 39 U.S.C. 3685</i>		
1A. Title of Publication Journal of Thermophysics and Heat Transfer		1B. PUBLICATION NO. 0 0 0 7 6 5
2. Date of Filing 9/27/91		
3. Frequency of Issue Quarterly	3A. No. of Issues Published Annually 4	3B. Annual Subscription Price \$22.00
4. Complete Mailing Address of Known Office of Publication (Street, City, County, State and ZIP+4 Code) (Not printers) 370 L'Enfant Promenade S.W., Washington, D.C. 20024		
5. Complete Mailing Address of the Headquarters of General Business Offices of the Publisher (Not printer) Same as above.		
6. Full Names and Complete Mailing Address of Publisher, Editor, and Managing Editor (This item MUST NOT be blank)		
Publisher (Name and Complete Mailing Address) American Institute of Aeronautics and Astronautics, Inc. Same as above.		
Editor (Name and Complete Mailing Address) Alfred L. Crosbie -- Same as above.		
Managing Editor (Name and Complete Mailing Address) Heather Brennan -- Same as above.		
7. Owner (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given. If the publication is published by a nonprofit organization, its name and address must be stated.) (Item must be completed.)		
Full Name American Institute of Aeronautics and Astronautics, Inc.		Complete Mailing Address Same as above.
Full Name		Complete Mailing Address
None.		
Full Name		Complete Mailing Address
None.		
Full Name		Complete Mailing Address
None.		
8. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities (If there are none, so state)		
Full Name		Complete Mailing Address
None.		
Full Name		Complete Mailing Address
None.		
Full Name		Complete Mailing Address
None.		
9. For Completion by Nonprofit Organizations Authorized To Mail at Special Rates (DMM Section 423.12 only) The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes (Check one)		
(1) <input checked="" type="checkbox"/> Has Not Changed During Preceding 12 Months		
(2) <input type="checkbox"/> Has Changed During Preceding 12 Months (If changed, publisher must submit explanation of change with this statement.)		
10. Extent and Nature of Circulation (See instructions on reverse side)	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
A. Total No. Copies (Net Press Run)	1675	1800
B. Paid and/or Requested Circulation		
1. Sales through dealers and carriers, street vendors and counter sales	----	----
2. Mail Subscription (Paid and/or requested)	1184	1304
C. Total Paid and/or Requested Circulation (Sum of 10B1 and 10B2)	1184	1304
D. Free Distribution by Mail, Carrier or Other Means Samples, Complimentary, and Other Free Copies	102	97
E. Total Distribution (Sum of C and D)	1286	1401
F. Copies Not Distributed		
1. Office use, left over, unaccounted, spoiled after printing	389	399
2. Return from News Agents	----	----
G. TOTAL (Sum of E, F1 and 2—should equal net press run shown in A)	1675	1800
11. I certify that the statements made by me above are correct and complete		Signature and Title of Editor, Publisher, Business Manager, or Owner <i>Norma J. Brennan</i> Norma J. Brennan, Director, Journals