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Preface

This volume is dedicated to Professor Stephen H. Davis on the occasion of his seventieth birthday. Steve, as he is known to his many friends and colleagues, has served the fluid mechanics community for a good part of those seventy years. He has been distinguished by election to the National Academy of Engineering and the National Academy of Sciences of the USA. A variety of professional societies have honoured Steve, including the American Physical Society, with the Fluid Dynamics Prize in 1994, and the Society of Engineering Sciences, with the G. I. Taylor Medal in 2001. Among a number of named lectureships, he was selected as the G. K. Batchelor Lecturer in 2003 at the University of Cambridge; this is an honour that befits the third scholar to enjoy a dedicated volume of *Journal of Fluid Mechanics* (*JFM*), following those dedicated to George Batchelor himself in 1990 (volume 212) and to Philip Saffman in 2000 (volume 409). Steve's editorial services have benefitted the *Annual Review of Fluid Mechanics*, the *Proceedings of the Royal Society of London*, *SIAM Monographs on Mathematical Modeling and Computation*, and the *Cambridge University Press Monographs in Mechanics*. However, the community to benefit most from Steve's editorial leadership has surely been the authors and readers of *JFM*. Steve served as an assistant editor and then associate editor for twenty years, from 1969 to 1989, and then returned as editor of the Journal in 2000.

Steve's research work ranges from fundamental studies in hydrodynamic stability and interfacial phenomena to materials science applications in which fluid flow plays a significant role. Some 58, and counting, of his papers are published articles in *JFM*, many with hundreds of citations. The 49 co-authors on these papers alone represent some of the leading researchers in the field, many of whom have benefitted from Steve's incisive analyses and nurturing approach to scientific collaboration.

This volume begins with a personal appreciation of Steve's career by G. Paul Neitzel, who (along with this volume's co-editor Paul Steen) was one of Steve's last PhD students at the Johns Hopkins University before Steve moved to his current position at Northwestern University. It continues with 23 contributions from Steve's students and colleagues in such diverse subjects as gravity currents, combustion instabilities, natural convection, thermocapillary convection, biofluids, acoustical flows, capillary instabilities, droplet dynamics, geophysical flows, solidification flows and flows in thin films.

The editors of the *Journal of Fluid Mechanics* are pleased to join with Steve's many friends and colleagues in fluid mechanics, applied mathematics and materials science to thank him for his enduring scholarship and endearing leadership. An example is Steve's guiding advice to starting editors – referee reports should be 'timely, knowledgeable and transparently fair'. We wish Steve and his beloved wife Suellen continued health and happiness, and we look forward to Steve's next paper!

February 2010

Geoffrey McFadden,
Paul Steen,
Grae Worster

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