

# Preface

The papers in this volume were written by his students and colleagues to honor Sidney Leibovich, Samuel B. Eckert Professor in the Sibley School of Mechanical and Aerospace Engineering at Cornell University, in commemoration of his 60th birthday, 2 April 1999. They were presented at a symposium held at Cornell, 23 and 24 August 1999.

Sid obtained his Bachelor of Science degree with honors from The California Institute of Technology in 1961, graduating first in his class. He came to Cornell to work with Geoffrey Ludford on Magnetohydrodynamics, and obtained his Ph.D. in 1965 in the Department of Theoretical and Applied Mechanics. He spent a year at University College, London as a NATO Postdoctoral Fellow, and returned to Cornell as an Assistant Professor. He has been here ever since, and is currently Director of the Sibley School.

Since returning to Cornell, Sid has concentrated on rotating fluids and non-linear waves, in various combinations and applications, producing some 3.2 papers a year with an applied-mathematical bent. In particular this interest led to both Langmuir circulation and vortex breakdown, two areas in which Sid has had enormous influence, and both, of course, examples of rotating fluids interacting with waves. It was impossible to work in this area without being distracted by the study of the nonlinear dispersive and dissipative waves themselves, and Sid has made substantial contributions in this area.

Interest in the ocean (presumably aroused by the study of Langmuir cells, as well as by a sabbatical partly spent at Exxon) led to a study of oil-spill dispersal, which was eventually combined with the study of Langmuir cells.

Although the general areas of Sid's interest have been fairly constant, that does not imply that his work has been in stasis. He has been delving deeper and deeper into these areas, and the nature of his interest has been evolving along with the field. Dynamical systems theory has made its appearance (leading to studies of  $O(2)$  symmetry and Hopf bifurcations), as well as thermosolutal convection and secondary instabilities. The mathematical nature of the equations themselves has been examined. The instabilities investigated have been strongly non-linear. I think it is fair to say that Sid probably knows more about non-linear evolution of disturbed rotating flows than any person alive.

Sid has supervised 24 research students, who are now scattered at various universities and national laboratories. At least one preferred the turbulence of the financial markets to fluid turbulence. Sid maintains extraordinarily warm

relations with his ex-students; their enthusiasm for his birthday symposium was engaging.

Sid has served as Editor, Associate Editor, Co-Editor or Member of the Editorial Board of numerous journals: the Journal of Fluid Mechanics, Acta Mechanica, the Journal of Applied Mechanics, SIAM Journal of Applied Mathematics and Annual Review of Fluid Mechanics. He is currently General Editor of Cambridge Monographs on Applied Mechanics and Applied Mathematics.

Sid has been very active in what we may call scientific politics. He was Chairman of the US National Committee on Theoretical and Applied Mechanics, Chairman of the Applied Mechanics Division of the American Society of Mechanical Engineers, Chairman of the Division of Fluid Dynamics of the American Physical Society, Chairman of the National Academy of Sciences – National Research Council delegation to the General Assembly of the International Union of Theoretical and Applied Mechanics, and Chairman of the Timoshenko Medal Committee of the American Society of Mechanical Engineers, as well as lesser offices too numerous to mention. Sid is extraordinarily smooth in committee: warm, friendly and generous, while at the same time being firm and effective. He manages to get things done without offending, a very rare talent which he also puts to good use as School Director. As a result, he has been extremely influential.

It is hardly surprising that Sid's work has been recognized by his colleagues. In 1992 he was elected a Fellow of the American Academy of Arts and Sciences, and in 1993, a Member of the National Academy of Engineering.

Sid Leibovich has been my friend since 1977, when he recruited me from Penn State. We have exercised together three times a week since then, or some 3500 times. We tell each other stories, we shout at each other, we have Talmudic arguments about obscure points of science, we gossip, and we discuss politics, both university and national. And we are still friends.

Ithaca, 20 July 2000

*John L. Lumley*

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