



Professor Ralph L. Webb (February, 22, 1934–April 3, 2011)

IN MEMORIAM: PROFESSOR RALPH L. WEBB (1934–2011)

R. M. Manglik,^{1,} A. E. Bergles,² M. A. Kedzierski,³ & T. M. Rudy⁴*

¹*Thermal-Fluids & Thermal Processing Laboratory, Department of Mechanical Engineering, University of Cincinnati, Cincinnati, Ohio 45221-0072, USA*

²*Department of Mechanical Engineering, Aero Engineering and Mechanics, Rensselaer Polytechnic Institute, Troy, New York 12180-3590, USA; Clark School of Engineering, Department of Mechanical Engineering, University of Maryland, College Park, Maryland 20742, USA; Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139, USA*

³*National Institute of Standards and Technology, Gaithersburg, Maryland 20899-1070, USA*

⁴*Essex Consulting Group, Meadow Brook Farm LLC, Warrenton, Virginia 20186, USA*

*Address all correspondence to R. M. Manglik E-mail: Raj.Manglik@uc.edu

The personal journey of Ralph Lee Webb, a world-renowned expert in enhanced heat transfer, began more than 77 years ago in Parker, Kansas, on February 22, 1934. He was the son of Kenneth and Grace Webb, who spent his early childhood and schooling in this farming community, southwest of Kansas City. Subsequently, he went on to pursue advanced studies in mechanical engineering,

and received his B.S. (1957) from Kansas State University, his M.S. (1962) from Rensselaer Polytechnic Institute, and his Ph.D. (1969) from the University of Minnesota. The intermediate time in his post-baccalaureate educational journey was spent working for the U.S. Air Force (Nellis Air Force Base) Las Vegas, Nevada; Knolls Atomic Power Laboratory, Schenectady, New York; and

The Trane Company, La Crosse, Wisconsin. At Trane, he worked in the Applied Research Group and received several patents for his many engineering developments in enhanced heat transfer for two-phase flows, which were subsequently commercialized by the company. He then moved to begin his academic career in 1977 as an associate professor of mechanical engineering in the thermal science faculty at Pennsylvania State University (Penn State), University Park, Pennsylvania. After an illustrious and very productive 27-year stint as a highly regarded teacher and researcher, Ralph retired from Penn State in 2004, and was Professor Emeritus in the Mechanical Engineering Department.

In his academic tenure at Penn State, with a primary focus on the field of enhanced heat transfer, Professor Webb conducted extensive research in boiling, condensation, fouling, air-cooled heat exchangers, forced convection for gases and liquids, and wetting coatings to promote drainage of thin liquid films. His courses for undergraduate and graduate students included the subjects of heat exchanger design, enhanced heat transfer, and applied heat and mass transfer. Dr. Webb mentored and guided 49 masters and 17 doctoral students to graduation. He chose each of these students based on his philosophy that “a graduate student–professor relationship is very much like a marriage.” This meant that Professor Webb was committed to not only the progress of a student’s thesis, but he was also committed to the student’s professional growth and general well being. His engagement with his students continued into their professional careers, and he would always remark that his students and their families were his “extended families.” This warmth and personal connection was indeed extended to the larger heat transfer community and numerous professional colleagues worldwide.

A measure of the esteem that our community held for Dr. Webb was reflected in the extensive consulting engagements he had with 75 different organizations in the United States, Asia, and Europe. In this, besides providing engineering and enhanced heat transfer expertise, he also developed numerous computer programs for design of different types of heat exchangers, such as cooling towers, shell-and-tube exchangers, refrigerant evaporators, and automotive radiators, among others, for practical industrial usage. Furthermore, he consulted for several law firms and was involved as an expert in many patent

infringement and heat-exchanger litigation lawsuits. Perhaps the most prominent contribution to the research and practice in high-performance heat and mass transfer was the publication of his book, *Principles of Enhanced Heat Transfer* (Wiley, 1994; 2nd edition, Taylor & Francis, 2005), and founding of the *Journal of Enhanced Heat Transfer* in 1993. In his editorial in the first issue (vol. 1, no. 1, p. i, 1993), he had succinctly stated that “The key objective of the *Journal of Enhanced Heat Transfer* is to provide a single, international forum for papers on enhanced heat transfer.” His desire was to see that this journal is eventually “viewed and accepted as ‘the place’ to publish papers on enhanced heat transfer.” That the journal is currently in its 18th year of publication speaks volumes for Ralph’s advocacy and efforts in promoting scholarship in the subject.

On a more personal note, Ralph Webb had led an adventuresome and loving life with his immediate family. The essence of some of this is superbly captured in his wife’s book *Fergus: Memoirs of a Scottish Terrier: A Country Life with Crazy Human Companions* (createspace.com and amazon.com). He is survived by his spouse, Sylvia R. Apple, of State College, Pennsylvania; two daughters, Janet Lee and her husband, Seungbi, of San Diego, California, and Laura Tymas and her husband, Baron, of Durham, North Carolina, and their children, Elias and Jesse. He also is survived by two stepchildren, Scott Atkinson, of Springfield, Missouri, and Amy Cowperthwait, of Wilmington, Delaware.

We, his long-standing colleagues and former students, as well as many friends in the enhanced heat transfer community are saddened by Ralph’s passing. Some of us recall his passion for clocks, and the surprise gift we had given him on his 65th Birthday. It was a box full of “several sacks of gears and assorted clock parts. And, a transparency of what it should look like after I put about two years into assembling it and building a wood case!” as Ralph had exclaimed in his acknowledging e-mail in 1999. He went on to say that “The clock is beautiful! I am absolutely delighted.” And two years later, before his February birthday in February 2001, he again sent an e-mail to say that “I thought that I would let you guys know that I actually got the clock built [and] I think it looks pretty neat!” That clock is perhaps still ticking in his family’s home, but we will surely miss Ralph.