



## In Memoriam



**Dr. Kenneth John Bell, 1930–2023**

Dr. Kenneth (Ken) John Bell, Kerr-McGee Chair Emeritus and Regents Professor Emeritus of Chemical Engineering at Oklahoma State University, a Founding Editor of *Heat Transfer Engineering*, and its first Editor-in-Chief (from 1979 to 1997) died April 17, 2023, in Stillwater, Oklahoma.

Ken was born in Cleveland, Ohio, on March 1, 1930. He graduated from Lakewood, Ohio, High School in January, 1948. He immediately entered Case Institute of Technology in Cleveland and graduated with a B.S. in Chemical Engineering in June, 1951.

Ken entered the Graduate College of the University of Delaware, in June, 1951, on an assistantship from the Department of Chemical Engineering. He was assigned to the ASME-sponsored Cooperative Research Program on Shell and Tube Heat Exchangers (the “Delaware Project”) and also asked to serve as Graduate Assistant to Professor Allan P. Colburn, who was the Co-Principal Investigator (with Professor Olaf Bergelin) on that Program and also taught the graduate heat transfer course. (Colburn was also Acting President of the University at that time.) The Advisory Committee for the Project included such luminaries in the heat transfer/heat exchanger field as Professor William H. McAdams of MIT, Dr. Al Mueller of duPont, Karl Gardner of Griscom Russell, and Townsend Tinker of Ross Heater. These

early contacts were to prove invaluable in developing and promoting Ken’s career.

Ken completed his Ph.D. Dissertation (“Annular Orifice Coefficients with Application to Heat Exchanger Design”) in January, 1955, and took a position with General Electric at the Hanford Atomic Products Operation in Richland, Washington. His chief assignment was to oversee the in-reactor testing of a new fuel element for plutonium production.

Ken left GE in August, 1956, to accept an Assistant Professorship in the Chemistry and Chemical Engineering Department at Case Institute of Technology, and to participate in an effort to build a Nuclear Engineering program. As part of this work, he participated in the Oak Ridge School of Reactor Technology program at Oak Ridge, Tennessee, in 1958. During this period, Ken was introduced to Dr. Donald Q. Kern, who had established his consulting practice in Cleveland a few years earlier. Don took Ken under his wing on a lecture tour among heat exchanger manufacturers in the US, resulting in many personal and professional contacts in the industry which remain active today. In this period, Ken was asked to write the Final Report on the Delaware Project, covering over 25 Masters and Ph.D. theses that had been produced. This effort also produced the first version of the “Delaware Method” for the design of shell and tube heat exchangers.

By 1961, it was clear that Ken’s concept of an engineering education was at some variance to that of the Case Provost of the period (“Hell, I just wasn’t that good a mathematician!”), so he went looking for programs more oriented to the day-to-day practice of engineering. After interviewing several schools, he selected the School of Chemical Engineering at Oklahoma State University, where Robert N. Maddox, already an internationally renowned expert in the gas processing field, was Head. The fit worked: Ken took Emeritus status 33 years later. In “retirement”, he maintained an office at the University and continued to teach and consult for many years. “I had full support from Bob Maddox and the School for all of my ventures into the international world of heat transfer

and particularly the industrial practice thereof.” Besides the usual undergraduate classes in fluid mechanics, heat and mass transfer, and process design, Ken taught a widely popular Process Heat Transfer course on campus and *via* the distance-learning facility at the University, and took the course on the road in dozens of two-day to three-week courses to engineers in industry in the US, Europe and South America.

Shortly after arriving at Oklahoma State, Ken met Dr. Jerry Taborek and Dr. Joe Palen, then of Phillips Petroleum and became a consultant to Phillips. When Jerry and Joe, together with Al Mueller of duPont and several others prominent in the heat exchanger industry, began organizing Heat Transfer Research, Inc. (HTRI), Ken was invited to be a consultant to HTRI also. Numerous other consultancies and research contracts resulted from these connections, and kept Ken in close touch with events and practices in the real world. One of the most enjoyable ones was his work on the Ocean Thermal Energy Concept with the National Science Foundation, Energy Research and Development Agency, Department of Energy, and Argonne National Laboratory; This program required regular trips to Hawaii.

Another early acquaintance was with Dr. Geoff Hewitt, then of the Harwell Atomic Energy Establishment and Heat Transfer and Fluid Flow Services (HTFS) and then with Imperial College. This resulted in Ken’s involvement with the Heat Exchanger Design Handbook. Then when Geoff and Ken were flying back from a conference in Israel (Ken’s presence on the British Airways flight was the result of a botched El Al computer program), the idea of a serious journal for practicing heat transfer engineers was launched – with the enthusiastic support of publisher Bill Begell, “*Heat Transfer Engineering*” came into existence. When it came time to step down from the Editorship, long-time Oklahoma State colleague Dr. Afshin Ghajar of the School of

Mechanical and Aerospace Engineering was there to take up the mantle.

Ken’s legacy is *Heat Transfer Engineering*, of which he was a Founding Editor in 1979 and Editor-in-Chief until 1997. It is one thing to agree to establish a journal; that is easy to do when served lots of free drinks in an airplane. But it is another matter to take care of the hundreds of details necessary to bring the journal to life and keep it going. Ken did this extremely well for nearly two decades. He never departed from *HTE*’s original intent of being a publication that is useful to the practicing engineer. His editorials were classics that constantly enhanced the publication. His pithy writing enlivened the often-dull exposes of the art of transport phenomena. In doing this, he drew upon a lifetime of practical experience.

In recognition of his many accomplishments in the field of process heat transfer, Ken received the 1978 Donald Q. Kern Award from the American Institute of Chemical Engineers (AIChE) and the 2003 Max Jakob Memorial Award given jointly by the American Society of Mechanical Engineers (ASME) and the American Institute of Chemical Engineers (AIChE).

Ken was preceded in death by his wife Karen. He is survived by three daughters (Lorna, Tami, and Ellen), son Craig, and three grandchildren (Morgan, Blake, and Bryce). Ken was also an avid stamp collector, mineral collector, and reader.

Those of us who were privileged to know Ken and Karen (frequent attendant at heat transfer activities) will long recall his friendliness, straight-forward and thoughtful approach to any issue, and his high standard of personal and professional conduct.

(with assistance from Ken’s bio notes and Art Bergles’ Introduction of Ken for the Max Jakob Memorial Award presentation)

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