

In Memoriam

Professor Ernst R.G. Eckert (1904–2004)



The heat transfer community lost its most revered elder statesman, Professor Ernst R.G. Eckert, on July 8, 2004, approximately two months before his 100th birthday. Professor Eckert was the most influential heat transfer researcher of the twentieth century.

Prior to his passing, Professor Eckert's friends and colleagues had planned a September celebration of his life. That event was implemented because Professor Eckert's unparalleled accomplishments were most worthy of being celebrated.

An honorific testimonial to Professor Eckert's life was prepared for publication in the *International Journal* prior to his passing. That testimonial continues to be valid, and it is published here.

HEAT TRANSFER'S PERSON OF THE CENTURY

Congratulations to Professor Ernst R.G. Eckert on the occasion of his 100th birthday

The heat transfer community's Person of the Century celebrates the century mark of his own life in September, 2004. Although that person, Professor Ernst R.G. Eckert, lived and worked on only two continents, his influence encompassed the entire world. The seven-decade span of his active research is remarkable not only for its prodigious and innovative productivity but also for its longevity. Generations of researchers, practitioners, and students have been inspired by the breadth, depth, quality, and quantity of his work.

Prior to the publication of Professor Eckert's first book in the 1940s, written in German and translated into English, the practice of heat transfer was primarily empirically based, except for the work of the group led by Professor Max Jakob. This book set forth the first engineering-science-based approach to heat transfer. It featured the physical and the phenomenological descriptions of transport processes, and it stressed the natural laws which underlay these processes.

These same themes also served to underlie his research. In simple terms, Professor Eckert's research was an unflagging search for new phenomena and their physical bases. He was endowed with a unique intuition which guided him in his unflagging quest for the understanding of physical processes.

In his role as a teacher, Professor Eckert focused his primary efforts on the classroom instruction of graduate students and on guiding their doctoral research. His graduate students have gone on to be the intellectual leaders of their respective generations. These graduate students were the first members of an ever-broadening family tree which continues to flourish to the present. This family tree is one of his major legacies.

He was a multi-faceted role model for both students and colleagues. To be in his presence was to be mentored. His manner was, without exception, gentlemanly and somewhat reserved in the spirit of his times. The pace of his life was measured and without excess. He was devoted to his wife and children, and they, in turn, were devoted to him. Modesty and moderation have been the dominant features of his personality.

Professor Ernst Eckert was born on September 13, 1904 in Prague, The Czech Republic. He trained as an engineer at the German Institute of Technology (GIT) in Prague, where he received both his undergraduate and doctoral degrees, respectively in 1927 and 1931. He continued his association with the GIT until 1935, when he left to pursue an advanced doctoral degree that was a prerequisite for a professorial appointment in Germany. These advanced studies were carried out at the Danzig Institute of Technology (Germany) under the direction of Professor Ernst Schmidt, a world authority on thermodynamics and heat transfer.

At the completion of his advanced studies at Danzig in 1938, Professor Eckert accepted a joint appointment as a faculty member at the Braunschweig Institute of Technology and as a section chief at the German government's Aeronautical Research Institute. He continued his association with the research institute until the end of World War II. However, in 1943, he transferred his academic affiliation from Braunschweig to the GIT in Prague, where he accepted an appointment as a full professor.

At the end of World War II, the US Army offered contracts to the cream of German engineers and scientists for both short- and long-term appointments at government research laboratories in the United States. Professor Eckert accepted an appointment at the power plant laboratory at the Wright-Patterson Air Force in Dayton, Ohio. That association continued until 1951. In addition, he became a consultant for the compressor and turbine division of

the Lewis Flight Propulsion Laboratory of the National Advisory Committee for Aeronautics (NACA) in Cleveland, Ohio.

In 1951, he accepted the position of Professor of Mechanical Engineering at the University of Minnesota, which has been his professional home to the present day. Shortly after his arrival at Minnesota, he spearheaded the development of a world-class heat transfer laboratory. He continued to direct the heat transfer laboratory until his formal retirement in 1972. Since that time, he has been a professor emeritus.

Professor Eckert's professional contributions ranged over the entire field of heat transfer and related problems of fluid flow. A special focus of his work which spanned most of his professional career is the thermal management of gas turbines. He and his colleagues have made numerous seminal contributions to this area. Other areas where his work has had extraordinary impact is thermal radiation, duct- and tube-flow heat transfer, natural convection, and high-speed-flow heat transfer.

Professor Eckert's professional presence dominated the field of heat transfer for the main part of the twentieth century. This dominance stemmed from his command of ideas, from his uncanny ability to identify fruitful directions of research, and from his leadership which motivated others to assist him in the implementation of the research. In retirement, he lives with grace and dignity, as he did during his professional years.

On the occasion of his 100th birthday and on behalf of his many colleagues, friends, former students, and the world-wide heat transfer community, we would like to wish Professor Ernest R.G. Eckert good health and happiness in the years to come.

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Available online 5 December 2005