MEMORIAL RESOLUTION
MORTON MITCHNER

(1926--2002)

Morton Mitchner, Professor of Mechanical Engineering, Emeritus, died on September 9, 2002, after a courageous battle with Sarcoma, a rare form of cancer at age 76. From 1964 when he joined Stanford until after his retirement in 1983, Professor Mitchner was the scientific cornerstone for many students (and faculty) who increasingly introduced more science into mechanical engineering research and teaching. He was the one who quietly and scientifically explained the underlying science as Stanford mechanical engineers moved to new areas of research involving ionized gases, electromagnetics and radiative transfer.

Mort was born in Vancouver, Canada. in 1926 to immigrant parents who valued education. He excelled in academics and had a keen interest in sports. As a sideline he became the city high school yo-yo champion and later enjoyed entertaining his family with some of his tricks with the spinning disk. He attended the University of British Columbia and received a B.A. in Physics and Math in 1947. During this time while still an undergrad, he served as an instructor in the physics lab and in mathematics. In 1948 he received an M.A. in Physics and Math with a thesis on the infrared structure of polyatomic molecules. This work was supported by a Canadian National Research Scholarship. After graduation he went to Harvard where he worked under Howard Emmons, a world-renowned engineering scientist in fluid mechanics. This exposure in the application of his knowledge to engineering problems shaped his future career. His research with Emmons was in the field of turbulence where his mathematical skills and physical modeling were successfully utilized.

After receiving his Ph.D. in Physics in 1952 Mort was awarded the prestigious Sheldon Traveling Fellowship, which took him to a number of European laboratories and universities working on fluid turbulence. After returning to Harvard for a year's research on combustion aerodynamics, Mort joined Arthur D. Little Inc., a Cambridge, MA, research organization where his science and math skills were applied to industrial projects, particularly in the emerging field of operations research. While in the Bay Area he met his future wife, Adelle Roginsky, who was a Ph.D. graduate in chemistry from the University of Chicago and they married in 1960. Two children, Joseph and Beth, resulted from this marriage and Mort took great pride and interest in them. He shared his love of sports with them and he and Joe were faithful observers of Stanford football until Mort's death.

In 1958, Dr. Mitchner joined the Lockheed Research Laboratories in the Stanford industrial park in Palo Alto, at a time when the aerospace industry was involved in basic research related to the new challenges and applications of the Sputnik era. At Lockheed his research and collaborations involved the physics of gases, particularly under non-equilibrium circumstances. In 1961 he edited the 5th Lockheed Symposium on Magneto-hydrodynamics entitled "Radiation and Waves in Plasmas". His work attracted the attention of the faculty at Stanford who had recently formed the High Temperature Gasdynamics Laboratory in the Department of Mechanical Engineering. Dr. Mitchner joined the Stanford Faculty in Mechanical Engineering in 1964.

At Stanford, Prof. Mitchner engaged in research and teaching in the physics and I properties of high temperature gases and magnetohydrodynamic energy conversion. His background, with a Ph.D. In Physics, was unusual then in an engineering department and led t9 many important contributions and collaborations which greatly strengthened the Laboratory and Department. The new applications and challenges emerging at that time meant that conventional descriptions of fluids, particularly high-temperature gases, were no longer adequate. He was the right person at the right time. He initiated new courses and research directions and his Ph.D. graduates went on to successful careers in areas not usually associated with mechanical engineering.

He is perhaps best remembered in his field as the lead author with Professor Charles Kruger of the text and research book "Partially Ionized Gases", which was first published in 1973. The scope of this book extended from basic physics to new applications. It served (and still serves) as the text for innovative courses at leading universities and is frequently cited in the scientific literature. A Russian translation was published in 1976. This translation and Prof. Mitchner's personal diplomacy contributed to the scientific penetration of the Iron Curtain at an important time. To this day - over thirty years after its publication - PIG. as it is affectionately called, continues to be frequently cited worldwide at scientific conferences and in journal articles. (At one such conference recently a heated debate was quickly settled by a statement from the floor that the correct interpretation was given in PIG.)

In 1977 Prof. Mitchner, together with Professor Sidney Self, began a research program to better understand the science of electrostatic precipitation. This is the process widely used to remove particulate matter from the exhaust of coal-fired electric power plants, greatly reducing atmospheric pollution. Over the next 15 years many aspects of the precipitation process were put on a firm scientific and engineering basis, with the participation of doctoral students.

In the period 1983-93, this work was extended to a study of radiative heat transfer in particulate-laden flows, which is necessary to understanding energy transfer in the combustion chamber of such power plants.

Morton Mitchner is survived by his wife of 42 years, Adelle Mitchner of Menlo Park, son Joseph Mitchner of Mountain View, daughter, Beth Mitchner of San Francisco, brother Hyman Mitchner of Los Altos, and six grandchildren.

Committee:

Charles Kruger
Sydney Self
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