



R. Jung

KURT H. LANGE

1919–2009

Elected in 1988

“For outstanding contributions in developing and understanding deformation processes, and for leadership in education and research for manufacturing.”

BY A. ERMAN TEKKAYA AND EKKEHARD RAMM

ON THURSDAY, JULY 30, 2009, KURT LANGE went to work in his office at the Institute of Metal Forming Technology of Universität Stuttgart, as he had done for the past 46 years. On Friday morning he started to feel unwell, and the following day, August 1, he passed away. The metal-forming community has lost one of the most prominent figures in its field.

Kurt Lange was born on December 13, 1919, in Osnabrück, Germany, the son of a photographer. He studied mechanical engineering from 1939 to 1948 at Technische Hochschule Hannover and Braunschweig. His university life was interrupted between 1940 and 1945 by the Second World War when he was conscripted into military service with the artillery. During this period he came into contact with weapons, such as steel cartridges, that were produced by metal-forming processes.

The war period shaped his character considerably. His immense support of international collaboration and of academics in trouble worldwide in later years is probably a result of this time. His book, *Flowers at the Roadside: A Life After Survival*, also contains reflections of this emotional period. He recalled the time when he was involved in heavy fights, was wounded, became a prisoner of war, and saw the most inconceivable incidents; he remembered the crying mother beside her two dead children somewhere in Russia in August

of 1943 and wrote, "I hated the war and I hated the world in which this could happen and would happen again and again. I hated myself."

In 1949 he started as personal assistant to Professor Otto Kienzle at the Research Unit Forging of Technische Hochschule Hannover. He wrote his doctoral dissertation in 1953—"Accuracy in Forging with Hammers"—and was promoted to leading engineer of the forging research unit. Four years later he completed his habilitation thesis titled "Forging." Habilitation is the highest academic degree in teaching and research and can be earned after obtaining a Ph.d. It requires the candidate to write a thesis based on independent scholarship which is reviewed and defended in a process much like that for a Ph.d. He gave lectures in Hannover on forging and also at Technische Hochschule Karlsruhe titled "Machines and Tools of Metal Forming Technology." At the end of 1957 he joined Daimler-Benz AG in Stuttgart-Untertürkheim, and two years later he became head of the forging department.

In March 1963 he was appointed as the chair for metal-forming technology at Technische Hochschule Stuttgart, which turned into Universität Stuttgart a few years later. Under his leadership, the chair for metal forming evolved to become the Institute of Metal Forming Technology, and since then over 110 doctoral promotions and habilitations have been completed under his supervision. More than 10 of his students became professors, and they, in turn, had several students who became professors as well.

Through Kurt Lange's dedicated and diligent systematic work, a "Lange School of Metal Forming" was established that is characterized by fundamental and novel research. He developed the scientific principles of numerous metal-forming processes such as cold forging and forging of powder parts, developed new technologies such as computer-controlled radial forging, and contributed to numerical modeling of forming processes as well as the characterization of materials at large plastic strains. He compiled his findings in four volumes of *Handbook of Metalforming*, which still today is the standard knowledge source of forming technology. During his

time the institute developed into the “Mecca of Cold Forging.” Even after his retirement in 1988, Professor Lange continued to work in his office at the university until his last days.

Kurt Lange valued and supported national and international networking. He was founding member of the International Cold Forging Group (ICFG) in 1967. He served as its chairman from 1974 to 1978. He became a member of the International Academy for Production Engineering (CIRP) in 1966 and served as its president from 1985 to 1986. He was elected a foreign associate of the National Academy of Engineering in 1988. The German Forming Association (AGU) and the German Academic Group of Manufacturing took pride in having him as their member.

Kurt Lange shaped our knowledge of metal-forming technology through 15 books, published in German, English, Chinese, and Japanese, that serve as the reference source worldwide up to the present day. To our great surprise, on his 88th birthday he presented his new book, *Impact Forging* (Springer-Verlag: Berlin/Heidelberg/New York, 2008), which had just been released that very day. Referring to the great value in practice, a famous German industrial manager said about this book: “It is too good to be published”—meaning that now it could also be used by industry in other countries. However, due to Lange’s conviction that scientific results should be available to everyone, publication of the book marked the start of another magnificent success story.

Various organizations have honored this great academic. He received the Society of Manufacturing Engineers Gold Medal of Manufacturing Engineering (USA), the Georg-Schlesinger-Prize of the State of Berlin, the Herwart-Opitz-Medal of the German Engineering Association (VDI), an honorary doctorate from Technology University of Budapest, and the International Prize for Research & Development of the Japan Society for Technology of Plasticity.

Professor Lange was an amateur pilot and enjoyed flying so as to see things from the top, as he was used to doing in his profession. He had to quit flying after an apoplexy in 1996. At that time he was 77 years old and I was just spending my

sabbatical year in Stuttgart. After he recovered, he asked me to teach him to use the “stupid” computer since his handwriting was not good anymore after the stroke. He had received a used computer from his son and first learned word processing and finally e-mailing. Until his last days he was always the first to reply to the circular mails in the AGU association.

He loved his family dearly, and his wife accompanied him to most conferences. To our surprise, we learned from his family that he had established the Kurt & Ilse Lange Foundation in 2006, which has the aim to intensify manufacturing research by promoting students and young scientists.

Kurt Lange will remain in our memories as a fair, honest, and reliable colleague and friend. The National Academy of Engineering and the metal forming community have lost a great person and outstanding scientist, who initiated and coordinated fundamental developments with a remarkable commitment.

