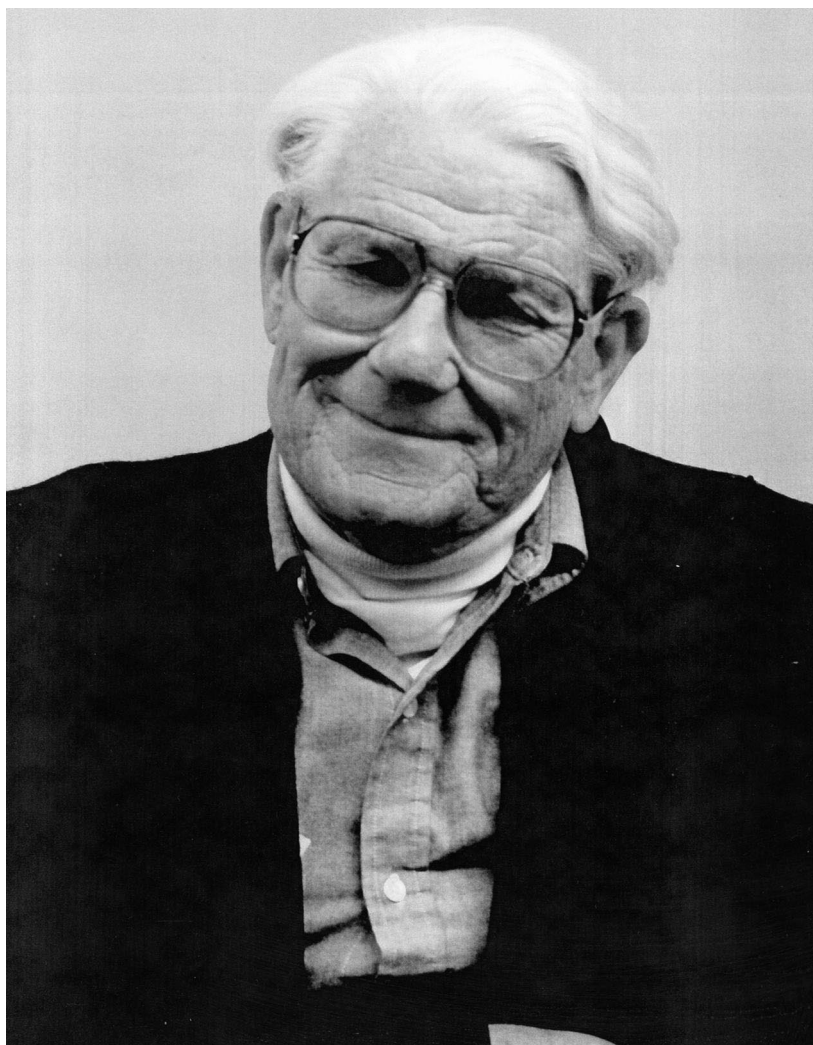


## Preface



Prof. Ole Kleppa

In the year 2000, Professor Ole Kleppa celebrated his 80th birthday. The Symposium at the Annual TMS Meeting in Nashville, Tennessee was organized to celebrate his birthday as well as his scientific work.

Many of his former colleagues, postdoctoral fellows and students came to this Conference from different countries to express their esteem, their good wishes and their appreciation for his pioneering work and leadership in molten salt chemistry and in the thermodynamics of alloys.

Many of the papers presented in this issue represent the scientific contributions of the former students and associates who were able to attend this Conference. The broad scope of papers reflect the creativity and intellectual diversity of this group of scientists.

Ole Kleppa was born in Oslo, Norway on February 4, 1920. He received his early education in Norway. His university education was interrupted by World War II, during which he served in the Norwegian Army, in the

U.K. as an officer of Industrial Intelligence. After the war he resumed his education and received his Doctor of Technology degree from the Norwegian Technical University, in Trondheim in 1956. He began his long term association with the University of Chicago and The Institute for the Study of Metals (now James Franck Institute) in 1947, became an Assistant Professor in 1952, Associate Professor in 1958 and Professor in 1962.

Professor Kleppa began his research on binary alloys using electrochemical methods. However, he soon concluded that calorimetry would be a better approach to obtain reliable thermodynamic information.

Since 1952 Ole Kleppa has built a series of calorimeters for successively higher temperatures, and he has studied the thermochemistry of a wide variety of different materials. In the beginning he studied low melting binary alloys, then turned to tin solution calorimetry and to metallic solid solutions.

Professor Kleppa was the first scientist to apply the Calvet-type twin microcalorimeter in high temperature thermochemistry. His first Calvet-type calorimeter was built in 1958, and was designed for temperatures below 500°C. It was used extensively in studies of low-melting molten salts. It later provided the basis for pioneering work on solid solutions of hydrogen and deuterium in metals. He later developed and built a series of other Calvet-type calorimeters for temperatures up to about 1100°C. However, his most recent calorimeter, described in 1989, is based on the same principle as the commercial Setaram unit. Unlike the Setaram unit, it has a much larger internal diameter and it can be used continuously at temperatures up to about 1500 K.

While the thermodynamics of alloys represented Professor Kleppa's long term interest, over the years he also got involved in the study of a wide range of other materials, such as molten salts (from nitrates to fluorides), liquid oxides, oxide melt solution calorimetry, refractory oxides mixtures such as spinels and many other oxide minerals. In the late 1980's he developed the new technique of solute-solvent drop calorimetry which proved very useful in calorimetric studies of very refractory borides and also for refractory intermetallic phases. In his research, Professor Kleppa has had about 50 different graduate students and post-doctoral collaborators, who came to his laboratory from close to a dozen countries around the world.

Ole Kleppa often expressed his appreciation for the inspiration and creative discussions with Professor Cyril S. Smith, the first Director of The Institute for the Study of Metals, and with his former teacher Professor Håkon Flood of the Norwegian Technical University.

Professor Kleppa's research resulted in more than 300 scientific publications, mostly in the field of high temperature thermochemistry. He presented his contributions at numerous conferences worldwide. Colleagues and students who worked with him have appreciated his kindness, understanding, sensitivity, fairness, constructive criticism and pragmatic advice. We all learned from his optimism and good cheer in the face of adversity. These notions have been succinctly expressed during the banquet at the TMS Symposium by former students and associates from the four corners of the world.

During his distinguished academic career he also held several administrative positions: He was Associate Director and Director of The James Franck Institute 1968–1977, and also Director of the Materials Research Laboratory at the University of Chicago, 1984–1987. He served on the Board of Editors of the *Journal of Chemical Physics*, *Journal of Chemical Thermodynamics*, and *Journal of Phase Equilibria*.

Professor Kleppa won some prestigious awards such as the Huffman Memorial Award in 1982, U.S. Scientist Humboldt Award, 1983–1984, and the Hume Rothery Award in 1994. He was visiting Professor in Japan in 1975 and at the University of Paris, Orsay in 1977. He is a member of the Royal Norwegian Society for Science and Letters, of the Norwegian Academy for Technological Sciences, and a Fellow of AAAS and of ASM.

On behalf of the organizers of the Symposium, I wish Professor Kleppa many more years of creative activity in his field of research.

On behalf of the organizers of this special issue in honor of Professor Ole Kleppa, I wish to express my appreciation to Professors K.H.J. Buschow and Gordon Miller at the *Journal of Alloys and Compounds* and to Elsevier Science Publishers for their kind help with this publication.

Susan V. Meschel