



Robert J. Jaffee

Robert I. Jaffee

1917-1991

Written By John Stringer

Submitted By The Nae Home Secretary

ROBERT I. JAFFEE, a metallurgist of remarkable insight, died on November 28, 1991, at the age of seventy-four.

Elected to the National Academy of Engineering in 1969, Bob was engaged in alloy development and physical metallurgy research until his death and made many important contributions in these fields. He was also closely involved for much of his life in professional activities, both in the United States and internationally.

A native of Chicago, Bob graduated from the Armor Institute of Technology (now the Illinois Institute of Technology) in 1939 with a degree in chemical engineering. He then joined the School of Metallurgy at Harvard University, receiving his S.M. in 1940. Following this, he was awarded a U.S. Bureau of Mines fellowship at the University of Maryland, receiving a Ph.D. in 1943. He worked briefly at Battelle Memorial Institute in Columbus, Ohio, from 1942 to 1943, but decided in May of 1943 to go to the University of California, Berkeley, to work on a War Metallurgy project on magnesium alloys. It was there he met his wife, Edna. In 1944 he rejoined Battelle, where he was to spend the next thirty years, eventually becoming chief materials scientist.

In 1974 Bob "retired" from Battelle and joined the then new Electric Power Research Institute (EPRI). There he developed a material support activity, retiring as senior technical adviser in 1989. However, he continued to work with EPRI as a consultant until his

death. He was also a consulting professor in the Department of Materials Science and Engineering at Stanford University.

Bob was active in many metallurgical professional societies. He was particularly involved in The Metallurgical Society (TMS) of the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME). He was a director from 1977 to 1980, and in 1978 he served as the society's president. He was elected a fellow of TMS in 1972 and received the James Douglas Gold Medal of AIME in 1983 for "distinguished achievements in nonferrous metallurgy." Bob was also active in the American Society for Metals (ASM), of which he was elected a fellow in 1970 and an honorary member in 1976. He was selected to present the Edward DeMille Campbell Memorial Lecture of ASM in 1977, and in 1985 he was selected for the TMS/ASM Joint Distinguished Lectureship in Materials and Society. In addition, he received the Bronze Medal of the American Ordnance Association in 1966, and was selected to present the H. W. Gillett Memorial Lecture of the American Society of Testing and Materials in 1976. He was appointed fellow of the Institution of Metallurgists in the United Kingdom in 1967.

He was on the board of governors of *Acta Metallurgica* from 1969 and was chairman in 1976. Immediately before his death, he was selected as the third recipient of the J. Herbert Hollomon Award of *Acta Metallurgica*, which recognizes outstanding contributions to understanding the interactions between materials technology and societal interests. He was a member of numerous committees of the National Academy of Sciences, the National Research Council, the National Aeronautics and Space Administration, and the Advanced Group for Aeronautical Research and Development of the North Atlantic Treaty Organization.

Bob's research activity at Battelle was concerned with nonferrous metals, and in particular, titanium and its alloys. He established a worldwide reputation as perhaps the most distinguished metallurgist in this field. He was the inventor of a large number of commercially important (particularly for aerospace applications) titanium alloys and of fabrication methods for titanium alloys and structures. His interest in titanium metallurgy continued at EPRI, where he was responsible for the development of a thermomechanical fabrication route to make large titanium

alloy blades for steam turbines. However, at EPRI he also became an authority on ferrous metallurgy and led an important international program to develop superclean steels for turbine rotors and related applications, demonstrating that the control of minor constituents or impurities in the steel could greatly improve its toughness and stability. Bob was quick in identifying a potential materials problem in an advancing technology, or an opportunity for a useful materials development; and he was tireless in pursuing it to its solution, irrespective of the obstacles. The clean steels work demonstrates this characteristic particularly well; an idea was taken from the laboratory to installation in very large machines over a period of perhaps ten years, involving major technical contributions from England, Germany, and Japan, as well as the United States. Bob held forty-five U.S. patents and was author or coauthor of more than three hundred publications in technical literature.

Bob was also very interested in the communication of knowledge and ideas. While at Battelle he developed the concept of carefully focused, high-level colloquia on specific topics, with a limited number of invited participants. These formed the basis of a series of influential proceedings volumes. The same approach was also used for a number of specialist workshops at EPRI, and has been used as a model elsewhere. Bob was editor of twenty-three books, mostly of this kind.

In addition to his own skills as a researcher, Bob was adept at assembling groups of talented people to work with him. He formed a metals science group at Battelle and used a similar approach to build up a small but effective group of senior professionals at EPRI. He set high standards for all who worked with him, and he expected a level of effort similar to his own. However, he was also extremely supportive of those who passed his demanding criteria. He also assembled a group of researchers from around the world to attack specific technical problems. He had extensive interactions with colleagues in England, France, Germany, Japan, Taiwan, and the former USSR, among others. He was admired, liked, and respected wherever he went. His enthusiasm for materials research and his uncanny insight (the mark of a good metallurgist) remained burning brightly to the end of his life.