

JOHN FRANK ELLIOTT

1920-1991

BY MORRIS COHEN

JOHAN F. ELLIOTT, one of the world's foremost authorities in the field of metallurgy, died on April 15, 1991, at the age of seventy. He was the American Iron and Steel Institute Distinguished Professor of Metallurgy and director of the Mining and Mineral Resources Research Institute at the Massachusetts Institute of Technology (MIT). He was elected to the National Academy of Engineering in 1975 as a teacher, engineer, and scientist, who was responsible for major advances in metallurgical education, research, and processing.

John was born on July 31, 1920, in St. Paul, Minnesota, and received his early education in northern Minnesota. He was awarded the S.B. in metallurgical engineering with high distinction at the University of Minnesota in 1942. After becoming a lieutenant commander in the U.S. Navy during World War II, he enrolled as a graduate student at MIT and received the Sc.D. in metallurgy in 1949. He then joined the Fundamental Research Laboratory of the United States Steel Corporation as a physical chemist. Following this experience in industrial research, John joined the Inland Steel Company as a member of the research staff and was later appointed assistant superintendent of quality control of steelmaking. In 1955 he returned to MIT as associate professor of metallurgy and rose to full professorship in 1960.

John's teaching and research at MIT established his intellectual leadership in chemical-process metallurgy. He and his

students published well over two hundred papers, covering ferrous process metallurgy, high-temperature chemistry of inorganic materials, and hot corrosion of metals and refractories, as well as the underlying chemical thermodynamics and kinetics. One of his major publications was a comprehensive two-volume compilation, *Thermochemistry for Steelmaking*. He was also involved with technological developments in the metallurgical processing industry and with the conservation of energy and raw materials, including the related environmental implications.

In all these activities, John's achievements were acknowledged by many awards, invited lectureships, and honorary memberships. Among his more than a dozen prizes were the Robert W. Hunt Award of the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME), the John Simon Guggenheim Memorial Fellowship at Imperial College in London, The Albert Easton White Distinguished Teacher Award of the American Society for Metals, the AIME Legion of Honor, and the Tawara Gold Medal of the Iron and Steel Institute of Japan.

In addition to John's membership in the National Academy of Engineering, his honorary and fellow memberships included the American Academy of Arts and Sciences; the American Institute of Mining, Metallurgical, and Petroleum Engineers; the Metallurgical Society of AIME; the Iron and Steel Society of AIME; the Iron and Steel Institute of Japan; the Japan Institute of Metals; the American Institute of Chemical Engineers; the Sociedad Venezolana de Ingenieros de Minas y Metalurgicos; and the American Association for the Advancement of Science.

Among the honorary lectures given by John were the Howe Memorial Lecture of AIME, the Carter Memorial Lecture at the University of Strathclyde in Scotland, the Yukawa Lecture of the Iron and Steel Institute in Japan, the Extractive Metallurgy Lecture of AIME, the Zay Jeffries Lecture of ASM, and the Sir Julius Wernher Memorial Lecture of the Institution of Mining and Metallurgy in Great Britain. He also presented invited papers in Sweden, India, and Korea. In 1974 he served as visiting professor at the Tohoku University in Sendai, Japan, and in 1976 at the Simon Bolivar University in Caracas, Venezuela. He co-chaired the First Bilateral USA-China Metallurgical Conference

in Beijing in 1978, and coedited the classic proceeding on *Metallurgical Treatises* in 1981.

Perhaps the tribute that meant most to John was the Elliott Symposium on Chemical Process Metallurgy, organized by his students and colleagues and held at MIT in June 1990. It was a memorable occasion with featured papers on the future of process metallurgy in Asia, Australia, and Europe, as well as in the Americas. John participated actively throughout the symposium and gave the final presentation on "Whither Chemical Metallurgy?" Another highlight of the event was the establishment of an endowed fund by the Iron and Steel Society and the Minerals, Metals, and Materials Society in support of a John F. Elliott Lectureship in Chemical Process Metallurgy, "to honor Professor Elliott for his many accomplishments, and for the leadership he provided over a career spanning more than four decades."

Despite several life-threatening illnesses throughout his career, John demonstrated remarkable resolve to carry on with his way of life after each health crisis. Each time, he managed to resume his research and teaching, together with a vigorous schedule of world travel for conferences, honors, and invited lectures. He also remained ever-devoted to his family, students, and profession, along with his hobbies of gardening, sailing, and music appreciation.

Tragically, however, in December of 1990, fateful symptoms of a brain tumor were detected, and the end came for John in April of 1991. He is survived by his wife, Frances Pendleton Elliott; two children, William Stowe Elliott and Dorothy Elliott Sempolinski; and four grandsons.

John Elliott lived a life of purpose, fullness, and lasting achievement. He has left his indelible mark on the metallurgical profession.