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1922–1988

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"Doc" Savage, an international leader in welding and high-temperature testing, died on January 24, 1988, at the age of sixty-six.

Elected to the National Academy of Engineering in April 1981, Dr. Savage became the "chief mentor" to a major sector of the world of welding metallurgy.

During his career, which stretched across four decades, Dr. Savage published more than one hundred papers, mostly on welding metallurgy. He was graduate adviser and research adviser for more than fifty masters and thirty Ph.D. students, including the adviser to the president of Nippon Steel, the deputy director of the British Welding Institute, four university professors, a department chairman, a dean of engineering, three research directors, three chief welding metallurgists, and approximately forty welding engineers.

Dr. Savage developed a high-speed thermomechanical simulator and founded a company, Duffers Associates, Inc., for manufacturing and marketing this apparatus. He developed this apparatus to evaluate the influence of rapid thermal cycles on mechanical properties, such as those associated with affected zones of fusion welds. More than eighty of these devices, known as "Gleebles," are currently in use around the world for evaluating short-time elevated temperature properties, simulating hot

rolling and forging operations, evaluating weldability, and studying solidification phenomena.

He also developed a metering system for measuring the secondary current and weld time in electric resistance welding as an aid to quality control of spot and seam welding. More than three thousand of these metering systems are in use in automotive and aircraft assembly plants to monitor weld quality, which is vital to personnel safety. Dr. Savage held the patent on the Verestrain Test, a key method of evaluating the weldability of metals, which is used worldwide to provide a quantitative means not only for determining weldability but also for optimizing welding procedures.

His international reputation was amply demonstrated during his many visits to the U.S.S.R. as a member of the U.S.\U.S.S.R. Science Exchange Program. His reputation encouraged disclosure of Soviet progress and developments in important and novel welding techniques. He was invaluable in critically assessing the merits and potentials of this (and other foreign) information important to future productivity and quality.

Dr. Savage earned his undergraduate and graduate degrees while at Rensselaer Polytechnic Institute (RPI). After receiving his B.Ch.E. in 1942, he worked for two years as metallurgical engineer at Adirondack Foundries and Steel Company in Watervliet, New York. He then returned to RPI, receiving his M.Met.E. in 1949 and Ph.D. in 1954. Simultaneously he was a member of the teaching staff at RPI, as instructor from 1948 to 1952, and faculty member from 1952 onward. He became professor of metallurgy and director of welding research in July 1960.

Doc Savage received many awards during his illustrious career. He became an honorary life member of the American Welding Society (AWS) in 1970, and received from that society its Clarence H. Jennings Memorial Award in 1978 and 1980 and its award for the best research paper in 1977 and 1980. In 1986, friends and former students of Dr. Savage established through the AWS an award in his name to recognize his lifetime accomplishments and dedication in the field of welding metallurgy. He was a fellow of the American Society of Metals and of the Welding Institute. He was also a member of the Rensselaer Society of

Engineers and an expert on the American Delegation of the International Institute of Welding (IIW) and presented the 1980 IIW Houdremont Lecture in 1980. Professor Savage's long-term contributions to the field of welding research included the development of scientific principles; the translation of these principles to engineering, particularly for causes of weld cracking and methods of eliminating cracking; educational activities in technical societies; teaching of students; international societies leadership; and many other activities that reflect his foremost standing in the field of welding research.

Dr. Savage retired in 1984 but continued to play an active role in student advising and research activities for Rensselaer. Throughout his career he was sought after as a consultant by both government and industry. He served as a member of the U.S./U.S.S.R. Joint Commission on Welding and Special Electrometallurgy, was Welding Adviser to the Energy Research and Development Administration's Priorities Committee on Materials Research, and served as consultant to the U.S. Department of Transportation and the Association of American Railroads.

It is noteworthy that, apart from his professional prowess, Dr. Savage had a strongly humanistic side. He was a cordial, friendly, approachable person and could easily become enthusiastic in a dialog on practically any subject. He was a delightful companion, combining his professional astuteness with this social behavior.