

MEMORIAL RESOLUTION
JOHN W. FONDAHL
Charles A. Leavell Professor of Civil Engineering, Emeritus
(1924-2008)

Stanford lost a leader in Construction Engineering and Management with the death of John Walker Fondahl on September 13, 2008 at the age of 83 years. John was recognized worldwide as a major contributor to the development and use of the Critical Path Method for construction planning and project management. As a faculty member at Stanford, John advanced construction research, practice and education by co-founding the graduate Construction Engineering and Management program and developing the precedence method of network scheduling. His long and distinguished career also included service in the Marines during World War II, bridge design, construction engineering for a major dam project, and an extended term as a Director of Caterpillar, Inc. John's quiet innovation and leadership resulted in significant contributions to each of his diverse fields of activity.

John was born in 1924 in Washington D.C., where he met his future wife, Doris-Jane, in 1939 at McKinley Tech High School. During high school John was captain of a championship rifle team and an active member of the Cadet Corps. He graduated as valedictorian of his high school, receiving a four-year scholarship to Worcester Polytechnic Institute, while Doris enrolled at Mount Holyoke, about 50 miles away. Pearl Harbor changed everything— after just one year of college, John entered the military, serving in the Pacific Theater in the Fifth Amphibious Corps of the U. S. Marines. Both John, then a sergeant, and his father, a Lt. Colonel in a different Marine Corps unit, participated in and survived the famous battle to control the island of Iwo Jima. Upon returning to the U.S., John entered Dartmouth College to complete his study of civil engineering. He married Doris in 1946, received his MS in civil engineering from Dartmouth in 1947, and became a registered civil engineer in California.

John's first job out of Dartmouth was as an engineer and structural detailer with the American Bridge Company in Pittsburg, PA from 1947-48. After teaching civil engineering at the University of Hawaii from 1948-1951, John spent one year as an engineer and estimator with Winston Bros. Company in Minneapolis and then moved the family to Sacramento to work as project engineer on the Nimbus Dam and Powerhouse Project from 1952 to 1955. Clark Oglesby, a professor of civil engineering at Stanford, brought one of his classes on a field trip to the Nimbus Dam project. Clark was planning to develop a graduate construction program at Stanford and upon meeting John, encouraged him to consider joining the Stanford faculty.

John accepted Oglesby's offer, joining the faculty of civil engineering at Stanford to co-found the Construction Engineering and Management (CEM) graduate program with Oglesby in 1955. John served on the Stanford faculty for 35 years until his retirement in 1990, and was honored with the first Charles A. Leavell Professorship of Civil Engineering. Among the more than 2,000 alumni of this program, many have become leaders of both public and private sector organizations that develop buildings and infrastructure to meet societal needs — CEOs and senior managers of the largest engineering and construction companies in the US and abroad, Admirals in the Navy, and Generals in US Army Corps of Engineers. The vision and tireless

efforts of Clark and John contributed greatly to advancing Construction Engineering and Management as a profession and an academic discipline.

Professors Fondahl and Oglesby secured research support from the Bureau of Yards and Docks, U. S. Navy, in 1958. Renewed for 8 years, this pioneering support for research on construction work processes and organizations eventually covered many critical topics: application of operations research techniques to construction operations, development of time-lapse motion picture techniques, application of engineering economics to key decisions concerning construction equipment, and extension of the critical path method of scheduling construction operations. After completing the initial research to use short-interval time-lapse movies to analyze construction operations and developing the initial equipment and methods, John turned this work over to Professor Henry Parker.

John conducted research on the “time-cost tradeoff problem” to determine the performance rates for activities that would minimize the overall cost of a project, including indirect costs. He developed the precedence diagramming method for project planning and scheduling, which used flow charts that represented activities as the nodes of a graph, to replace the activity-on-arrow methods previously developed by DuPont and the U.S. Navy Special Project Office. The precedence method simplified the planning process and allowed the use of lag factors. John also investigated ways to increase the use of network-based planning techniques in construction. His publication “A Non-Computer Approach to the Critical Path Method for the Construction Industry” sold over 20,000 copies and was translated into over 20 languages. It provided an extremely valuable stepping stone between manual Gantt chart-based procedures for analysis of construction plans and schedules and emerging computer-based Critical Path planning methods and tools that are now routinely used for planning all kinds of projects.

In an early example of startup companies that grew out of research at Stanford, John and two former students founded Construction Data Systems Corporation. This firm assisted facility owners and contractors in applying the new network-based planning techniques to develop detailed plans for complex infrastructure projects. John also helped to found the Project Management Institute (PMI) in 1969 and later served as its president and chairman. In 2007, this organization recognized his major contributions to the field as recipient of the James O’Brien Lifetime Achievement Award in Project Management.

John’s teaching focused on planning and construction engineering for large infrastructure projects. He later developed some of the first courses focusing on application of network planning techniques in construction. John taught construction management courses in Egypt, Chile, Peru, Colombia, Venezuela, Denmark, Switzerland, South Africa, Australia, and Japan, and traveled with one of the first American groups to visit China following its opening in 1979.

In another pioneering effort, John founded the Construction Institute in 1960. One of the first industry affiliate programs at Stanford, the Construction Institute included progressive facility owners and contractors who established mutually beneficial links with the graduate construction program. The Construction Institute continues to provide valuable support for the Stanford Construction program. John also used the Construction Institute to maintain

long-term links with graduates and friends of the program and to assist them in their careers. Based on this platform, he became a consummate “networker” well before this term entered the business lexicon.

John served on the Boards of Directors of The Scott Company and Caterpillar, Inc. He was awarded the “Golden Beaver Award for Services & Supply in Heavy Engineering Construction” in 1976. John was elected to the National Academy of Engineering in 1993 and the National Academy of Construction in 2001. John’s many contributions to construction were recognized by ASCE’s Construction Management award in 1977 and ASCE’s Peurifoy Construction Research Award in 1990. John’s Peurifoy Research Award lecture highlighted the emergence of the construction engineer as a recognized member of the civil engineering profession and the need for further actions to implement new techniques, decrease disputes and litigation, improve contractual relationships, and increase professional teamwork.

Since 1965, the Fondahl family has made its home in Los Altos Hills. John taught his daughters to place concrete and worked incessantly on projects to improve the home. He and Doris have been long-time supporters of local theater groups including Bus Barn, Theatreworks, and ACT. On special occasions, John enjoyed sharing a bottle of Ridge wine with his family and friends, and was a regular Ridge visitor on Fathers’ Day. Upon retirement, John became a full-time gardener, planting and nurturing a large orchard and garden, and engaging in year-round production of soups, jams, preserves, and juices. John loved hiking and cross-country skiing at Lake Tahoe, including leading his family on an annual hike up to Desolation Wilderness’s Crag Lake.

John is survived by Doris, his wife and companion of 70 years, daughters Lauren, Gail, Meredith, and Dorian, son-in-laws Ken Bilski and Joe Martinka, David Wickline and grandchildren Gwynne Bilski, Arielle Martinka, and Peter Martinka.

Throughout John’s life people who knew him valued his integrity, his stoicism, and his wisdom to hold his comments on matters of importance until he had reflected thoroughly on them. All who had the good fortune to know and work with John will deeply miss his reflective analysis, authentic leadership, sage advice, unconditional support, and unfailing sense of humor.

Committee:

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