



Robert J. Weber

A. TOBEY YU

1921–2009

Elected in 1989

*“For pioneering contributions to materials handling, transportation,
and processing.”*

BY RAJA V. RAMANI

A. TOBEY YU, co-founder of ORBA Corporation and a pioneer in the development of bulk materials handling systems, died on April 8, 2009, at the age of 88 in Haiku, Maui. He is survived by his wife Natalie, son Leonard and wife Roberta Beatty, daughter Pamela and husband John Bannister, and four grandchildren.

The concept behind ORBA was hatched in the foothills of the Andes in South America. Tobey first visited the Cia Minera Sante Fe in Chile in 1957 as the chief engineer for Hewitt Robins, Inc., to build its materials handling system. Later he became the technical director of Cia Minera Sante Fe’s iron ore operations, which shipped high-grade ore to virtually every steel mill in the world. The company had to solve all the problems that arose in mining, processing, and transshipment of facilities associated with the bulk materials. Tobey concluded that a company dedicated to designing, building, operating, and troubleshooting bulk materials handling systems was needed.

ORBA’s quick growth in a relatively short time since its founding in 1972 to become a world leader in bulk materials transportation and its record compilation of several notable engineering firsts are testimony to Tobey’s enormous contribution to the mining and materials handling industries.

Tobey and ORBA are credited with turning “the Great Lakes into a modern, efficient ore / coal shipping waterway, humming with automated docks and a fleet of giant self-unloaders.”

For his pioneering contributions to materials handling, transportation, and processing, Tobey was elected to the National Academy of Engineering in 1989. In 1998 he became the 145th inductee into the National Mining Hall of Fame in Leadville, Colorado.

Tobey was born January 6, 1921, in Jiangxi province, China. Orphaned when he was very young, Tobey was raised in China by American Methodist missionaries whose dedication left a deep impression on him. He was to reflect that, “if everyone contributed just a little bit, it would be a much better world.” Toward the end of World War II, on the basis of the results of a public examination in China, which over 5,000 students took, Tobey was one of 700 selected to study in the United States, arriving in Boston in February 1945. Prior to coming to the United States, Tobey had earned his bachelor’s degree in civil engineering from Central University in Chungking in 1943. He completed his master’s degree in aeronautical engineering from the Massachusetts Institute of Technology in 1946 before attending Lehigh University for his Ph.D. in civil engineering, which he earned in 1949 while working for Bethlehem Steel as an engineer.

It was very disappointing to Tobey that, due to circumstances at the end of the war, he could not return to China. It would appear that nothing in life was easy for Tobey, but turning adversity to advantage was one of his greatest characteristics. Disappointed as he was, he moved to New York City to teach at New York University (NYU) and Cooper Union. That was the start of a remarkable career that saw Tobey make his mark as an educator, an engineer, a manager, and a chief executive. Tobey’s professional life is a continuous tale of defying tradition and conquering new frontiers, from the Atacama Desert in Chile to the Great Lakes in the United States to developing an efficient delivery chain for bulk materials.

While in New York, he met his wife, the former Natalie Kwok, who was born in Shanghai and had majored in arts in

college. They were married in 1951. Their daughter, Pamela, was born in 1952 and their son, Leonard, in 1955. Natalie was busy taking care of the home front as Tobey traveled extensively to remote corners of the world, where mining and bulk materials handling were synonymous activities. Among the six primary sources for his inspiration, energy, and tenacity, according to Tobey, the sixth and most important of all was “the sacrifices endured by his family over the long years.”

While teaching at NYU, the drawings of Hewitt-Robins traveling stackers and traveling shiploaders for a manganese mining operation revealed to him the potential of integrating his structural and mechanical training for enhancements in materials handling systems. Tobey joined Hewitt-Robins, which “did a lot of work for the mining and the steel industry,” as an engineer in 1951. Much appreciated and recognized for his imagination, Tobey was quickly promoted successively to chief design engineer, director of systems engineering, and vice president of operations. Along the way, Tobey obtained an M.B.A. from Columbia University (1972) and was licensed as a professional engineer in Alabama, Florida, Minnesota, New Jersey, New York, and Wisconsin.

Along with two other partners, Tobey formed ORBA in 1972—a firm dedicated to cost-effective integrated delivery chains of bulk materials, with the letter O standing for ore, R for raw materials, B for bulk cargo, and A for anything to be moved. The firm grew from its three founders to a staff of 250 professionals in three years.

Over 100 major projects worldwide, involving virtually all kinds of bulk materials, such as coal, iron ore, phosphate, potash, and copper concentrate, were successfully designed, built, or operated under Tobey’s direction. He was at the forefront of the revolution in designing equipment and systems of capacities and capabilities never before attempted. The Superior Midwest Energy Terminal in Superior, Wisconsin, which was completed in 1976, became the gateway for transportation of low-sulfur western coal. It won the 1977 Outstanding Civil Engineering Achievement Award from the American Society of Civil Engineers. ORBA went on to design

and build several other award-winning materials handling facilities, including the Two Harbors Taconite Terminal and the Lorain Pellet Terminal, which won Outstanding Engineering Achievements of the Year awards from the National Society of Professional Engineers.

Tobey achieved many notable engineering firsts, including the first modularized automated truck-to-train transfer station and the first modularized dry magnetite beneficiation plant. During the period 1978 to 1986, at the invitation of the Chinese government, he lectured in China on materials handling systems for several science, engineering, and technology groups. Tobey retired as ORBA's chairman in 1987. Even in retirement, he continued to be active in professional and technical activities, only scaling back to a six-day work week from a seven-day one.

Tobey's remarkable achievements were recognized by several peer groups in diverse fields of engineering. In 1977 the Chinese Institute of Engineers (CIE) honored him with the CIE-USA Achievement Award for his contributions to the design and construction of ship-barge loading systems. In 1986 Tobey became the president of the Society of Mining Engineers. In 1987 he was named a distinguished member of the society in appreciation of outstanding service to the minerals industry. In 1988 he was bestowed the Distinguished Achievement Award of the American Society of Mechanical Engineers for his outstanding achievements in materials handling engineering. Tobey's significant, innovative, and valuable contributions to the technology of transportation and handling of materials were cited when he was awarded the American Institute of Mining, Metallurgical and Petroleum Engineers (AIME) Robert H. Richards Award in 1989. He was AIME's Henry Krumb Lecturer in 1990.

Tobey was one of the most prolific authors in the mining, mechanical, and materials handling fields, with over 200 publications in leading journals and handbooks. He wrote a wonderful small book—*Utmost Simplicity: My Life and Its Lessons* (Flying Rabbit Press, 2007)—which is a veritable storehouse of pearls of wisdom hidden among numerous anecdotes of his

interesting life experiences. Here is a quote on his philosophy of working with people and building teams: “There is no such thing as a perfect person. But there is such a thing as a superb team. If you put good people together, they can compensate for each other’s shortcomings, they can expand, grow, enlarge to the extent—you almost feel there is no limit to it.” This is the lasting legacy of a simple, humble, noble man.

