



Ingersoll Studio, Menlo Park, California

Thomas M Leps

THOMAS M. LEPS

1914–2010

Elected in 1973

“Achievements in the field of soil mechanics, design of earth and rockfill dams, and safety of earth structures.”

BY NELSON L. DE S. PINTO

THOMAS MACMASTER LEPS died April 23, 2010, at the age of 95. Born in Keyser, West Virginia, on December 3, 1914, he grew up in San Jose, California.

He had a paper route to pay for college and, using his Indian motorcycle to deliver the papers, he became a skilled rider. Hired as a park ranger for the summers of 1933–1936 at Sequoia and Kings Canyon National Parks, his duties included riding into the parks on motorcycle or horseback to ensure safety and maintain the park rules. His nephew Tim O’Leary remembers him “speaking warmly of his time working in the mountains of central California” and that “he was an avid swimmer, hiker, and outdoor enthusiast.” He met his wife Catherine (Katie) Sacksteder at the main lodge.

Tom enrolled at Stanford University and graduated with an AB in civil engineering in 1936. He received an MS in civil engineering from the Massachusetts Institute of Technology in 1939.

After getting his AB he initiated his professional work as a civil engineer and research assistant on highways, soil mechanics, hydrology, and flood control dams until 1941, except for the time at MIT for his MS degree. He became an assistant civil engineer in the US Bureau of Reclamation, working at the Denver Earth Dams Laboratory in 1941–1942.

He moved next to DeLeuw, Cather & Co., where he was in charge of construction of ordnance and ammunition depots (1942–1943).

Those activities were interrupted for service in World War II as an officer in the US Navy Civil Engineer Corps (125th Seabee Battalion), in charge of the design of Navy bases and airfields on Hawaii and Okinawa (1943–1946).

In 1946 Tom resumed work as a civil engineer, now with Southern California Edison Co., one of the largest electric power utilities in the country, where he rapidly reached the position of chief civil engineer and became involved in the engineering of many large projects.

In his activities with Edison, which involved the design and construction of large dams, tunnels, canals, steam and hydro power plants, transmission lines, and switchyards, Tom achieved prestige as a soil mechanics expert and respect for the quality and consistency of his technical opinions on the design and construction of large hydro projects. During his last three years with the company he was a manager of organization and procedures.

In 1961 he left for a position as chief engineer with Shannon & Wilson Inc., a company involved in soil mechanics and foundation engineering, for three more years of work in the geotechnical field.

The foregoing experience gave him the opportunity to build up a solid base of knowledge in both his geotechnical specialty and heavy construction works in general, and to establish his reputation in the engineering community. That knowledge base supported his decision to begin an independent consulting practice in the field he defined as “geotechnical engineering as related to dams, project planning, analysis of heavy construction problems, hydro, steam, and nuclear power plants, penstocks, tunnels, canals, foundations, landslides, subsidence, and seismic problems.”

Over the next four decades Tom contributed to more than 100 projects in the United States, Canada, and about 15 foreign countries. His participation was multifaceted. He was a member of the board of consultants for many large hydro

projects (10 in Brazil alone). He cooperated in the design and construction of paramount projects such as the Tehachapi Mountain Crossing of the California Aqueduct and the Bay Area Rapid Transit system (BART), and was a member of the Independent Panel on the Failure of Teton Dam. He also contributed his analysis and advice to the solution of problems on many other projects.

His activities included dam safety reports for several hydro-power utilities. He had the required experience and the right approach to set the reports to the satisfaction of the owners and public authorities alike. As a result he became a sort of permanent consultant for utilities such as the Tennessee Valley Authority (TVA) to handle problems at short notice. His contributions were always distinguished by the clarity of his engineering reasoning, his objective and impartial judgment, and his excellent and legendary English writing form.

Samples of his reasoning and clear writing style are evident in a collection of more than 30 technical papers, some of which have become benchmarks on the evolution of the rockfill dam design. His papers on "Review of Shearing Strength of Rockfill" (*ASCE Proceedings*, 1970) and "Flow through Rockfill" (*Casagrande Volume*, 1973) and his three chapters ("Rockfill Dam Design and Analysis," "Rockfill Dam Construction and Foundation Treatment," and "Rockfill Dam Performance and Remedial Measures") in *Advanced Dam Engineering for Design, Construction, and Rehabilitation* (Springer US, 1988) illustrate both his commitment to rockfill dams and the nature of his rich contributions.

For his professional achievements, Tom was made a member of the National Academy of Engineering in 1973 and in 2006 he received the US Society of Dams Lifetime Achievement Award.

I met Tom in Brazil when he was for the first time a member of the board of consultants for two important rockfill dam projects in the Iguaçu River in the 1970s. We worked together from then on as board members on six other hydroelectric projects in Brazil. The last one was finished at the end of the 20th century, when Tom was winding down his prolific

65-year professional career. Those contacts and the opportunity to share not only technical questions but ethical circumstances as well increased my admiration for him and made us very good and close friends.

Tom belonged to that special class of American engineers that, having experienced the pressure of war engineering at the start of their career, brought to their professional life the no-nonsense approach and honesty required for good engineering of large hydro projects. In addition, by his character he left an example of competent and ethical behavior that continues to inspire the engineering world in the United States, Brazil, and the many countries in which he worked.

Tim O'Leary noted that Tom and his wife transmitted their passion for service and education to their nieces—one is an architect and the other an engineer, both employed by Bechtel Corporation. He described his uncle as “a gentleman, the definition of civility and dignity.”

Tom is survived by his son Timothy M. Leps.

