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**Chapter:** VICTOR FROILANO BACHMANNDE MELLO

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# VICTOR FROILANO BACHMANN DE MELLO

1926–2009

Elected in 1980

*“For development of geotechnical engineering and international leadership in design of embankment dams and in situ testing for foundation design.”*

WRITTEN BY LUIZ GUILHERME DE MELLO  
SUBMITTED BY THE NAE HOME SECRETARY

VICTOR DE MELLO, a Brazilian geotechnical engineer, died on January 1, 2009, at the age of 82. Son of a professor medical colonel M.P. (Member of Portuguese Parliament) and a German–Swiss mother, Victor de Mello was born in Goa, Portuguese India, on May 14, 1926. He attended British boarding school in India and then moved to Boston in 1944. As a brilliant student at the Massachusetts Institute of Technology (MIT), he obtained both his B.Sc. and M.Sc. in 1946 and his doctoral degree in 1948.

He immigrated to Brazil in 1949 to be a Brazilian, both because of deep-rooted cultural affinities with Goa and the nostalgic challenges of unopened frontiers of tropical civil engineering. It was in Brazil and from Brazil that Victor grew from his strong roots into a big tree, spreading his teachings to the four winds and the fruit of his works through countless projects built.

Victor’s academic skills, nourished with Donald Taylor, led to a marked influence on MIT’s shear strength and on the stabilization of clays research projects, the latter granting him a U.S. patent.

His enthusiasm for civil engineering involved action and creation on behalf of society, leading him to accept the invitation of the Light and Power Company, from São Paulo, Brazil, to join its department of hydroelectrical power new developments in late 1949. In 1951 he joined Geotecnica, a geotechnical engineering services, design, and construction company. Following a return to MIT in 1966–1967 as a senior visiting professor, Victor started his career as an individual consultant.

His main contributions were to embankment and gravity dam engineering, earth moving, tunnels and underground works, deep urban and port-lock excavations, foundations for high-rise buildings, bridges, industries, ports, jetties, breakwaters, highways, and railroads. One of his technical passions was probability and statistics applied to engineering design philosophy, together with risk analysis.

As an individual consultant or as a member of international advisory panels, Victor participated in the design and construction of major engineering projects: Emborcação, Foz do Areia, Guri, Pedra do Cavalo, Tucuruí, Yacyreta, and hundreds of other dams in Brazil, in all of Latin America as well as elsewhere, such as Angola, Burkina Faso, China, Iraq, Iran, Mozambique, Turkey, and Tunisia. The research and developments proposed by Victor for the behavior of compacted saprolites and residual soils have influenced dam engineering throughout the world. His activities also included the design and follow-up of large open-pit mine projects in Brazil, the Imigrantes highway, the Ferrovia do Aço railway; geotechnical problems of the Confins, Galeão, and Manaus airports; and Açominas, Albras, Alumar, Alunorte, Camaçari, Cubatão, and Duque de Caxias refineries and steel and aluminum mills. One of his fascinating contributions was in the diagnosis of catastrophic slope destabilizations in Hong Kong from 1976 to 1979.

His professional vision was marked by intense job-generated research/observation and lonely mental experimentation and debates, with data and interpretation published worldwide. He emphasized the priority sequence of allegiances as, first,

a world citizen and then a civil engineer for better fulfillment and finally, only subordinately, as a geotechnical specialist for better engineering. He preached the preeminence of creativity and of prescriptions rather than correlations, as dominating geotechnical engineering design. In lecturing on his select case histories, he always surprised by stressing from each case the lesson whereby the earnest optimized solution should principally indicate how not to repeat it, if the case chanced to present again.

An enthusiastic and intense perennial challenger and debater, Victor was often rightly misunderstood as disagreeing with his colleagues when he was really debating the topic and his own questionings. His approach has

been exposed and expanded in some important papers, including the Rankine Lecture (1977); Foundations on Clays (1969); The Standard Penetration Test (1971); Thoughts on Soil Engineering Applicable to Residual Soils (1972); Some Lessons from Unsuspected, Real and Fictitious Problems in Earth Dam Engineering (1975); Philosophy of Statistics in Geotechnique (1975); Behaviour of Foundations and Structures (1977); Behavior of 2 High Rockfill Dams (1984); Foundations of Gravity Dams, Geomechanical Interaction (1984); Destabilization of Rockfill Slopes (1986); Embankment Dams and Dam Foundations (1989); Lessons of Adjustments to Tropical Saprolites and Laterites (1989); Revisiting Our Origins (1994); and Landslides by Maximized Infiltration: Fundamental Revision of Stability Calculations and Stabilizing Drainages (2003). Victor was working on a book on his visions on applied soil mechanics, which he left unfinished but which will be made available in the near future.

Some of the honors he received include being named an honorary member of many soil mechanics societies (Argentina, Japan, Portugal, Southeast Asia, Venezuela). He also was a fellow of the Third World Academy of Science in Trieste, Italy; a foreign associate of the National Academy of Engineering (U.S.); president of the International Society of Soil Mechanics and Geotechnical Engineering (1981–1985); vice president of the International Society for Rock Mechanics

(1970–1974); founder and president of the Brazilian Society of Soil Mechanics and geotechnical Engineering (1964–1966); recipient of the Terzaghi Award twice in Brazil and of the Manuel Rocha Award in Portugal, Terzaghi; orator, ISSMFE (1994); and member of the National Academy of Engineering of Brazil and of Argentina.

In an attempt to honor Victor de Mello and celebrate his contributions to geotechnical engineering, the Brazilian and Portuguese geotechnical societies have created the Victor de Mello Lecture. The first lecture was delivered by John Burland in 2008.

Victor was also a special human being. His love and strong links to his brothers and sisters started early in their lives, with the six of them being educated at home in Goa; four obtained higher degrees in the United States. Family gatherings continue today.

Music, literature, dancing, wind surfing, and tennis were among Victor's interests. He played the piano, and this helped him find his way to MIT. His love of music included occidental classics, Portuguese *fados*, Brazilian popular music, and Indian *ragas*. Nature and art nurtured him; he changed his daily drive to the office according to which trees were flowering along the route. His wide cultural background led him to pursue knowledge from a multidisciplinary constellation of authors. And his habit of starting early each day included long, intensive working hours and also leisure and sports.

Professor de Mello died peacefully of a minor stroke at his home in São Paulo, after a long illness, amyotrophic lateral sclerosis (ALS, also called Lou Gehrig's disease). He leaves his wife Maria, his daughter Lucia Beatriz, his son Luiz Guilherme, and four grandchildren. A great human being, a true individual and friend, an outstanding practicing engineer has left our community.

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