

From Liberia to Loadtest

Jack Hayes' career began in Liberia. As a "penniless" engineer with a newly minted graduate degree from London's Imperial College, and also a new wife, he accepted an assignment from Raymond International in Africa. He had to borrow money to send his wife home to Canada. It's been a long journey from Liberia to Loadtest, Inc., the high-profile company of which Hayes is president.

Hayes spent his early years in a very small town in northern Manitoba, where the tallest structure was a grain elevator. As a young boy, he asked who could have built such a structure and an uncle told him "probably a civil engineer." This remark could have been the inspiration for Hayes' career. He studied engineering at Queens University, then worked a year or so in the design firm H.G. Acres. He soon realized he needed a graduate degree in geotechnical engineering to advance, and was attracted to London's Imperial College by the presence there of luminaries such as Skempton and other "disciples" of geotechnical engineering.

Liberia was one of the "least developed" countries in Africa when Hayes went there in 1962, he says, but he liked his work for Raymond International and had much more responsibility than he might have had elsewhere. Fortuitously, he discovered an error in the specifications for the job; the engineers were using a modified Proctor Standard of T180, when it should have been T99. His discovery saved Raymond millions, he recalls. His sharp eye elevated him in the opinion of others, notably Ralph Peck, who was consulting on the project. There was another error, a typo. His contract with Raymond stated a duration of 8 months, instead of the standard 18. Raymond honored the early departure date, enabling Hayes to get back home for the birth of his son.

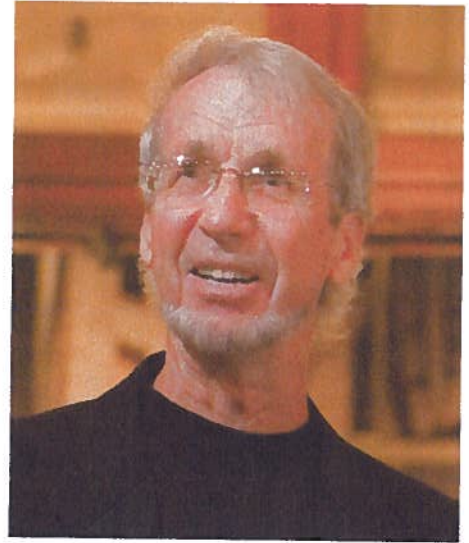
Back in Canada, with recommendations from Peck, Hayes had his choice of jobs. He decided to work for R.M. Hardy and Associates, a prominent Alberta firm for about a year, but working in the bitter cold

winter months was tough. So he was delighted when Raymond invited him back to the warmth of Liberia to work on a U.S. Agency for International Development hydro dam. He brought his wife and young son with him. The medical facilities were less than wonderful, and he endured several days in a coma at one point. Nonetheless, Hayes says his time there convinced him he'd made the right career choice with geotechnical engineering.

Hayes' experience in Liberia gave him the confidence to go out on his own when he returned to Canada, and in 1966, he founded Site Investigation Services Ltd in Ontario. In 1972, he was joined by Robert Marttila, a classmate from Hayes' undergraduate days. The successful firm performed a wide range of geotechnical services for over 30 years. Marttila says this of his longtime partner: "Jack is principled and generous in business and in his personal life," adding that he has a "creative flair and a talent for separating the wheat from the chaff, finding the key points in a project." Hayes left Site and began setting up Loadtest around 1990. (Marttila continued with the firm, which was sold to a conglomerate in 2009.)

Loadtest Beginnings

Hayes offers some background history, saying that Silvano Marchetti, who invented the dilatometer, joined with John Schmertmann to develop the testing tool in North America. Hayes was the first to import that equipment to Canada. He then became the dilatometer agent in Canada for Schmertmann and Crapps, and they began their professional collaboration. Schmertmann, who had been a student of Jorj Osterberg at Northwestern University, had set up a partnership with David Crapps. The pair decided to explore the business potential of the new technology and with Osterberg, Hayes and an equipment fabricator, set up a new firm, Loadtest, and chose Hayes as president. Time has more than justified their choice. Loadtest is now a highly successful firm, with a global



presence, and a product, the O-cell, that has transformed high-capacity load testing worldwide. Hayes comments that "we geotechnical engineers thought we'd acquired all the knowledge we needed. The O-cell showed us we didn't know as much as we thought." Crapps says the technology greatly reduced the cost of high-capacity load testing, and is safer, because the jack is at the bottom of the pile.

Schmertmann says that Hayes' technical and managerial leadership proved crucial in the success of Loadtest and its ultimate sale to Fugro N.V. in 2009. About that acquisition, Hayes told his employees that Loadtest was "acquiring a new owner." Schmertmann describes Hayes management style as "optimistic and challenging — gently guiding his employees to do their best and to assume responsibility," adding that he made his workers feel appreciated and part of important work. Crapps thinks Hayes is the "rare engineer who is also a people person, a highly likeable individual."

Stadium Kickoff

Hayes describes his first years with the new firm as "preaching in the wilderness," visiting state Departments of Transportation, contractors and others in the foundations industry. He was assessing the potential market for the O-cell, he says, relying on Say's economic law, "supply creates its own demand" or "build it and they will come."

Sales started slowly, but steadily, and a watershed application was the 1994 rehab of the LA Coliseum in Southern California.

As Hayes tells the story, player Al Davis wanted to get out of his contract with the Coliseum and presented an ultimatum: he would leave if the stadium foundation rehab was not complete by starting day. The drilled shafts had to be installed inside the stadium under low-overhead conditions, at the rate of one per day to meet that draconian deadline. The actual rate was one per week. Law-Crandall's chief engineer, consulting for contractor Tudor-Saliba, saw a Loadtest brochure and called Hayes. He "dropped everything" and air-freighted the O-cells in one day, poured concrete, waited for it to cure and conducted the tests in less than a week after the first call. If they could prove that shorter drilled shafts could carry the loads, the contractor and the owner would save money and the work would be done seven times faster. The LA authorities also okayed a redesign using a load factor of 0.35 and a resistance factor of 0.9, provided that every new drilled shaft be checked with an O-cell test. Even though the load tests cost \$500,000, it was worth it to the contractor. There was a \$1 million bonus for the on-

time completion, and a \$2 million penalty if it had been late.

The Pursuit of Happiness

Now settled in Gainesville, Fla., since 1994, Hayes says that he had always been captivated by the phrase "life, liberty and the pursuit of happiness" in the U.S. Declaration of Independence, and wanted to live in a country that valued happiness. He seems to have a lot to be happy about, but he continues to spread his message about industry practices, attempting to change "factors of safety" to "factors of uncertainty," a semantic difference that has many implications about which he is happy to expound. He also continues to deplore this country's obsession with the low bid, although he thinks this is slowly diminishing with the acceptance of design/build and other project delivery methods.

Several people queried here mention Hayes' love of golf and of a good party, in addition to his management prowess. One, Scot Litke, editor in chief of *Foundation Drilling*, says Jack's partnership with Jorj Osterberg, and promotion of this

technology, has revolutionized the rational design of drilled shafts, rendering them an extremely competitive deep foundation alternative." Edward Hadjuk, professor, University of Massachusetts, Lowell, agrees, saying the O-Cell has had a "profound impact on how static load tests of deep foundations are conducted, significantly reducing costs and time."

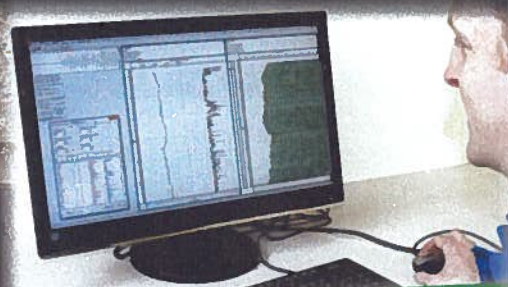
Finally, Bernie Hertlein, AECOM, says, "The term 'old school' has been overused and abused in today's pop culture, but Jack Hayes truly is old school. He is a gentleman in every sense of the word — polite, honest, courageous, chivalrous, and generous with his time, expertise and resources. Under his leadership, Loadtest has made many generous contributions to the deep foundations industry, and proven to geotechnical engineers that they can significantly improve the efficiency of the foundations that they design." Notably, Jack Hayes is a long-time supporter of DFI, which he thinks is a "wonderful organization" that, along with ADSC, promotes the expansion of technical knowledge.

Virginia Fairweather

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