



Herbert Bernhardt Voelcker, Jr.

January 7, 1930 – January 23, 2020

Herbert Bernhardt Voelcker, Jr., the Charles Lake Professor of Mechanical Engineering, Emeritus died on January 23, 2020 in Ithaca at the age of 90.

Herb was born in Tonawanda, New York and considered himself a "river rat," sailing his own small sailboat (built with his father) on the Niagara River.

He graduated from the Massachusetts Institute of Technology in 1951 with a Bachelor of Science degree in Mechanical Engineering. While at MIT, he was both the stroke of the Lightweight Crew and the captain of the university's rifle team, as well as a member of the Beta Theta Pi fraternity.

Herb was also a Distinguished Military Graduate of the Reserve Officers Training Corps. Upon graduation, he received a commission in the regular U.S. Army Signal Corps. He served as a signal officer in the 82nd Airborne Division for two years. The Army then sent him back to MIT, where he earned a Master of Science degree in Electrical Engineering in 1954.

While in graduate school, Herb met Jean Hunter through an introduction by his sister. Herb and Jean's first date was on a cold, windy March 1954 day sailing a rather leaky Tech dinghy between the bridges on the Charles River, drenched and freezing. They married in December that year.

Starting in 1955, Herb discovered the joys of research after being posted to the U.S. Army's Signal Labs at Fort Monmouth, New Jersey. This set him on his future career as a research engineer and professor. During that time, he was also a member of the U.S. Army Rifle team, traveling to Melbourne, Australia, to compete in the 1956 Olympic Games.

Herb resigned his commission at the rank of Captain when he received a two-year Fulbright

Fellowship in 1958, enabling him to study at the Imperial College of Science in London. The College granted him a Doctorate of Electrical Engineering in 1961, after which Herb and Jean returned to New York State.

He started teaching at the University of Rochester as an assistant professor of electrical engineering. In 1969, he was awarded the university's Edward Peck Curtis Award for Excellence in Undergraduate Teaching, a remarkable honor so early in his career. Later, while at Cornell, he continued as a rigorous teacher whose students valued his teaching and rated it very highly.

Herb is well known for founding the Production Automation Project in 1972, leading the research team that developed mathematical foundations and core algorithms for solid modeling—the enabling technology for modern mechanical computer-aided design.

In 1985, Herb became the head of a new directorate for advanced manufacturing technologies at the National Science Foundation in Washington, D.C. However, a reorganization less than a year after he arrived curtailed the goals of his unit, so the Voelckers spent only a single year in the nation's capital.

Returning once more to upstate New York, Herb was the first recipient of a new chair at Cornell in the Sibley School of Mechanical and Aerospace Engineering. With their two adult sons John and Edward (Ned), out on their own by then, Herb and Jean lived for more than three decades in Ithaca—their longest tenure in any one location.

At Cornell, Herb was one of the primary intellectual leaders in developing the School's curriculum in design and manufacturing. After formal retirement in 2000, Herb continued to teach one course each year through 2019 and had planned to do so again in early 2020.

His research during a 60-year career ranged over radio propagation, aural perception, and bandwidth compression in the 1950s; modulation theory and digital signal processing in the 1960s; computer science and solid modeling in the 1970s; machine tools and numerically controlled programming systems in the 1980s; and parallel computation, dimensional tolerancing, and mechanical design during the 1990s. Following his 2000 retirement, his parttime technical work focused largely on assembly modeling and variation control in mechanical design and manufacturing. The National Science Foundation provided financial support to many of these efforts.

Among his professional honors, Herb was a Life Fellow of both the Institute for Electrical and Electronics Engineers (IEEE) and of the American Society of Mechanical Engineers (ASME). In 2007, along with engineering professor Aristide Requicha of the University of Southern California, one of his early Ph.D. students, he received the inaugural Prix Bezier, the senior prize of the International Solid Modeling Society, for fundamental contributions to solid modeling.

Two years later, he was named a '2009 Master of Manufacturing' by Manufacturing Engineering, the magazine of the Society of Manufacturing Engineers (SME). In 2014, he received a Lifetime

Achievement Award for his work in industrial automation from ASME's Computers in Information in Engineering (CIE) Division.

During the 1990s, Herb and Jean returned to the water, piloting a succession of cruisers throughout the Northeast, the St. Lawrence Seaway, the Intercoastal Waterway, and other recreational routes. They jointly designed the layout and interior of the Rover, a 37-foot craft built in Maine on the hull of a lobstering trawler, taking delivery in October 2002. The last boat Herb built, after a gap of more than half a century, was a wooden Nutshell Pram that served as the dinghy on the Rover.

Modified obituary submitted by John Booker and Albert George