



George

# GEORGE BUGLIARELLO

1927–2011

Elected in 1987

*“For outstanding contributions in biomedical engineering, fluid mechanics, and socio-technology, and for leadership in technological education.”*

BY RICHARD THORSEN  
SUBMITTED BY THE NAE HOME SECRETARY

**G**EOERGE BUGLIARELLO, a visionary leader who understood the role of engineering in improving the world, died on February 18, 2011, at the age of 83.

George, or Giorgio, as he was called by his family, was born in Trieste, Italy, on May 20, 1927. He studied engineering at the University of Padua, graduating summa cum laude in 1951, and then earned a master’s degree in civil engineering at the University of Minnesota in 1954 and a doctorate in civil engineering and hydrodynamics at the Massachusetts Institute of Technology in 1959. He joined the engineering faculty at Carnegie Mellon University (CMU) in 1959 as assistant professor of biotechnology and civil engineering and rose to the rank of professor. In 1964 he became the founding director of the bioengineering program at CMU, and in 1969 he became dean of engineering at the University of Illinois at Chicago Circle. George became the first president of Polytechnic Institute of New York (now Polytechnic Institute of New York University), formed by the merger of Polytechnic Institute of Brooklyn and the New York University’s School of Engineering and Science in 1973. He served for 21 years until 1994.

George embraced change and was a leader who went about making change possible. His range of interests and expertise transcended many disciplines, including civil engineering, biomedical engineering, urban development, science policy, water resources, and environmental science. He recognized that engineering was not an isolated endeavor but an integral part of the natural world and society. This concept was embraced in the word *biosoma*, coined by George, from the contraction of *biology*, *society*, and *machines* and eloquently expressed in the seal of the Polytechnic Institute, which George was instrumental in designing: *Homo et hominis opera partes naturae* (Man and the works of man belong to the natural world).

When Bugliarello became president of Polytechnic Institute of New York, the institution had limited resources, had a declining enrollment, and was located in a deteriorating neighborhood in downtown Brooklyn. George approached the challenges of his presidency in the best engineering tradition: analyze, plan, execute.

He outlined the pillars of his plan on a paper towel on New Year's Eve 1973 in Paddy's Clam House, on 34th Street near Penn Station in Manhattan, where George and four close advisers met to lay out the institute's future. What emerged were three priorities that formed a stable platform and would define much of George's presidency:

- First, the institute would increase enrollment through growth on satellite campuses. This was necessary to preserve faculty positions and jobs for staff, something always foremost in George's mind.
- Second, it would begin something it had historically been reluctant to do—undertake organized fund-raising.
- Finally, it would create a new campus for the flagship academic programs in Brooklyn.

Under George's leadership, undergraduate programs were introduced on Long Island in 1974. Within two years Polytechnic began its first organized fund-raising efforts.

Success on these two fronts stabilized the institute's finances and enabled it to focus on the third and most audacious of George's goals—a new campus for the Brooklyn component of Polytechnic. This project—15 years in duration from concept to completion—required working with the city's fathers and the corporate sector to renew the area surrounding Polytechnic by creating an urban corporate-university park to be known as the Metropolitan Technology Center or MetroTech.

MetroTech became the largest urban corporate-university park in the country, boasting 22,000 corporate employees at its peak. It was the catalyst that transformed downtown Brooklyn, giving rise to new businesses, hotels, and modern high-rise housing. George was honored by the *Engineering News-Record* as one of "Those Who Made Marks," and in 1994 he was awarded the New York City Mayor's Award for Excellence in Science and Technology.

His many other accomplishments as president of Polytechnic included creation of a state-funded Center for Advanced Technology in Telecommunications in 1982, which continues to receive funding from the state of New York as a resource for business creation and support. In 1994 he launched the Center for Technology and Financial Services at Polytechnic, with teaching and research and a strong focus on users of technology in the financial industry. The center gave rise to the first master's program in financial engineering in the country.

George was a prolific researcher and writer, authoring more than 300 papers and several books. His early pioneering work on the fluid mechanics of blood flow not only was his personal window into bioengineering but also ignited subsequent work by many researchers around the world. He was also a creator of important application tools, most notably *Hydro*, a computer language for water management.

After stepping down as president of Polytechnic, George devoted himself to service to the engineering community. He continued as editor of the journal he cofounded, *Technology in Society*, and taught advanced courses in urban sustainability and introductory courses preparing first-year students for the rigors, challenges, and excitement of engineering. His many

service positions included foreign secretary of the National Academy of Engineering and interim editor of *The Bridge*, the NAE's journal. He held honorary lifetime membership in the National Association for Science, Technology and Society. From 1994 to 1997 he chaired the Board on Infrastructure and the Constructed Environment of the National Research Council. Later he served as chair of the NRC's Committee on Alternatives to Antipersonnel Landmines and as a member of the Committee on Army Science and Technology for Homeland Defense. He also served on numerous national boards and committees, including the Advisory Committee for Science and Engineering Education of the National Science Foundation, the National Academies Committee on Megacities, the National Committee on Science Education Standards and Assessment, and the Lawrence Livermore National Laboratory's Engineering Advisory Committee.

Bugliarello's international contributions included consultancies abroad for the United Nations Educational, Scientific and Cultural Organization and the Organization for Economic Cooperation and Development, as well as assignments as a specialist for the U.S. Department of State in Venezuela and Central Africa. He was the U.S. member of the Science for Stability Steering Committee and the Science for Peace Steering Committee of the Scientific Affairs Division of the North Atlantic Treaty Organization.

Although he rarely spoke of his honors, George was widely recognized, garnering eight honorary doctorates, the Walter L. Huber Civil Engineering Research Prize of the American Society of Civil Engineers in 1967, and the 2009 Marconi Society's Beacon of Light Award. He was a fellow of the American Society of Civil Engineers, the American Society for Engineering Education, the American Association for the Advancement of Science, the New York Academy of Sciences, and the Biomedical Engineering Society. He was a founding fellow of the American Institute for Medical and Biological Engineering and served as president of the scientific research society Sigma Xi.

The memory of George Bugliarello would be woefully incomplete without mentioning his quiet kindness to friends and colleagues who came upon tragedy and sadness in life. He always found time to be a consoling voice to those who were suffering the loss of a parent, spouse, or child or to those who themselves were in their final days.

George Bugliarello's leadership, collegiality, civility, keen mind, and kindness made those he touched better for knowing him. He will be missed.

In 1960, he married Virginia Upton Harding. She survives him as do his sons, Nicholas and David.