ENGINEERING is about making and doing things that have not been done before. To be successful, it is essential that engineers properly anticipate how things can fail, and design accordingly. Case studies of past failures thus provide invaluable information for the design of future successes. Conversely, designs based on the extrapolation of successful experience alone can lead to failure. This paradox will be explored in the context of historical case studies, including the design of ocean liners and also of suspension bridges, which from the 1850s through the 1930s evolved from John Roebling’s enormous successes—culminating in the Brooklyn Bridge—to structures that oscillated in the wind and, in the case of the Tacoma Narrows Bridge, twisted itself apart and collapsed in 1940. Lessons learned from these cases and others can be generalized to apply across a broad spectrum of engineering structures and systems.

Henry Petroski has written 17 books on the topics of design, success and failure, and the history of engineering and technology. He has held fellowships from the Guggenheim Foundation, the National Endowment for the Humanities, and the National Humanities Center. He has received five honorary degrees and is a member of many societies and academies, including the American Society of Civil Engineers, the American Society of Mechanical Engineers, the American Academy of Arts and Sciences, and the National Academy of Engineering.

Success and Failure in Engineering: A Paradoxical Relationship

HENRY PETROSKI
Aleksandar S. Vesic Professor of Civil Engineering and Professor of History, Duke University

Thursday, April 26, 2012
4:00 p.m.
Ford Building, ITW Lecture Room
Reception immediately following the lecture