In 1978, Vahaviolos founded Physical Acoustics Corp. (now Mistras Group Inc.), a leader in non-destructive testing (NDT) and acoustics emissions that provides “early warning” information about the degradation of bridges and highways. “Think of a doctor,” says Vahaviolos. “If you have a health problem that requires an ultrasound or sonogram, your general practitioner would send you to a specialist. We do the same thing but in structures.”

As a child, Vahaviolos experimented with electronics and knew he would be an engineer. He also knew he would start his own business like his father, who ran a butcher shop in Sparta, Greece. “It was in my genes to work for myself,” he adds.

Vahaviolos left Greece in 1966 to study electrical engineering at Fairleigh Dickinson University in New Jersey. After graduation, he joined AT&T Bell Laboratories as a researcher and remained there until he launched Mistras.

Vahaviolos has sustained a successful business for four decades but not without its share of challenges. “I made the classic mistakes that many entrepreneurs make—undercapitalized, working on product concepts that took longer to manufacture, and having customers accept them slowly and with great reluctance,” he says.

Headquartered in Princeton, Mistras steadily grew after it expanded with the acquisition of a national NDT services provider. Mistras went public in 2009 on the New York Stock Exchange—it now has continuous annual revenue growth of 30 percent. Its technology monitors many important and historic bridges, including the San Francisco-Oakland Bay Bridge and the Hammersmith Bridge in London. Mistras also provides “asset protection inspection solutions” to refineries, nuclear, fossil, and chemical plants, pipelines, and aerospace structures, and it provides software to perform risk-based asset integrity management.

The idea behind Mistras began while Vahaviolos worked at Bell Labs. “I was inspired by many colleagues who were starting their own businesses,” says Vahaviolos. “Once it was clear to me that the field of structural health monitoring was thirsty for technology-based solutions, I approached AT&T to give me a license of my 15 or so patents to start a new company. They did, and they became my first and best customer.”

AT&T also gave Vahaviolos a full scholarship to pursue his master’s and PhD in electrical engineering at Columbia.

His thesis adviser, Professor Henry Meadows, urged him to become more interdisciplinary and work with the School of Mines and civil engineering. “That led me to focusing on NDT today,” says Vahaviolos.

Thirty-five years after graduation, Vahaviolos remains connected to Columbia. He and his company have been working with Raimondo Bettì, chair of the Department of Civil Engineering and Engineering Mechanics, on a new NDT system to monitor cables of suspension bridges. “Sotirios is a lively personality. Very easy to get along with and work with,” says Bettì. “He is a pioneer in the field.”

Structural Safety Patrol

SOTIRIOS VAHAVIOLOS MS’72, MPhil’75, PhD’76

Born and raised in Greece, Sotirios Vahaviolos could have followed the military route most young men take. Fortunately for many users of bridges and highways, Vahaviolos pursued engineering and, for the past 40 years, has made it his business to monitor the safety and wear and tear of these vast structures.