



Walter H. Stegeland

MARK SHEPHERD, JR.

1923–2009

Elected in 1970

“For technological contributions and leadership in the growth of the semiconductor electronics industry.”

BY THOMAS J. ENGIBOUS

MARK SHEPHERD, JR., whose leadership of Texas Instruments, Inc., spanned three decades, died on February 4, 2009, at his ranch in Quitman, Texas, at the age of 86.

A pioneer in the fledgling semiconductor industry, Mark’s engineering and manufacturing know-how helped transition new technologies from the laboratory to mass production, sometimes years ahead of the competition. In the process he helped establish TI as one of the premier electronics companies. At various times beginning in the 1960s through his retirement in 1988, he led TI as chairman, president, chief executive officer, and chief operating officer.

Born in Dallas, Texas, on January 18, 1923, Mark was the only son of Mark and Louisa Shepherd. Wanting to give their son a head start, Mark’s parents enrolled him in school at the age of 4. When most children entered elementary school, Mark was ready for the fourth grade. He showed an interest for technical things early in life, building his first crystal radio when he was about 7.

Mark’s education continued at an accelerated pace. He graduated from high school at the age of 14. He then attended Southern Methodist University (SMU) on a scholarship, graduating with honors at the age of 19 in 1942 with a bachelor of science degree in electrical engineering.

After graduation, Mark joined the General Electric Company in Fort Wayne, Indiana. While in Fort Wayne, he met his future wife, Mary Alice Murchland, an event Mark described as the most important in his life. They married in December 1945 and went on to have three children: Debra Shepherd Robinson, Mary Kay Shepherd, and Marc B. Shepherd.

In 1943, Mark volunteered for the U.S. Navy. For three years he served as a lieutenant aboard the USS *Tucson* in the Pacific, where he specialized in radar and electronics maintenance. After completing his military service in the summer of 1946, Mark studied at the University of Illinois, where he received his master of science degree in electrical engineering in 1947.

Following graduation, Mark joined the Farnsworth Television and Radio Corporation in Fort Wayne, where he worked on engineering and development projects. In the spring of 1948, during a trip to Texas, he visited Geophysical Service, Inc. (GSI), the predecessor company of Texas Instruments. That visit put him on a career path that would shape the rest of his life. He joined GSI in May 1948.

Early on, Mark exhibited traits that were to exemplify his career, such as a willingness to work hard and drive himself and others to achieve extraordinary goals. His work and success on a magnetic anomaly detector project brought him to the attention of senior managers at TI.

In 1951, TI made the strategic decision to enter the semiconductor business and approached Western Electric for a license to manufacture transistors. After acquiring the license, a small team of TI engineers, which included Mark, attended a Bell Telephone Laboratories symposium in April 1952 to learn about transistor technology. Mark was charged with pioneering the development of transistor mass production. Under his direction, his team built a crystal puller in short order, besting the industry by two or three years. By the latter part of 1953, Mark's operation was mass producing grown-junction transistors, and Mark was promoted to chief engineer for semiconductor design. It was TI's first development effort in semiconductors.

Mark's dedication and ability to produce results brought increasing responsibilities. In 1954 he became assistant vice president and general manager of the semiconductor components division, and a year later he was promoted to vice president.

At that same time TI was producing germanium transistors, the company was trying to grow silicon crystals. In April 1954, TI succeeded in fabricating a grown-junction silicon transistor and by May announced that the silicon transistor was in production. Mark's next assignment was to produce silicon transistors on a commercial basis. He was a driving force in converting the technology from laboratory development into full-scale production in 1954, four years ahead of the competition. Under Mark's leadership, TI became the world's leading producer of semiconductors.

In 1958, Jack Kilby invented the integrated circuit at TI. The company demonstrated the device to the U.S. Department of Defense in late 1958 and sought converts to this new technology. The successful use of integrated circuits in the initial Minuteman missile program was a key element to their market acceptance. TI continued to produce and sell chips for later generations of the Minuteman program and eventually was able to sell similar devices in the commercial marketplace, once again bringing a new technology into the mainstream.

The 1960s saw the start of Mark's global executive responsibilities. In 1961 he became executive vice president and chief operating officer of TI, with responsibility for worldwide operations. He was elected to TI's Board of Directors in 1963, was named company president in 1967, became chief executive officer in 1969, and added the role of chairman of the board in 1976. Mark retired from active employment in 1985, though he remained chairman until 1988. He continued to serve as a general director until 1993.

Throughout the 1960s, Mark was a driving force in the establishment of TI's Asian operations, including those in Japan, Taiwan, and Singapore. Over the years, TI's worldwide operations grew throughout Europe, Latin America, and the

Asia-Pacific region, establishing it as one of the first global electronics companies.

Throughout the 1970s, Mark oversaw the growing diversification of TI and an increasing emphasis on vertical integration. An early example of this strategy was the company's successful entry into the consumer market with pocket calculators.

During the 1980s, Mark championed a more assertive stance toward the protection of TI's intellectual property against infringement by Asian semiconductor manufacturers. A series of lawsuits and trade actions before the International Trade Commission ultimately resulted in settlements that brought TI a steady stream of revenue and established a precedent not only for TI but throughout the industry for recognizing the true value of intellectual property that resulted from research and development.

In the 1970s, Mark emerged as a corporate statesman, sought after as an expert on topics such as free trade, U.S. competitiveness, and the role of multinational corporations. He was a consistent advocate of the American free enterprise system, a recurring theme in addresses and papers he delivered over the years.

Mark was actively involved with numerous professional organizations, often taking a leadership role. From 1976 to 1979, he served as chairman of the Advisory Council on U.S.-Japan Economic Relations (later known as the U.S.-Japan Business Council). He was a trustee of the Conference Board from 1975 to 1985, serving as chairman of trustees from 1980 to 1982. In 1983, Mark was named one of 30 members of the President's Commission on Industrial Competitiveness, an advisory group named by President Reagan to identify ways to increase the long-term competitiveness of U.S. industries in world markets, particularly in high technology.

Mark was also a strong advocate of high-tech higher education in the Dallas and North Texas region and a promoter of increased research and development at area universities. In 1984, then-Governor Mark White appointed Mark a member of the newly established Texas Science and Technology Council,

charged with improving the state's position as a national leader in scientific and technical research and development.

Mark's contributions to the industry were acknowledged throughout his career. In 1962, *LIFE* magazine selected him, at the age of 39, as one of the 100 most important young people in the United States. *LIFE* recognized his role in leading the development of transistor mass production and in helping make TI the world's leading producer of semiconductors.

Mark was elected a member of the National Academy of Engineering in 1970 "for technological contributions and leadership in the growth of the semiconductor electronics industry." Alumni organizations at both SMU and the University of Illinois recognized Mark for his distinction. He was awarded an honorary doctorate of engineering from SMU in 1966 and another from Rensselaer Polytechnic Institute in 1979. He also received the Horatio Alger Award in 1984.

Mark perhaps summarized his legacy best when he recalled: "Not many people in their lives have the opportunity—and the privilege—of helping to build not only a company, but also an industry that has had as profound an impact on society as the semiconductor industry. I am grateful for that privilege."

He is survived by his widow, Mary Alice Shepherd, and three children.