



HERBERT HOOVER



DAVID STEINMAN



EMMA BARTH



WILSON GREATBATCH



MIKE ABRAHAMS

Notable PPeople

Over the last 100 years, professional engineers have made valuable contributions in all disciplines of engineering. The stories of a few of these PEs—both past and present—are a tribute to the broad spectrum of professional engineering's achievements.

Herbert Hoover

Herbert Hoover (1874–1964) will long be remembered as the 31st president of the U.S., but his legacy as Herbert Hoover, P.E., is often forgotten.

After graduating from Stanford with a degree in geology, the man who became known as the "great engineer" built his professional reputation by representing a British mining firm in Australia and then China. From this success, he was hailed by the *Financial Times* in London as "one of the ablest mining engineers in western Australia."

In 1909, Hoover delivered a series of lectures at Columbia and Stanford universities, which were published in the book *Principles of Mining*. He and his wife also translated the groundbreaking sixteenth-century Latin text on mining *De Re Metallica*. For his contributions to the engineering profession, Hoover was awarded the NSPE Award in 1949.

David Steinman

Born in the shadow of the Brooklyn Bridge, David Steinman, P.E. (1886–1960), grew up to become the U.S.'s preeminent American-born designer of long-span bridges.

While Steinman was responsible for more than 400 major bridges on five continents, his masterpiece was the Mackinac Bridge in Michigan, opened in 1957. At 8,614

feet long, "Mighty Mac" held the title of the world's longest suspension bridge (undercable) for more than 40 years and is still the western hemisphere's longest two-tower suspension bridge between anchorages.

Steinman served as president of NCEES from 1931 to 1932. In 1934, Steinman founded NSPE and served as its first president until 1937.

Emma Barth

Emma Barth, P.E. (1912–95), held advanced degrees in German and education, but she found that teaching opportunities were scarce during World War II. Inspired by her engineer brother, she enrolled in drafting courses instead. She began work at H. J. Heinz Co. in 1942, drafting wooden wings for gliders to assist the war effort. In 1944, Barth enrolled in the University of Pittsburgh, where she received a B.S. in general engineering in 1951.

For 33 years, Barth designed turbines and generators for Westinghouse and was responsible for ensuring that the power plant equipment customers purchased met their needs. However, Barth was generally not allowed to enter factories because of her gender. She relied on male engineers to take photographs and describe their observations so that she could diagnose problems.

Barth became licensed in 1961, and after her retirement in 1977, she became a

life member of the Pennsylvania Society of Professional Engineers.

Wilson Greatbatch

Wilson Greatbatch, P.E., came upon his groundbreaking invention for an implantable pacemaker while building an oscillator to record the sound of a heartbeat. He used the wrong transistor and was amazed to realize that it mimicked the pulse of a beating heart. Pacemakers existed at the time, but they used bulky external equipment the size of a TV set and sent painful electric shocks to the heart. Greatbatch used newly available transistor technology to create a pacemaker that could be worn internally.

The first Chardack-Greatbatch pacemaker was implanted into a human in 1960, and in the early 1970s, Greatbatch incorporated a corrosion-free lithium-iodide battery to improve durability. His pacemaker and battery have saved the lives of millions of people worldwide. In 1985, NSPE named Greatbatch's invention one of the 10 greatest engineering contributions to society of the last 50 years.

Mike Abrahams

Mike Abrahams, P.E., served as the design manager for the Arthur Ravenel Jr. Bridge, which crosses the Cooper River in Charleston, South Carolina. With a span stretching 1,546 feet, it is the longest cable-



SAWTEEN SEE



JEAN ANDINO



BONNIE DUNBAR



WAYNE "GREG" SHEAR JR.



CHRISTOPHER WANG

stayed bridge in North America. Opened in 2005, it is built to withstand earthquakes, hurricane-force winds, and impacts with container ships.

Abrahams's bridge has won praise from the community and industry, winning a number of prestigious awards, including a Grand Award from the American Council of Engineering Companies and a Merit Award from the American Society of Civil Engineers. In 2006, *Roads and Bridges* magazine named it one the top 10 bridges of all time.

SawTeen See

When SawTeen See, P.E., first joined Leslie R. Robertson Associates in 1978, she was the distinguished structural engineering firm's first and only female engineer. In 1991, she became its managing partner.

As partner-in-charge, See has been instrumental in the design of some of the world's most recognizable buildings, including the Rock and Roll Hall of Fame and Museum in Cleveland, Ohio, the AIG Tower and Footbridge in Hong Kong, and the Baltimore Convention Center expansion, which the American Consulting Engineers Council awarded its Grand Award for Engineering Excellence. One of her most high-profile projects is the eagerly anticipated Shanghai World Financial Center, set to open in 2008. At 1,614 feet, it will be one of the world's tallest buildings.

Jean Andino

Jean Andino, Ph.D., P.E., is committed to helping the world breathe a little easier. As associate professor of civil and environmental engineering with a joint appointment in chemical engineering at Arizona State University, she conducts research

on air pollution and the atmospheric chemistry behind its creation in the troposphere, where air pollution affects people daily. She also applies her knowledge of air chemistry to air pollutant sensing and control.

After graduating with a B.S. in engineering sciences from Harvard University, Andino worked at Ford Motor Company for two years, conducting research on how fuels and alternative fuels impact air quality.

She then earned a Ph.D. in chemical engineering from the California Institute of Technology. She is a recipient of the National Science Foundation CAREER award, has published over 40 journal articles, and has two patent applications under review.

Bonnie Dunbar

Growing up in the era of the space race, Bonnie Dunbar, Ph.D., P.E., decided when she was just a third grader that she wanted to be an astronaut. And when she got older, that's just what she did.

Dunbar held research and engineering positions at the Boeing Co., Harwell Laboratories, and Rockwell International before joining NASA in 1978 as a flight controller. In 1980, Dunbar was chosen to be a NASA mission specialist astronaut. A veteran of five space missions, Dunbar served aboard the shuttles Atlantis, Challenger, Columbia, and Endeavour, spending 1,208 hours—almost 50 days—in space.

Retired from NASA in 2005, Dunbar now serves as president and CEO of the Museum of Flight in Seattle, one of the largest air and space museums in the world.

Wayne "Greg" Shear Jr.

For over 25 years, Rear Admiral Wayne "Greg" Shear Jr., CEC, P.E., has been committed to

protecting the public, and this commitment continues with his latest appointment as commander of Naval Facilities Engineering Command, Washington, D.C., and chief of civil engineers.

Shear now heads the global engineering and acquisition command and leads about 500 active and reserve Civil Engineer Corps officers and 17,000 civil servants and contractors. Shear graduated from the U.S. Naval Academy in 1979 with a degree in Naval architecture and was commissioned an ensign in the Civil Engineering Corps. He holds an M.S. in civil engineering and an M.A. in National Security and Strategic Studies from the Naval War College.

Christopher Wang

When Christopher Wang, P.E., was deployed to assist in the aftermath of Hurricane Katrina, he developed a map matrix grid to streamline the process of assessing damage estimates and assisted with FEMA's "Blue Roof Program" to provide temporary roofing to damaged homes.

His work built on his experience as a civilian geotechnical engineer with the Army Corps of Engineers in San Francisco. Wang has provided engineering support for the Hamilton Wetland Restoration Project in Novato, California, where he was involved in the long-term geotechnical monitoring of the test fill. He is currently involved in the FEMA Map Modernization Program to digitize FEMA's flood insurance maps on a GIS.

Recognizing Wang for his engineering contributions and the resulting impact on society, the U.S. Army Corps of Engineers nominated him for the New Faces of Engineering 2007 award.

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