

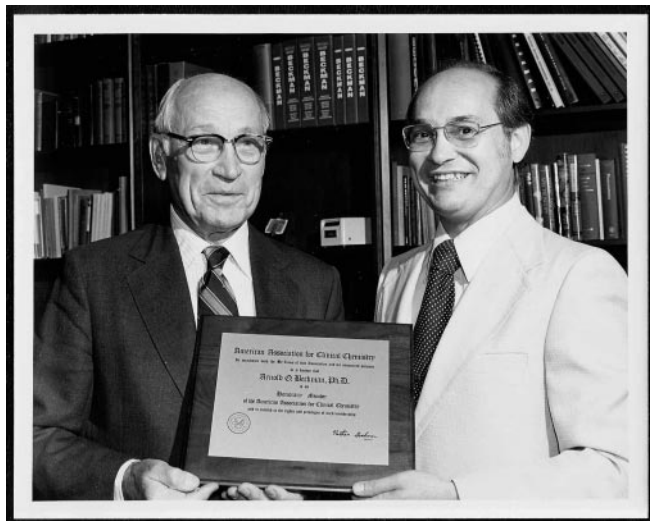
Arnold O. Beckman, PhD (1900–2004)

Arnold Orville Beckman died in his sleep May 18, 2004, at Scripps Green Hospital in La Jolla, CA, at the age of 104. His remarkable life spanned the twentieth century and the dawning of the twenty-first century, and his genius created or inspired many of the innovations of the period. From humble beginnings he rose to be a world-renowned scientist, educator, inventor, industrialist, and philanthropist in a trajectory that could require books to recount.

Arnold Beckman was born April 10, 1900, in Cullom, IL, the son of a blacksmith. After serving in the Marine Corps (1918–1919) he earned a Bachelor's degree (1922) in chemical engineering and a Master's degree (1923) in physical chemistry from the University of Illinois. He started a PhD program at the California Institute of Technology in Pasadena in 1924, but interrupted it to go to New York to be close to Mabel Meinzer. They married in 1925 and returned in Beckman's Model T to California, where Beckman earned his PhD in photochemistry from Caltech in 1928. While on the faculty of Caltech as assistant professor of chemistry, he began a side business in 1934 for the manufacture of nonclogging ink for postage meters.

He invented the first commercially successful electronic pH meter. A former classmate had the job of measuring the acidity of lemon juice for the California Fruit Growers' Association and asked Beckman to devise a sturdier electrical instrument for the task. To make his original pH meter (then called an "acidimeter"), Beckman used the recently invented vacuum tube. His company, known as National Technical Laboratories, produced the meter in 1935. Beckman resigned his faculty position at Caltech in 1940 to spend full time at his company, although he continued to have strong ties to the school. He continued to invent and manufacture scientific instruments, including the Beckman DU ultraviolet spectrophotometer (1940) and the Beckman IR-1 infrared-visible spectrophotometer (1942). In 1950 his company changed its name to Beckman Instruments, Inc., and had sales of \$6 million and 450 employees.

In 1977 the Arnold and Mabel Beckman Foundation was established to support basic scientific research with a special emphasis on chemistry. The same year the AACC presented the first A. O. Beckman Conference supported by a Foundation grant. In 1978, as AACC President, I was privileged to personally present a plaque to Dr. Beckman, conferring Honorary Membership in the AACC (with no idea that I would join his company in a few years). In 1982 Beckman Instruments was acquired by the SmithKline Corporation of Philadelphia to create the SmithKline Beckman Corporation, adding several hundred million dollars to Beckman's personal fortune. His philanthropic efforts sharply increased, and in the 1980s, his efforts in this area were crowned by the funding of five major Beckman Institutes. The first was the Beckman Research Institute at the City of Hope National Medical Center in Duarte, CA, which focuses on basic molecular research



Arnold O. Beckman (left) with the author.

and the processes of life. The Beckman Laser Institute was established at the University of California, Irvine, to investigate the use of lasers in medicine and to provide leading edge treatment based on its research. In 1989 a Beckman Center opened at Stanford University Medical School in Palo Alto, CA, dedicated to molecular and genetic medicine. The Beckman Institute at the University of Illinois, Urbana-Champaign, was the first without a link to a clinical institution and would be dedicated to basic research with an interdisciplinary approach. The Beckman Institute at Caltech was opened in 1989 to support research that was out of the mainstream of conventional funding sources. Many additional grants were made to universities, hospitals, and charities too numerous to record here. Of particular interest to chemists was a \$2 million grant in 1986 to the Chemical Heritage Foundation in Philadelphia to fund the Beckman Center for the History of Chemistry. This Center, dedicated to both scholarly research and public understanding of chemistry, provided a fascinating side trip for those AACC members who had a chance to visit it at the 2003 Annual Meeting.

Arnold Beckman received many prestigious honors and awards during his lengthy and productive career. In 1987 he became the 65th inductee into the National Inventors Hall of Fame in Akron, OH, and in 2004 he received its Lifetime Achievement Award. He was awarded the National Medal of Technology in 1988, and in that year the Arnold and Mabel Beckman Center of the National Academies of Science and Engineering was dedicated in Irvine, CA. President George H. W. Bush presented the National Medal of Science Award to Dr. Beckman in 1989.

Despite their active efforts, the Beckmans could not achieve their objective of donating their sizeable fortune before Mabel's death in 1989. The Foundation was reconfigured to be in perpetuity, to provide funding for the

established Beckman Institutes and grants for other worthy projects, such as science education. Dr. Beckman's creative genius will be greatly missed by the entire scientific community, but his legacy will continue as a result of his immense philanthropic contributions. His personal slogan, "There is no satisfactory substitute for excellence", guided his life and is still inspiring today. Dr. Beckman is survived by his son, Arnold Stone Beckman; his daughter, Patricia Beckman; two grandchildren; and three great-grandchildren.

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Note: Much of the above material was adapted from the writing of Will Mackintosh (www.chemheritage.org) and information from the company website (www.beckmancoulter.com) and the Foundation website (www.beckman-foundation.com).

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