JOHN TODD
1911 – 2007

John Todd, an early innovator in the field of numerical analysis, died June 21 at his home in Pasadena, California. He was 96.

Todd was born in Ireland in 1911 and raised near Belfast. He earned his bachelor's degree from Queen's University of Belfast in 1931, and then went to Cambridge University for graduate studies with renowned mathematicians J. E. Littlewood and G. H. Hardy. Littlewood did not approve of doctoral degrees—he didn't have one himself—so Todd never got one and when he eventually came to Caltech, he was one of few professors without a higher degree.

In 1937, when Todd was teaching at King's College in London, he met his intellectual and romantic match, Olga Taussky, a matrix and number theorist. They wed a year later.

When Britain declared war on Germany in 1939, Todd enlisted as a scientific officer with the British Admiralty. He was first assigned to help develop methods for neutralizing the magnetic fields around warships to prevent them from triggering German mines. Then the Germans built mines that were triggered acoustically, and Todd was sent to Portsmouth—a significant naval port and home to the world's oldest dry dock—to help find a way to quiet ships' engines. But he and his boss soon agreed that this was no place for a theoretical mathematician.

Todd convinced the Admiralty to put him in charge of centralizing their science assignments. Back in London, he organized the Admiralty Computing Service, through which he assigned computations to the mathematicians, leaving the physicists free to handle applying them.

Perhaps Todd's most notable wartime contribution was saving a mathematical research institute in Oberwolfach, Germany, at the end of World War II. Todd and his colleagues went to investigate rumors that mathematicians were being held as prisoners of war in Germany's Black Forest. What they found was an old hunting lodge where the University of Freiburg was sheltering its books and records, along with various rescued mathematicians. Todd pulled on his elaborate uniform and claimed the building for the Royal Navy, thus blocking Moroccan troops from seizing the institute and possibly destroying its work. In his Caltech oral history, Todd recalls the incident as "probably the best thing I ever did for mathematics." For his efforts, Todd was dubbed the "Savior of Oberwolfach."

With peace restored in 1945, Todd returned to teaching at King's College, where he developed a specialty in numerical analysis. He was involved in trying to create a national mathematics laboratory but was frustrated by politics, and he and Olga were invited to the United States to help establish the National Applied Mathematical Laboratories at UCLA, part of the National Bureau of Standards. Todd became chief of the computation laboratory when the lab moved to Washington, D.C., while Olga served as a consultant.

Although Caltech had turned down an offer in 1947 by the Bureau of Standards to house a computational lab, by 1956 President DuBridge was ready, and lured Todd and his wife away from Washington. As a professor in the physics, math and astronomy division at Caltech, Todd developed and taught basic computation courses, including numerical analysis and numerical algebra. Olga Taussky Todd also broke new ground—she was the first woman to receive a formal Caltech teaching appointment, and, in 1971, the first to reach full professorship. She was active in research until her death in 1995.

Todd established and organized a curriculum for instruction, not only in numerical methods, but also as applied to computers. He introduced practical work in Caltech's computing classes. He recalled how the students would wait to do their homework until the last day of the term: "They had to line up in sleeping bags to use the machines." His classes were often dominated by seismologists, some of whom remained at Caltech, including Don Anderson (MS '58, PhD '62), McMillan Professor of Geophysics, Emeritus. Todd was a proponent of standardizing large machines so they wouldn't have to be changed every two years, which he felt created a barrier between the user and the machine.

Todd's theoretical work played a role in the development of early computers, and his courses laid the foundation for many of the basic principles of modern-day mathematics and computer science. He also collaborated with his wife, and together they published many papers in her specialty, linear algebra.

In addition to their scholarly endeavors, Todd and his wife were active donors within the Caltech community. They contributed to the Friends of Caltech Libraries for many years, they endowed the Taussky-Todd Fund to support a Taussky-Todd-Lonergan Professorship in Pure Mathematics, and they funded a distinguished visitors program for mathematics.

A memorial service is planned at Caltech for November; for further information, visit the math department web page at www.math.caltech.edu.
☐—EN

Portrait of John Todd and Olga Taussky-Todd by Sylvia Posner