

In Sweden, the many words in memory of Stig Hagström share a common theme; they express gratitude for his interest in the well-being of his beloved native country and for his contributions to Swedish higher education and research and its interactions with US institutions. Here in the US, he will be missed for his long-term vision, his warm and thoughtful guidance, and his enthusiasm for bringing together scholars from Sweden and Stanford.

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Aden Baker Meinel

Aden Baker Meinel, an astronomer, optical scientist, atmospheric physicist, and telescope designer, died in Henderson, Nevada, on 2 October 2011. He was the founding director of Kitt Peak National Observatory and of the College of Optical Sciences at the University of Arizona (UA).



Aden Baker Meinel

Born in Pasadena, California, on 25 November 1922, Aden developed an interest in astronomy in high school. By age 18 he was working at the Mount Wilson Observatory optical shop. The next year he entered Caltech as a sophomore. In 1942 Aden dropped out of school to join the US Navy's Caltech rocket program, and by 1944 he was designing rocket launchers and had become a US Navy ensign. The navy sent him to Europe in 1944 to investigate the German V-2 rocket factory at

Nordhausen and its underwater-rocket testing facility at Toplitzsee. In addition to convincing German rocket scientists to come to the US, Aden advised the navy on which rocket hardware to ship back from Germany.

Aden returned from Europe in 1945 and was admitted to the graduate school of astronomy at the University of California, Berkeley, where he earned his PhD in three years, under the GI bill. His adviser was C. D. Shane. For his dissertation, he designed and built a Schmidt telescope with which he made the first observations of the IR emission bands of molecular oxygen and hydrogen in the atmosphere and demonstrated that auroras are produced by solar protons. He graduated in 1947 and accepted an appointment to Yerkes Observatory at the University of Chicago.

In 1955 NSF appointed Aden to search potential sites for a national observatory to provide telescope access for astronomers in the US. The result was Kitt Peak National Observatory, and Aden was its first director. There he invented a slumping process for the honeycomb Pyrex mirror, which was used in an innovative 84-inch telescope.

In 1960 Aden became director of the UA's Steward Observatory and astronomy program. He designed the Multiple Mirror Telescope, a joint project of UA and the Smithsonian Institution that proved the practicality of segmented telescope mirrors. The UA astronomy department, which Aden began expanding, was instrumental in the development of the Large Binocular Telescope and of Roger Angel's mirror laboratory, which has produced many of the world's large telescope mirrors.

Aden recognized the need for an interdisciplinary academic center of excellence in optical science. In 1964 he became the first director of the UA's Optical Sciences Center—now the College of Optical Sciences—and created a graduate degree program in optics. During his nine-year leadership, a 77 000-square-foot building was constructed, the department grew from 4 to 25 faculty members, and the number of students grew to 100. Today the college has more than 1 500 graduates and 100 faculty teaching more than 90 courses.

Aden joined NASA's Jet Propulsion Laboratory (JPL) in 1983 to work on concepts for a 50-meter-diameter submillimeter, segmented space telescope. His work laid the foundation for today's *James Webb Space Telescope*. In 1986 JPL director Lew Allen Jr asked Aden for his ideas on future missions for NASA. Aden concluded that although extremely difficult, the characterization of

exoplanets using space telescopes was feasible. Those efforts became the NASA exoplanet program.

After his official retirement from JPL in 1993, Aden worked on the design of the Keck telescopes' interferometer and on the proposed Caltech–University of California 30-meter telescope. In 2002 he published two papers on lightweight space telescopes built using blazed high-order diffractive membranes.

During an active research career that spanned almost 70 years, Aden published more than 200 papers and 6 books—covering pioneering work in solar energy, atmospheric science, and telescope design—and a catalog of emission lines in astronomical objects. He was recognized for the diversity of his work with numerous awards. Among them were the first Helen B. Warner Prize in 1954 from the American Astronomical Society and the Optical Society's 1980 Frederic Ives Medal. He and Marjorie Meinel, his wife and long-time research collaborator, jointly received three awards from SPIE.

Aden conceived of many successful projects and laid a firm technical and scientific foundation for others to carry on while his interests jumped to the next amazing project. Aden was a high-energy, hard-working individual focused on starting successful innovative ventures in telescopes, instruments, and science. He was approachable and friendly and infused those around him, particularly students and faculty, with the excitement of discovery and accomplishment. He was as knowledgeable discussing detailed aerospace and systems engineering problems as he was discussing aspects of astrophysics.

James B. Breckinridge

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Rosalyn Sussman Yalow

Renowned medical physicist Rosalyn Sussman Yalow, a co-recipient of the 1977 Nobel Prize in Physiology or Medicine, died on 30 May 2011 in New York City.

Rosalyn was born on 19 July 1921 in New York City. Although her parents were not able to attend high school, they passed down to Rosalyn their lifetime love of learning. Her fondness for chemistry was influenced by her high school chemistry teacher. In 1941 she