obituaries

To notify the community about a colleague's death, subscribers can visit http://www.physicstoday.org/obits, where they can submit obituaries (up to 750 words), comments, and reminiscences. Each month recently posted material will be summarized here, in print. Select online obituaries will later appear in print.

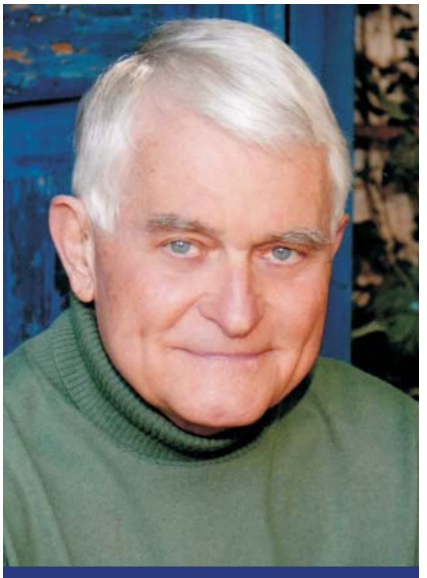
John Allen Eddy

Solar scientist John Allen Eddy died at his home in Tucson, Arizona, on 10 June 2009, following a long struggle with cancer. His groundbreaking studies have fundamentally changed our perception of the Sun's behavior over the past few millennia.

Born in Pawnee City, Nebraska, on 25 March 1931, Jack graduated from Pawnee City High School in 1948; he was the only one of three siblings to attend college. His interest in astronomy was awakened during a celestial navigation course he took at the US Naval Academy, from which he graduated in 1953. Being punished for evading curfew to locate the obscure constellation Draco from the roof of the midshipmen's residence taught Jack that too much zeal for science can be detrimental. After serving as an officer and navigator in Korea and in the Persian Gulf, he left the navy in 1957 for graduate school at the University of Colorado at Boulder. He earned a PhD in astrogeophysics in 1962, under the direction of Gordon Newkirk, for his analysis of sky brightness observed from 100 000-ft balloon altitudes.

Jack held a position with the High Altitude Observatory (HAO) in Boulder between 1963 and 1976, where he taught the solar physics course at the University of Colorado. There, he found that a historical approach provided an effective means of conveying new ideas. Archival records he consulted during his teaching awakened his interest in the Sun's past erratic behavior and led him to further study. His influential 1976 *Science* cover article confirmed a virtual absence of sunspots between 1645 and 1715, which he termed the Maunder Minimum. His discovery upset the mainstream view that the Sun's activity cycle was a roughly regular 11-year oscillation. His studies were based on pioneering use of historical evidence, including sunspot drawings by 17th-century astronomers like Johannes Hevelius, early sightings of the aurora, naked-eye observations of sunspots, and chronicles of solar eclipses.

Jack backed up and extended those visual observations with new evidence from carbon-14 in tree rings, from which solar activity variations can be deduced. Using that radioisotopic evidence, he found earlier periods of low activity such as a hiatus lasting from the mid-15th to mid-16th centuries, which he named after Gustav Spörer, a 19th-century German astronomer who was the first to notice the paucity of spots in the 17th century. The agreement in timing between those activity minima and the cooling of climate called the Little Ice Age continues to stimulate Sun–climate studies.


John Allen Eddy

The findings about the Sun's variability, together with Jack's refreshing interdisciplinary outlook, reinvigorated solar research. They so caught the public imagination that for a few years, Jack's was the most recognizable name in astronomy. He was an outstanding speaker, whose talks to the American Astronomical Society and at meetings of the American Geophysical Union were delivered to standing-room-only audiences. A talented popularizer, he spoke on Wall Street about sunspots and the stock market, and his findings appeared in *TV Guide*.

His skilled use of evidence from unconventional sources also served Jack well in his investigations of the Bighorn and Moose Mountain medicine wheels in Wyoming and Saskatchewan, Canada, respectively. His studies of their East–West alignment suggested a previously unappreciated influence of astronomy on the design of those structures. His findings on their astronomical significance were reported in a *Science* cover article in 1974.

Jack's foundational work was all the more remarkable because it was carried out on his own time while he struggled to support his family during a period of funding cutbacks in the 1970s. Increasing recognition brought him chairmanships of national and international scientific committees, and his insightful leadership put the study of Sun–climate relations on a constructive course that continues today. His humor and talent at creating caricatures enlivened many long committee meetings; Jack coined the term "Scheherazades" for unnecessarily drawn-out scientific projects. He also likened the reception accorded to researchers venturing outside their specialization to the wariness that greeted explorers Meriwether Lewis and William Clark on their first encounter with the Mandan tribe in the American West.

Jack spent 1977–78 as a visitor at the Harvard–Smithsonian Center for As-

Recently posted death notices at http://www.physicstoday.org/obits:

Lev Kofman
17 June 1957 – 12 November 2009
Vitaly Ginzburg
4 October 1916 – 8 November 2009
Roy Bickerton
1927 – 6 November 2009
Qian Xuesen
11 December 1911 – 31 October 2009
Mildred Cohn
12 July 1913 – 12 October 2009
Israel Gelfand
2 September 1913 – 5 October 2009
Joseph Purcell
6 November 1928 – 23 September 2009
John Wild
11 August 1914 – 18 September 2009
Louis Rosen
10 June 1918 – 15 August 2009
Peter Dunnill
20 May 1938 – 10 August 2009
Vladilen Stepanovich Letokhov
10 November 1939 – 21 March 2009
Kazuhiko Nishijima
4 October 1926 – 15 February 2009
Philip Altick
1933 – 1 December 2008
Robert Thomas Beyer
27 January 1920 – 19 August 2008

trophysics, then went back to the HAO in Boulder from 1978 to 1985. He founded the Office for Interdisciplinary Earth Studies at the University Corporation for Atmospheric Research in 1986 and was its director until 1991. He used his management skills at a consortium of Michigan research institutions between 1992 and 1994, then focused his energy on environmental issues from 1994 to 2000 as cofounder and coeditor with his wife, Barbara, of the journal *Consequences*. He worked at the National Solar Observatory in Tucson from 2004 until his death.

The six books he edited and more than 150 scientific papers he wrote bear testimony to the lucidity and engaging style of Jack's writing. His excellent use of historical data to attack current astronomical problems earned him the presidencies of the historical astronomy divisions of the American Astronomical Society between 1981 and 1983 and of the International Astronomical Union between 1985 and 1988. He received the Arctowski Medal from the National Academy of Sciences in 1987 and the 1983 James Arthur Prize of the Harvard–Smithsonian Center for Astrophysics.

Jack was a kind and thoughtful man whose mentoring opened up opportunities for several of us in the next generation. He has been a major figure in solar research, and his influence will long endure.

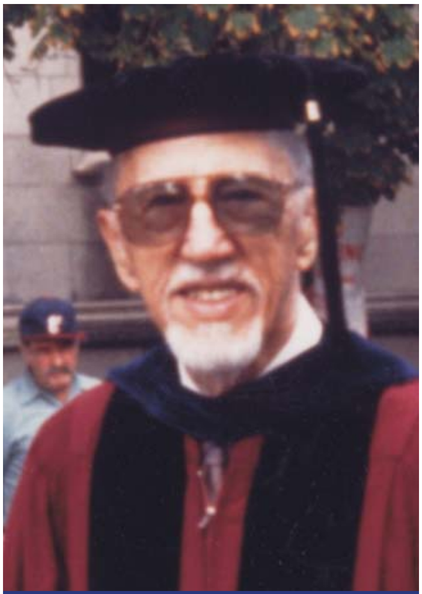
Peter Foukal
Nahant, Massachusetts

Lester S. Skaggs

Medical physics lost one of its innovators when Lester S. Skaggs died of natural causes on 3 April 2009 in Chicago. Skaggs made seminal contributions to the application of radiation to cancer treatment and the development of its technology and instrumentation.

Skaggs, who was born on 21 November 1911, was raised on a farm in northern Missouri. He went to a one-room country elementary school and made the three-mile trek to high school on a pony. He studied at the University of Missouri and received a BS in chemistry with a minor in mathematics in 1933 and an MS in physics in 1934. At the University of Chicago he worked under Samuel Allison on the precise determination of the energy released in the production of deuterium from proton bombardment of beryllium, which earned him a PhD in 1939.

Skaggs spent the following two



Lester S. Skaggs

years as a postdoctoral fellow in nuclear physics at the University of Chicago. At the same time, he held a part-time job at the nearby Michael Reese Hospital. The radiation oncologist there was interested in acquiring a betatron, recently invented by Donald Kerst, to extract an electron beam and use it to treat cancer. However, because of World War II, the project did not get off the ground. Instead, Skaggs was drafted to work at the department of terrestrial magnetism of the Carnegie Institution of Washington and developed an antiaircraft detection system. After moving to the Manhattan Project in 1943, he transformed his system into a fuse to detonate the first atomic bomb. He created a radar-based proximity device with two backup systems. After the first test at Alamogordo, New Mexico, he decided to delay the time of detonation by an additional 30 seconds to ensure that the aircraft would reach a safe distance.

At the end of the war, Skaggs was still interested in the possible use of electrons for cancer therapy. He was hired by the Michael Reese Hospital and sent to work with Kerst at the University of Illinois in Urbana, where they succeeded in extracting the 22-MeV electron beam from the betatron. Soon after, he and several other scientists developed a radiation-treatment technique to use on a physics graduate student who had been diagnosed with an inoperable brain tumor. It was the first such treatment that used electrons.

In 1946 Congress passed the Atomic Energy Act, which provided for the creation of the Argonne Cancer Research Hospital at the University of Chicago. Skaggs took a position with the university in 1948 and led the development of the radiation therapy facility at the ACRH, which was completed in 1953. With Lawrence Lanzl, Skaggs designed, built, and calibrated a 2000-curie cobalt-60 rotating treatment unit, the first in the US.

Skaggs arranged for a 5- to 50-MeV linear accelerator, developed at Stanford University, to be installed at the ACRH. To obtain multiple electron beams aimed at the tumor from different angles without moving the patient, he contracted with Varian Co in California to build a rotating gantry. The electron beam was ½ cm in diameter mechanically scanned over a custom-shaped irregular field. The design, construction, and calibration of the project cost $450 000. First used to treat a patient in 1959, the linac was in clinical use for 34 years.

To foster the growth of medical physics, Skaggs started a graduate training program at the master's level in the mid-1950s, expanded it to the doctoral level in the 1960s, and added postdoctoral training in the 1970s. He directed the program until 1979.

In the mid-1960s the ACRH got funding for a small cyclotron to produce short-lived isotopes for diagnostic research. Contemporarily, at the Hammersmith Hospital in London, cyclotron-produced neutrons from the Be(d,n) reaction were being tested as a possible cancer treatment tool. In the early 1970s, after I joined Skaggs's group, we developed a high-pressure cryogenic deuterium-gas target used for the D(d,n) reaction to produce a neutron therapy beam; it was the first hospital-based neutron therapy facility in the US.

After leaving the University of Chicago, Skaggs spent five years at the King Faisal Specialist Hospital in Saudi Arabia, where he installed a commercial cyclotron-based neutron therapy facility and established a dosimetry calibration laboratory. He returned to the university and continued as a professor emeritus in the department of radiation and cellular oncology until his death.

Skaggs was a natural teacher and a true gentleman who graciously shared his wisdom, common sense, and deep knowledge of medical physics. His students, colleagues, and friends deeply miss his guidance and generosity.

Franca T. Kuchnir
Southborough, Massachusetts ■