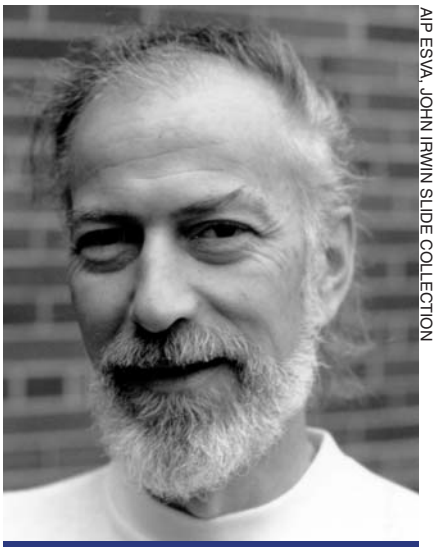
obituaries

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.

Arthur Dodd Code

With the death of Arthur Dodd Code on 11 March 2009, space astronomy lost one of its founding figures. He died in Madison, Wisconsin, from complications of a longstanding pulmonary condition.

Code was born in Brooklyn, New York, on 13 August 1923. To pursue his interest in astronomy, he entered the University of Chicago in 1940, but his education was interrupted by World War II. He served in the US Navy from 1943 to 1945 as an instructor in electronics at the Naval Research Laboratory in Washington, DC. After the war, and still without an undergraduate degree, he returned to Chicago and was accepted in the graduate program at Yerkes Observatory. He earned his PhD in 1950 with a theoretical study of aspects of radiative transfer in the atmospheres of hot stars, done under the supervision of Subrahmanyan Chandrasekhar. Working with William Morgan, Code was one of the first to use stellar associations to define nearby spiral arms of our galaxy.



AIP ESVA, JOHN IRWIN SLIDE COLLECTION

Arthur Dodd Code

After graduating from the University of Chicago, he became a member of the astronomy faculties of the University of Virginia from 1949 to 1950, the University of Wisconsin from 1950 to 1956, and Caltech from 1956 to 1958. While at Caltech, he also was a staff member at the Mount Wilson and Palomar observatories. In 1958 he returned to the University of Wisconsin, where he stayed until his retirement in 1995.

Also in 1958, Code responded to a letter from Lloyd Berkner, who, under the auspices of the newly formed Space Science Board of the National Academy of Sciences, asked astronomers what they would propose if a 100-pound satellite could be placed in orbit. Many replied, but only a few—Code, Lyman Spitzer, Martin Schwarzschild, Leo Goldberg, and Fred Whipple—were willing to spend time on such risky business. In the fall of that year, NASA was founded, and Code submitted a proposal that led to the establishment of the space astronomy laboratory in Wisconsin's astronomy department. The lab group continued the department tradition established by Joel Stebbins and Albert Whitford of hands-on, build-it-yourself practices. Code kept the lab small and informal.

In marked contrast with many other astronomers, Code was convinced that astronomy done from space had great potential, and he became an effective advocate for the barely existing field. Space astronomy also provided an extension into the vacuum UV of Code's ground-based efforts in measuring stellar fluxes in physical units rather than relative magnitudes, as was the practice at the time.

The major effort of Code's lab during the 1960s was construction of a payload for the first of NASA's orbiting astronomical observatories, intended as a standard platform for astronomical telescopes. The Wisconsin Experiment Package (WEP), for which Code was the principal investigator, was a 225-kilogram payload of seven small telescopes designed to measure the UV radiation from astronomical objects, a task impossible from the ground; the package was limited to 12 watts of electrical power for its operation. Interestingly, the orbiting observatory program represented a greater advance over the technology of its time than did the *Hubble Space Telescope*. So perhaps it should not come as a surprise that after five aborted attempts in the spring of 1965, the first launch quickly ended in failure when components in the supporting spacecraft electronics malfunctioned. The second launch, made inauspiciously on 7 December 1968, went well, and the WEP and spacecraft operated successfully for a little more than four years.

During 1961 to 1965, Code initiated what appears to be the first manned space-science project by proposing the use of the X-15 rocket airplane as a stabilized platform to carry cameras to altitudes sufficient to observe stars in the near-UV. NASA's sounding rockets of the time could not be pointed, which was a considerable disadvantage. At the same time, the lab successfully measured UV fluxes from stars using sounding rockets.

Code was instrumental in helping NASA evaluate the use of shuttle-astronaut-operated telescopes for testing new astronomical instrumentation. He was the principal investigator for the Wisconsin Ultraviolet Photo-Polarimeter Experiment, an instrument developed by lab member Ken Nordsieck. The instrument flew on two shuttle missions and successfully explored the new field of UV spectropolarimetry.

The thread that ran through Code's career was the measurement in physical

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

Gerald Gardner
2 March 1926 – 25 July 2009
Ronald Mason
14 December 1916 – 16 July 2009
Frank P. Buff
13 February 1924 – 1 July 2009
Gloria Gordon Bolotsky
28 July 1921 – 30 June 2009
Edward Francis Casassa
10 November 1924 – 19 June 2009
Peter Newman
14 June 1924 – 19 June 2009
Dale Hasler Birdsall
19 July 1919 – 1 June 2009
Irving Korobkin
18 October 1925 – 30 May 2009
Gerard Johan Nijgh
22 November 1923 – 24 May 2009
Wu-Ki Tung
1940 – 30 March 2009
Peter Emil Siska
11 April 1943 – 27 February 2009
Conrade C. Hinds
29 January 1926 – 15 November 2008

units of the energy emitted by astronomical objects. Directed toward that end were his construction of one of the first astronomical photoelectric spectrum scanners, his initiation of a program to compare conventional tungsten sources with a platinum blackbody, the first use of synchrotron radiation by lab personnel as an absolute standard of UV radiation, and the lab's collaboration with Robert Hanbury Brown and John Davis to use the angular-diameter measurements of stars made by the Hanbury Brown–Twiss intensity interferometer. Those efforts led to measurements of fundamental parameters of stars that were the standard for a quarter of a century.

Code was instrumental in establishing what became the Hubble Space Telescope Science Institute in Baltimore, Maryland, and served as its first, interim director in 1981. He was president of the American Astronomical Society from 1982 to 1984.

Code's colleagues will surely miss him as well as his great breadth of experience in both theoretical and observational astrophysics and his expertise in astronomical instrumentation, which gave him an unusually broad basis from which to assess opportunities and attack problems.

Robert C. Bless
University of Wisconsin–Madison
C. Robert O'Dell
Vanderbilt University
Nashville, Tennessee

John Lamar Worzel

John Lamar Worzel, who made groundbreaking contributions to the field of marine geophysics, died of a heart attack at home in Wilmington, North Carolina, on 26 December 2008. Joe, as he preferred to be called, developed his expertise in the years before the US entered World War II; he was at the right place at the right time, when the field was in its infancy.

Joe was born on 21 February 1919 in Staten Island, New York. As a child, he contracted numerous diseases, broke limbs, and suffered heart damage from rheumatic fever. Those afflictions, he said, made him tougher and more resolved to compete well at everything.

When Joe arrived at Lehigh University in 1936, he welcomed the opportunity to work with physics professor Maurice Ewing and with other students, including Alan Vine, who developed the Alvin submersible. In the summer of 1940, following Joe's graduation from Lehigh, Ewing took Joe and other students to Woods Hole Oceanographic Institution (WHOI). From scratch they built ocean-bottom seismographs to record the energy propagated through the crust. After many unsuccessful trials, their seismographs were successfully used to determine the thicknesses of the marine sediments and, eventually, of the oceanic and continental crusts, which were shown to be dramatically different from each other.

LAMONT-DOHERTY EARTH OBSERVATORY

John Lamar Worzel

During their tenure at WHOI, Joe and his colleagues demonstrated the existence of low-velocity sound channels in the ocean, which allow small-amplitude acoustic signals to propagate thousands of kilometers. Those experiments were eventually used to locate, identify, and track ships and submarines.

By 1946 Ewing moved on to Columbia University in New York, and Joe went there too, to do his graduate work. In 1948 the university designated a gift from the Thomas Lamont estate to establish the Lamont Geological Observatory. Ewing was named its first director, and Joe its deputy. Joe simultaneously wore many hats at Lamont—among them science administrator, a role now shared by five people. For roughly 25 years, he and his family lived in a modest house on the Lamont campus and were an integral part of establishing and maintaining the "Lamont family." Joe was the de facto welcomer to a steady stream of visiting scientists, many of whom recall his kindness, and he frequently invited students and colleagues into his home.

Colleagues recognized Joe's gift for making things work. He loved getting