

family. They reached out in a new direction and established the Millman Respite Center at the Contra Costa Jewish Community Center; the respite center serves seniors of all faiths and backgrounds who suffer from Alzheimer's disease and similar disorders. A characteristic Millman touch is that the center also offers an ongoing educational program for its caregivers.

Sid enjoyed a long, productive life filled with science, music, and his family; he and Dorothy loved the opera and had Metropolitan Opera season tickets for more than 50 years. He had a profound appreciation of this country, which took him in and gave him an education that enabled him to realize his potential as a physicist. With his keen intellect and modest and gracious manner, Sid left the world a better place.

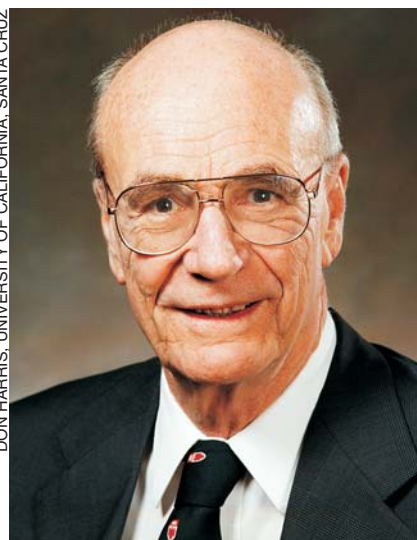
Theodore H. Geballe
Stanford University
Stanford, California

Donald Edward Osterbrock

The worlds of observational astrophysics and 20th-century astronomy history lost a leading figure on 11 January 2007 when Donald Edward Oster-

brock died suddenly of a heart attack while walking near his office at the University of California, Santa Cruz. He was respectfully called "DEO" by his former students and postdocs and "Don" by his many friends. His life spanned the period from when astronomy was a small discipline pursued by a few hundred practitioners and the most powerful telescope was the 100-inch at Mt. Wilson, California, to our modern era, with more than 7000 members of the American Astronomical Society (AAS), giant ground-based telescopes, and space telescopes that observe the universe from x-ray energies through the far infrared.

Don was born in Cincinnati, Ohio, on 13 July 1924 into a family of German descent. His father, who dropped out of high school to work full-time, eventually became a professor of electrical engineering at the University of Cincinnati. Drawn into the vortex of World War II soon after graduating from high school, Don attended courses and was trained by the US Army at the University of Chicago, then served in the South Pacific. After being discharged, he returned to Chicago, where he received a BS in physics in 1948, an MS in astronomy in 1949, and a PhD in astronomy in 1952.



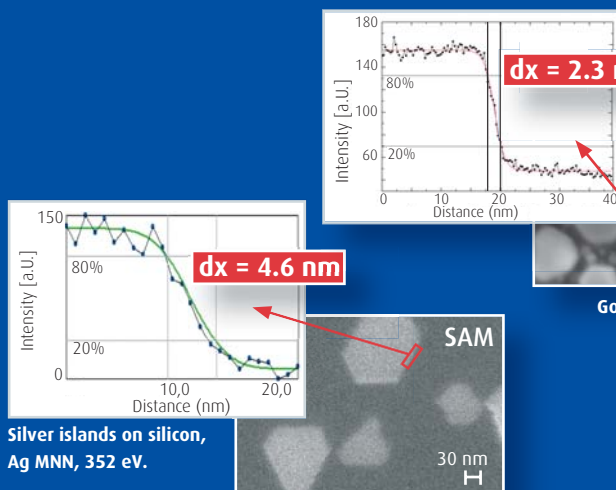
DON HARRIS, UNIVERSITY OF CALIFORNIA, SANTA CRUZ

Donald Edward Osterbrock

At the university's Yerkes Observatory, he worked with some of the greats of the time—Bengt Strömgren, W. W. Morgan, and his PhD thesis adviser, Subrahmanyan Chandrasekhar. As a postdoc at Princeton University, he solved the conundrum of the inner structure of the ubiquitous red dwarf stars.

He moved to the young astronomy department at Caltech in 1953 and

Nanotechnology is our Profession



NanoSAM: < 5 nm Resolution

SEM/SAM & Nanostructuring in a powerful turn-key system.

Options: EBSD, EDX, CL, SEMPA, XPS, FIB.



Germany: Omicron NanoTechnology GmbH

Tel: +49 (0) 6128 / 987 - 0

e-mail: info@omicron.de

Web: www.omicron.de

USA: Omicron NanoTechnology USA

Tel: 952 345 5240

e-mail: info@omicronUS.com

SESAM® Ultrafast



Picosecond pulses for
micro machining processes



Femtosecond pulses
for 2-Photon microscopy

- micro machining
- photocathode illumination
- seeding amplifiers
- time-resolved fluorescence
- flow cytometry
- pump-probe spectroscopy
- opto-electronic testing
- UV generation
- sync pump dye lasers
- OPO pumping
- THz generation

Time-Bandwidth Products AG
Zurich, Switzerland
p: +41-44-445-3120
sales@time-bandwidth.com

in the US/Canada:
TPI Inc.
p: (413) 562-5406
sales-usa@time-bandwidth.com

made the transition from being a theoretician to an observational astrophysicist. In 1958 Don left Caltech for the University of Wisconsin, where a newly formed and growing astronomy department offered him the opportunity to pursue observational astrophysics of gaseous nebulae—a field that he made his own—and live in the Midwest environment that he valued. He was lured back to California in 1973 to become the director of the University of California's Lick Observatory, which he led until 1981. He remained in Santa Cruz and attained emeritus status in 1993. He benefited from contact with others and freely shared his ideas; he enjoyed extended visits to Yerkes Observatory, the Institute for Advanced Study in New Jersey, University College London (UCL), Ohio State University, and the University of Minnesota.

The work for which he became most famous was in the area of gaseous nebulae, clouds of space dust and gas whose luminosity is largely powered by nearby hot stars. These gaseous nebulae include regions of very recent star formation and of stars at the other end of their life cycle, as they are losing their outer parts. He drew on a strong background in quantum mechanics to develop, with Michael Seaton of UCL, the method of accurately determining the physical conditions and abundance of the elements in these remote objects through spectroscopy of the emission-line spectra. Later, those diagnostic tools were applied to the recent field of exotic nuclei of galaxies, the active galactic nuclei, and he derived for the objects the basic physical model that remains in use today. Much of his work is described in his text, which was originally published in 1974 as *Astrophysics of Gaseous Nebulae* (W. H. Freeman), expanded in 1989 and titled *Astrophysics of Gaseous Nebulae and Active Galactic Nuclei* (University Science Books), and revised in 2006 (University Science Books) with Gary Ferland of the University of Kentucky as coauthor. The book continues to have enormous impact.

Although Don continued his research on active galactic nuclei after stepping down as director of Lick, he turned increasingly to the history of 20th-century astronomy, the era of big telescopes. He later explained, "History is too important to be left to the historians," an opinion guaranteed to rankle the "establishment." However, he brought the rigor of a scientist to the subject and shared that characteristic with the best historians. The result was a series of books on Lick's brilliant sec-

ond director, James Keeler; the first century of the Lick Observatory (with John R. Gustafson and W. J. Shiloh Unruh); G. W. Ritchey, George Ellery Hale, and big American telescopes; the Yerkes Observatory, 1892–1950; and the German-American astronomer Walter Baade. In reaction to the fashionable theories of deconstruction and sociological analysis promoted by some professional historians, Don adhered to the "great man" theory of history, in large part because he had personally known so many of the great men of astrophysics. He was undaunted by the critics, and his efforts were eventually recognized in 2002 by AAS's historical astronomy division, which presented him with the LeRoy E. Doggett Prize, the highest award given to a historian of astronomy; it was possibly his most valued accolade.

Don not only contributed vastly to astronomy and astrophysics, he was also one of the few astronomers with a sufficiently broad perspective—matched with psychological insight and literary skill—to have left a rich body of historical writings that will be consulted by future historians and scholars.

In addition to the Doggett Prize, Don received numerous awards available to American astronomers, including the 1991 Henry Norris Russell Lectureship from AAS, the 1991 Catherine Wolfe Bruce Gold Medal from the Astronomical Society of the Pacific, and the 1997 Gold Medal from the Royal Astronomical Society. He was a member of the National Academy of Sciences and the Academia Mexicana de Ciencias, and he served as AAS president from 1988 to 1990.

In a biographical article in 2000, Don called his career "A Fortunate Life in Astronomy" (*Annual Review of Astronomy and Astrophysics*, volume 38, page 1). Those of us who shared that life as his students, postdocs, and colleagues consider ourselves the fortunate ones.

C. Robert O'Dell
Vanderbilt University
Nashville, Tennessee

William P. Sheehan
Willmar, Minnesota ■

Letters and opinions are encouraged and should be sent to Letters, PHYSICS TODAY, American Center for Physics, One Physics Ellipse, College Park, MD 20740-3842 or by e-mail to ptletters@aip.org (using your surname as "Subject"). Please include your affiliation, mailing address, and daytime phone number. We reserve the right to edit submissions.