

DOCUMENTS OF THE GENERAL FACULTY

**REPORT OF THE MEMORIAL RESOLUTION COMMITTEE FOR
DAVID STANLEY EVANS**

The special committee of the General Faculty to prepare a memorial resolution for David Stanley Evans, professor emeritus, astronomy, has filed with the secretary of the General Faculty the following report.

Sue Alexander Greninger, Secretary
The General Faculty

**IN MEMORIAM
DAVID STANLEY EVANS**

David Stanley Evans died on November 14, 2004, in Austin, Texas. He is survived by his wife, Betty Hall Evans, and sons, Jonathan Evans of Nashville, Tennessee, and Barnaby Evans of Austin, Texas. He had six grandchildren, three in Nashville, and three in Austin. David was a noted observational astronomer whose career was divided between South Africa and Texas. He also used the extensive historical collections at this University to write several books on the history of astronomy.

He was born in Cardiff, Wales, on January 28, 1916. David received his B.A. degree in mathematics in 1937 from Kings College, Cambridge. He became a Ph.D. student at Cambridge Observatory in 1937 and was one of Sir Arthur Eddington's last surviving students. He received his Ph.D. degree in 1941 with a dissertation entitled "The Formation of the Balmer Series of Hydrogen in Stellar Atmospheres." He was a conscientious objector to war and, thus, spent the war years at Oxford working with physicist Kurt Mendelssohn on medical problems, involving cadavers, relating to the war. During these years, David was scientific editor of *Discovery* and he was editor of *The Observatory*.

David left England in 1946 in order to take up the position of second assistant at the Radcliffe Observatory, Pretoria, South Africa. He and H. Knox Shaw were the entire staff, after R.O. Redman left, and they aluminized and installed the mirrors in the 74-inch telescope. His notable scientific contribution was to use lunar occultations to measure stellar angular diameters during the 1950s. In addition, he succeeded in determining the angular diameter of Antares and determined that Arcturus was not circular but had an elliptical shape. The elliptical shape was later shown to be an instrumental artifact, but the utility of using lunar occultations to measure stellar diameters and stellar multiplicity was conclusively demonstrated. T. Gold presented David's paper on lunar occultation angular diameters at the January 1953 meeting of the Royal Astronomical Society. David felt resentment at Gold's remarks, which lasted all David's life because he felt that he was ridiculed. By this time, David Evans was chief assistant at the Royal Observatory headquartered in Cape Town, South Africa. David designed and had built a Newtonian spectrograph for the 74-inch Radcliffe Telescope with which he measured the first southern galaxy redshifts.

David and his family spent 1965-66 in Austin, Texas, where he was a National Science Foundation Senior Visiting Scientist at The University of Texas and McDonald Observatory. They moved permanently to Austin in 1968, and David became a professor of astronomy and associate director of McDonald Observatory at The University of Texas at Austin.

At McDonald Observatory, R. E. Nather devised a high-speed photometer capable of measuring millisecond time-scale changes in brightness, and with Brian Warner, they invented "high-speed astronomy." This instrument caused Evans to revive his occultation program and, over the next 20 years, he produced the major part of the angular diameters of late-type stars with his students and collaborators. In addition, David and collaborators used the extensive collections of The University of Texas to write "Herschel at the Cape," and David was involved in observing the occultation of β Sco by Jupiter in 1972 and in observing the gravitational deflections in the positions of stars whose light passes near to the Sun during a solar eclipse in 1973. The eclipse was observed from Mauritania and the observations confirmed Einstein's prediction again.

David Evans and his students studied late-type stars, which have large star-spots, and others, which flare. In addition, they studied stars whose lunar occultation observations had revealed to be double and some with more than two stars. David Evans' major scientific contribution was an application of his stellar angular diameters to deduce the surface brightness of stars. With suitable color, the result was indices one could use photometry to deduce the angular diameter of stars. This is applicable to stars which can never be occulted by the Moon, and its application to Cepheid variable stars has yielded their distances. This relation between angular diameters and a V-R color index is called the Barnes-Evans Relation. Although Tom Barnes gives most of the credit to Evans, he said that David insisted that the authors be listed in alphabetical order. This work was greeted with initial skepticism, but it stimulated an enormous amount of interest and has been used to measure distances to 100 Cepheid variable stars in our galaxy. The method gives a distance to one of them, Delta Cephei, which agrees closely with recently measured parallaxes using HST. The Barnes-Evans method yields distances which are accurate to a few percent and is applicable to Cepheids in nearby galaxies.

Before coming to Texas, David Evans had never given a large lecture course at a university, and his efforts met with mixed success especially in introductory classes for freshmen facing a "science requirement." David had considerable more success supervising Ph.D. dissertations, and he was supervisor for four. He was promoted to the position of Jack S. Josey Centennial Professor of Astronomy in 1984, which is the position he held until his retirement in 1986. He was awarded the Gill Medal of the Astronomical Society of South Africa in 1988.

David Evans had a remarkable facility for language, especially English. He was an author of eight books including a 1966 edition of *Teach Yourself Astronomy*, which was an introduction to astronomy and an inspiration to a number of currently active astronomers. He also loved history, especially of Southern Hemisphere astronomy but including McDonald Observatory.

David was a squash player into his 80s, and as his physical abilities declined, he became more devious. He would burst into song at the top of his lungs, sometimes in English and sometimes with a slightly bawdy version of a Christmas carol. He did this without any sign of being self-conscious. This astronomer, who began his academic life as a precocious mathematical genius, became self-conscious in his later years as to the value of his scientific career and the wisdom of his earlier decision to be a conscientious objector. In fact, David continued to be very active after retirement, and when he died, he had completed a book (with Karen Winget) on the eclipse expedition to Mauritania, which is not yet printed.

This memorial resolution was prepared by a special committee consisting of Professors Frank N. Bash (chair), D.E. Winget, and Edward R. Nather.

Distributed to the dean of the College of Natural Sciences, the executive vice president and provost, and the president on June 28, 2005. Copies are available on request from the Office of the General Faculty, WMB 2.102, F9500. This resolution is posted under "Memorials" at: <http://www.utexas.edu/faculty/council/>.