

## DOCUMENTS OF THE GENERAL FACULTY

**REPORT OF THE MEMORIAL RESOLUTION COMMITTEE FOR  
DOROTHEA BENNETT**

The special committee of the General Faculty to prepare a memorial resolution for Dorothea Bennett, professor, zoology, has filed with the Secretary of the General Faculty the following report.

John R. Durbin, Secretary  
The General Faculty

**IN MEMORIAM  
DOROTHEA BENNETT**

Dorothea Bennett was born on December 27, 1929, in Hawaii, and died in Austin on August 16, 1990, after a very productive scientific career cut short by her untimely death. She was the daughter of a navy family and lived in Hawaii until the time of the Pearl Harbor attack. She finished her public schooling in Omaha, Nebraska, followed by undergraduate studies at Barnard College in New York, where in 1951 she completed a BA in zoology (*magna cum laude* and Phi Beta Kappa).

Bennett entered graduate school at Columbia University in 1952 to become a student of L. C. Dunn, one of the pioneers of genetics, especially mammalian developmental genetics. She received a PhD, based on a study of the *steel* locus in mice, in 1956. She continued as a research associate of Dunn for six years and as a collaborator until his death in 1974. Bennett became assistant professor of anatomy at Cornell University Medical College in 1962, followed by promotion to associate professor (1965) and professor (1971). In 1976, she moved to the Sloan-Kettering Institute, where she was a member and professor of cell biology and genetics. In 1986, Bennett joined The University of Texas at Austin as Alfred W. Roark Centennial Professor of Zoology and chairman of the Department of Zoology.

Much of Bennett's scientific work was on the *t complex* in mice. This complex genetic locus, discovered by Dunn in 1930, resisted conventional genetic analysis for several decades. The *t* alleles are homozygous lethal but occur with unexpectedly high frequency in nature because of distortion of the transmission ratio in offspring of carrier males. Bennett initially focused on the defects in embryonic development associated with homozygosity for a *t* allele. She and her students demonstrated that the cells of very early embryos fail to aggregate properly. This suggested that *tt* embryos have abnormal surface properties, which in turn led to the application of immunological approaches to characterize the cell surfaces.

One of the difficulties in analysis of the *t complex* is absence of genetic recombination in that chromosomal region. This powerful tool—the basic technique of genetic analysis—was thus not available to dissect the *t complex*. Eventually, Bennett's group found that combinations of two different *t* alleles would recombine within the *t* region, permitting genetic fine-structure analysis. The *t* mutations occur in a region of chromosome 17 that is inverted as compared to the normal "wild-type" chromosome. This prevents proper pairing in heterozygotes, thereby blocking crossing over.

With the development of molecular genetic techniques, Bennett added that powerful approach to analysis of the *t* region. At the time of her death, she, her long-time collaborator Karen Artzt, and her students were pursuing the *t complex* at this ultimate level of understanding. In the span of her career, she moved from microscopic analysis of mammalian embryonic development, to devising special methods of studying transmission genetics, to molecular genetics. Her research was driven by problems; the specific approaches and techniques were acquired when they promised to help solve problems. Even as she became more prominent and took on administrative duties, she insisted on working at the bench. This accounts for the remarkable item in her bibliography of a single-authored paper in *Nature* in 1978.

The quality of Bennett's research was widely recognized by her peers and led to many honors. Among these was an honorary Doctor of Medicine awarded by the University of Uppsala in Sweden in 1978. The unusual

(for U.S. institutions) headgear associated with that degree, vaguely like an elegant chef's toque, added an interesting variation to the regalia at UT Austin commencements. She also was an invited lecturer at the Harvey Society (New York) and the Collège de France (Paris). She served as a member of the Commission on Life Sciences of the National Research Council-National Academy of Sciences. She was on the Board of Scientific Overseers of the Jackson Laboratory (Bar Harbor, Maine) for a number of years. During one interregnum at that institution, she served as chairman of the Scientific Overseers, commuting at regular intervals from New York. There were also many occasions for service as a peer reviewer for the National Institutes of Health and the National Science Foundation.

Her enthusiasm for research was matched by her enthusiasm for other aspects of life, golf and tennis in particular. She was an excellent mentor to graduate students and postdoctoral fellows, many of whom have gone on to outstanding careers. From her they learned firsthand the importance of character, the need for uncompromising intellectual rigor, and the rewards of a life of scientific inquiry.

Bennett bore her diagnosis of lymphoma with her usual strength of character. During periods of difficult chemotherapy, she continued her duties as chair of the zoology department and continued to be productive in the laboratory. Indeed, she was in her office only ten days before her death, finishing up several manuscripts for submission to journals for publication.

This memorial resolution was prepared by a special committee consisting of Professors H. Eldon Sutton (chair), Karen Artzt, and Bob G. Sanders.

Distributed to the Dean of the College of Natural Sciences, the Executive Vice President and Provost, and the President on May 16, 2001. Copies are available on request from the Office of the General Faculty, FAC 22, F9500. This resolution is posted under "Memorials" at: <http://www.utexas.edu/faculty/council/>

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