IN MEMORIAM

Dallas O. Banks
Professor of Mathematics, Emeritus
Davis
1928– 2003

Dallas O. Banks was born on October 21, 1928, in Campbell, Nebraska. He earned his bachelor's and master's degrees in mathematics from Oregon State College where he met his future wife, Maryella Louise Clark. Dallas was awarded his master's degree in June 1952 and he and Louise were married on June 28, 1952.

Dallas took a job with General Electric Company as a mathematical assistant at their Hanford Atomic Products Operation located in Richland, Washington. He programmed I.B.M. punch card equipment for one year. The second year, he solved boundary value problems associated with reactor engineering.

Dallas' work at General Electric was followed by two years of service in the U.S. Army as a mathematician at Fort Huachuca, Arizona, at the Army Electronics Proving Grounds. He studied some of the mathematical aspects of operations research during this time. At the end of his service, supported by the Korean War G.I. Bill, he enrolled at the Carnegie Institute of Technology in Pittsburgh, PA, where he entered the Ph.D. program in the fall of 1956, and earned his doctorate in mathematics, while working at Westinghouse Electric Company during summer breaks in their Commercial Atomic Power Division.

Dallas pursued his Ph.D. dissertation research under the tutelage of Zeev Nehari. His early research, in the area of inequalities for eigenvalues of vibrating systems, reflects the influence of Nehari in its mathematical taste and elegance. The thesis work and related research dealt with establishing bounds on the eigenvalues of nonhomogeneous strings whose density functions satisfied some constraint, such as monotonicity, convexity, or given total mass, either with fixed endpoints or with an elastic constraint at the endpoints. Much of the beauty of this work stems from the application of classical analytic methods in conjunction with geometric symmetrization techniques.

Upon completing his studies in 1959, Dallas began his academic career as assistant professor of mathematics at UC Davis, where he retired as professor in 1991. After arriving at Davis, Dallas continued his research on eigenvalue problems, extending his methods to hinged rods and membranes. He later turned his attention to similar problems of a more computational nature involving elements of numerical analysis, and with this began his long- time and productive collaboration with Gary Kurowski.

Classical theoretical studies used the Prüfer transformation in approaching eigenvalue problems for second and fourth order self- adjoint ordinary differential equations that describe vibrating strings and rods. Dallas and Gary used this transformation to develop a superior numerical method of computation to deal with second and fourth order differential equations.

Some ten years before retirement, Dallas concerned himself with rather concrete problems in applied mathematics. Here again, he worked in close collaboration with Gary on a theoretical study of problems connected with fibrous filtration, supported in large part by the Lawrence Livermore Laboratories. The work overall is notable for the elegance of the theoretical developments and the efficacy of the computational schemes which implemented these.

In addition to his substantial research program, in the course of his career at Davis, Dallas compiled a splendid record of teaching and service in the Mathematics Department. He was dissertation supervisor of five graduate students who themselves went on to make significant contributions in teaching and research and he served for many years as the departmental graduate advisor. He was a major figure in promoting and establishing the Applied Mathematics Program at UC Davis, a program that has flourished and developed to a world- class status. It can be said that he was the intellectual father of this program; his vision and forward-looking wisdom set the stage for the high reputation the department has attained.

Dallas had broad interests outside mathematics, in the arts and philosophy. Along with an ongoing interest and knowledge of the physics of musical instruments, he had a passion for music of all genres. He himself was a fine baritone vocalist, with a deep appreciation and understanding of vocal music. A favorite hobby was barbershop chorus, and he was a regular member of the quartet Professors in Harmony and the Davis/ Vacaville Chapter of the Society for the Preservation and Encouragement of Barbershop Quartet Singing in America. He also participated as a choir member in the Davis Community Church, where he was a member and an elder.

Interest in philosophy led Dallas to establish what he christened “the Philosophical- Theological- Scientific Discussion Group,” which has continued to meet regularly since its inception in 1994. The group spends each meeting analyzing and discussing a significant book in the area of philosophy, religion, or the relation between religion and science.

Reflecting his delight in physical and mental challenges, Dallas jogged regularly and was an avid tennis player. He enjoyed nature and gardening and the outdoors in all its variety. His first love was for his family and his greatest joy was in sharing these activities in their company. In later years, he took particular delight and pride in his grandchildren and was known for a rapid draw with his billfold in sharing their pictures. He was altogether a man of great heart, beloved by family and colleagues.

Dallas is survived by his wife Louise, daughter Karen Walton and husband Greg of Martinez, son Steven Banks and wife Julie of Sunnyvale, son David Banks and wife Heather of Napa, sister Modena Bryan of Portland, Oregon, and grandchildren Michael, Patrick, Kathleen, and Jeffrey Banks of Sunnyvale, and Aaron and Nathan Banks of Napa.

John Hunter
Tom Sallee
Don Chakerian