Robert John Walker

May 5, 1909 — November 25, 1992

Robert John Walker, professor of mathematics emeritus, died November 25, 1992 at St. Clair's Hospital in Pittsburgh, Pennsylvania. He was born May 5, 1909, in Pittsburgh, a son, with three elder sisters. He attended Duquesne University High School and then obtained a bachelor of science degree from Carnegie Institute of Technology in 1930. Robert Walker held fellowships at Princeton University from 1931-33 after which he was a part-time instructor at Princeton from 1933-35. He was awarded a Ph.D. degree in 1934 with a dissertation, "Reduction of the Singularities of an Algebraic Surface".

In the summer of 1935, Bob traveled to Europe returning as an instructor at Cornell University starting September 26, 1935. He was assistant professor from 1938-46, associate professor from 1946-48, and professor from 1948-74, when he retired. World War II intervened, but Bob was classified 1B because of defective eyesight. He obtained occupational deferment and was assigned to doing rocket research at Aberdeen Proving Ground in Maryland from 1942-45. In August 1945 Bob wrote Chairman Agnew "I would not object to a couple of months vacation—the first in three years..." Agnew wrote back saying o.k., noting the fall term ran from November 2, 1945 to February 23, 1946.

In 1950 Agnew had been chairman for ten years. Bob became the next chairman and served two terms from 1950-60 broken by a sabbatical leave from 1954-55. During this leave Barkley Rosser acted as chairman. In retrospect Bob felt being chairman for two terms was the wrong decision.

Barkley Rosser succeeded Bob as chairman but resigned in 1962. Then Bob acted as chairman until Paul Olum was appointed.

Bob's dissertation was an important contribution to the subject of algebraic curves. He had a number of conversations with S. Lefschetz of Princeton University about material for a book. In March 1946, Lefschetz offered Bob a lectureship at Princeton during 1946-47 to help him finish the book. *Algebraic Curves* was published by Princeton University in 1950 and remains in print today. It showed how to compute things about algebraic curves and this subject has become important in design considerations in computer science today.

By the early 1960s Bob had lost interest in his original subject of algebraic geometry. A colleague recently offered the opinion that Bob was at heart a geometer and as the subject became more algebraic and less geometric, he

lost interest. Emerging was a deep growing interest in computers. He had studied aerodynamics and had worked in the Ballistic Research Laboratory at Aberdeen. Part of the sabbatical in 1954 was spent at UCLA working with SWAC (Southwestern Automatic Computer). A newspaper clipping says "SWAC...is rigged to play Seventeenth Century musical games in the interest of solving mathematical problems." Bob had programmed SWAC to play sequences of changes over the speaker wired into the SWAC circuits. Early in the 1960s he was involved in the decision to purchase a Control Data mainframe for Cornell. The computer was located in Rand Hall. The time was ripe for a computer science department and Robert Walker, Richard Conway, and Anil Nerode helped found the Computer Science Department and persuaded Juris Hartmanis to leave General Electric and become head of the new department. Bob held a half-time appointment in the new Computer Science Department until 1968.

Bob was a member of the Mathematics Association of America Committee on the Undergraduate Program in Mathematics. In 1960 the NSF granted $350,000 to the Mathematics Association "to wipe out a . . . lag in American mathematics teaching." In pursuit of his interest in computers, numerical analysis, and the teaching of mathematics, Bob took two sabbatical leaves to Florida State University, first in 1961-62, the second in 1968-69, to "study and research in the role of computers and computer science in the undergraduate curriculum. . ." In 1964 Barkley Rosser, now at the University of Wisconsin, offered Bob a professorship in the new department of computer science, but he refused. The second leave resulted in the book, *Calculus — A Computer Oriented Presentation*, 1968, under the sponsorship of CRICISAM. The book was used several years at Cornell but the methods did not seem successful enough to continue to use.

Bob had always been interested in puzzles, games and problem solving. This fascination extended to combinatorial questions and resulted in papers in 1960 and 1963. The 1963 paper "Determination of Division Algebras with 32 Elements" required a computer to enumerate all possible structures, which was a major computation at that time.

Bob was a great friend to colleagues and their children. His office door was always open. He became godfather to two Rosser children who have fond memories of their fun with him, as does the Agnews' son, who, after working many years for IBM now teaches computer science at Binghamton University. He was "Uncle Bob" to these children who prized his friendship and good-natured jokes with them. Unmarried, Bob and his sisters Clara and Francis really enjoyed each other and were great friends. Bob anchored a bachelor table evenings at the Statler Club which was a convivial meal for those who were single as well as for parents with children who treasured this pleasant relief on a busy day. Periodically he was a breakfast chef who served wonderful pancakes to these families and

friends in his apartment. Many enjoyed eating there to the powerful roar of water in Cascadilla Gorge, watching his birds come to his feeders and just enjoying the calm, well-organized style of his place.

He spent hours studying how best to attract and photograph birds and designed excellent feeders to avoid squirrels. Birding with Bob was great fun and after he retired he took trips to Big Bend and Utah, to the Galapagos Islands and to Africa showing enormous stamina for sunrise-to-sunset trips in the field. Many of his photographs went to the Audubon Society in Pittsburgh. Others became the picture of the yearly Christmas card that so many remember receiving.

He had a very select library likely to contain excellent books on subjects of special interest. Included were guides to Africa and important places to bird in North America. These books provided the foundation for a number of self-directed tours that Bob took with friends. Bob knew and recommended the best detective fiction and enjoyed discussing it in detail.

A large retirement party was held on May 11, 1974 at the Big Red Barn on campus—informal but beautifully arranged. The department secretary, Madelyn Keady, was also retiring after serving from 1928 to 1974. In the early years Madelyn was jointly the department secretary and librarian. The department was small and relationships often were very close, no longer true in a department four times its earlier size, which saddened Bob a bit.

After retirement Bob moved to Pittsburgh and shared a house with his sisters, Clara and Francis. The elder sister Martha lived in Florida, which inspired great birding trips and much good-natured joking. Clara typed braille and had contact with the blind. Bob read difficult science texts onto magnetic tape for blind students which was organized through a church in Pittsburgh. Subjects included economics, pharmacology, organic chemistry, finance, etc., each with its peculiar problems about verbalizing diagrams, pictures and equations, each text worked out in close consultation with the blind reader. Bob excelled at this type of problem solving and continued this humanitarian work until his health began to fail. His heart was in helping people to enjoy living intelligently.

Those of us who knew him well miss his spirit, intellect, wit, directness, honesty and lively interest in his friends of all ages and in the world about him.

Richard Conway, Juris Hartmanis, Roger Farrell