

**MEMORIAL RESOLUTION OF THE FACULTY
OF THE UNIVERSITY OF WISCONSIN-MADISON**

ON THE DEATH OF PROFESSOR EMERITA EEVA THERMAN PATAU

Professor Emerita Eeva Therman Patau died on 11 June 2004 in Helsinki, the city in which she was born on 4 August 1916. She received her MS degree in genetics from the University of Helsinki in 1939 and her PhD from the same institution in 1947. Her graduate education was interrupted by World War II; she served in the Finnish Army in 1941 and 1942, working as a blood transfusion nurse and receiving a decoration for her service. After receiving her PhD degree, she worked at the Finnish State Horticultural Institute as a research assistant and then joined the faculty of the University of Helsinki in 1950, rising quickly to the rank of docent (associate professor). In 1958-59, Eeva won a Fulbright Scholarship to study in the Department of Botany at the University of Wisconsin-Madison. She then moved to Professor Klaus Patau's laboratory in the Departments of Pathology and Medical Genetics and remained in that lab as a research associate from 1959 until 1972, when she became a senior scientist. Three years later, she was appointed professor of medical genetics, a position she held until she retired in January of 1986.

Eeva's field of study was cytogenetics, which looks for correlations between abnormal structure and behavior of chromosomes as seen through the microscope and phenotypic (clinical) anomalies. For the first 10 years of her career, she studied the cytogenetics of plants, an interest that continued to the end, but in 1950, in collaboration with S. Timonen, she began a study of abnormal cell divisions of cancer cells. This began her long and intense interest in the cytogenetics of humans, which occupied most of her attention for the remaining half century of her life. She had published more than 30 research papers under the name Therman before she married Klaus Patau in 1961. She retained Eeva Therman as her professional name but was known locally as Eeva Patau. (Eeva's visa expired before her marriage to Klaus, and she was almost deported. Happily, a friendly congressman, Representative Kastenmeier, offered assistance, and the deportation was averted.) Eeva's employment history reveals something of the sorry status of women in science at mid-century. At the time of her marriage to Klaus, it was unthinkable that a husband and wife might hold faculty appointments in the same university department. Consequently, Eeva was employed as a postdoc for 13 years while performing duties that were virtually indistinguishable from those of a faculty member. In 1972, realizing that Eeva's salary was disgracefully low in view of her world-wide reputation among cytogeneticists, the Laboratory of Genetics approved her promotion to the rank of senior scientist. However, it wasn't until Klaus died in 1975 that her faculty colleagues felt comfortable in granting her an appointment as full professor.

Eeva was a pioneer in the study of cancer genetics and helped to characterize the abnormalities that are indicative of malignancy. In the early 1960's, shortly after the discovery that Down Syndrome was due to the presence of an extra chromosome in the cells of affected individuals, a team of Wisconsin researchers headed by Klaus Patau discovered the two other viable trisomies that occur in humans — trisomies for chromosomes 13 and 18. Eeva was an important member of the team that made this landmark discovery in human genetics. In later work, Eeva became interested in the regulation of the X chromosome in human females. One of the two X chromosomes in each cell is inactive. Eeva and her coworkers examined a large number of individuals in whom this inactivation was abnormal, often because portions of the X chromosome were missing or were broken off and attached to other chromosomes. Analysis of these results led to the hypothesis that there is a site on the X chromosome, an inactivation center that is required for normal inactivation, a speculation that has subsequently been shown to be correct. Her fascination with the X chromosome produced so many publications that she became known among her colleagues as "Mrs. X Chromosome." In the course of her career, Eeva published well over 100 research papers on a wide variety of subjects including the behavior of plant chromosomes during cell division, the origin of chromosomal abnormalities in humans and mice, the effects of various genetic diseases on the behavior of chromosomes, and the role of specific chromosomal segments in human development and physiology.

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For many years, Eeva taught the course called "Human Cytogenetics," which was especially popular with students preparing for careers in medicine and genetics counseling. Out of this course came Eeva's textbook, "Human Chromosomes: Structure, Behavior, and Effects" (Springer-Verlag, Publishers), which first appeared in 1980 and is now in its fourth edition. Eeva was sole author of the first two editions. The third (1993) appeared under the same title with Millard Susman as co-author and the fourth under the title "Human Chromosomes" (2001) with Orlando J. Miller and Eeva Therman as authors. The first edition of this book rapidly established itself as "...the leading textbook in English on human cytogenetics" (quotation from a review in *Cell*). The third edition was translated into Spanish by the Uruguayan geneticist, Maximo Drets, and quickly became popular throughout South America. The book is wonderful in several ways. First, it rarely makes an assertion without citing the scientific evidence. Second, it rarely accepts any investigator's conclusions without critical examination of the evidence and of the logic underlying those conclusions. Third, it lays open to the reader the absolutely original and quirky workings of Eeva's brain. No one can read this book without feeling the force and range of her sparkling intellect.

Eeva loved people and had a large circle of friends and collaborators. Her many relatives and friends in Finland came often to Madison to visit her, and she frequently returned to visit them. Students and postdocs who had worked with Eeva here in Madison stayed in touch with her and several continued to collaborate with her. She was an avid reader, with an appetite for mystery novels and books on international affairs and national politics. Eeva liked to talk and had standing lunch dates with campus friends who would come to her office, share tea and cakes, and talk about politics, campus gossip, public education, and the foibles of humanity. Eeva was a wonderful story-teller and especially liked to support her assertions with stories about the children of her friends and relatives. When she retired in 1986, she kept an office in the Department of Genetics and continued both scholarship and social interactions until health problems interfered.

In her final years, Eeva suffered a variety of ailments and was forced to stay at home most of the time. She had food allergies that at times restricted her diet to little more than milk and rice wafers. She suffered pains in her back and jaw. Worst of all for a person who was a voracious reader and whose research depended on the use of a microscope, she suffered macular degeneration that ultimately made reading and microscopy impossible. Nevertheless, she was determined to remain mentally sharp and to maintain her friendships. She managed to stay in her own apartment with help from friends and family. Jurgen Patau, Eeva's stepson, and his wife Jean helped Eeva with shopping and other practical matters. Friends visited Eeva on a regular schedule and read to her from the genetics literature — which Eeva tried to follow even though it was much harder to listen to a research paper than to read it for one's self — and from the mystery novels that she loved. When there was no one available to read to her, she listened to books on tape. Television and radio kept Eeva up to date on current events so that she could continue to rail against the idiocy of our political leaders whenever she had a suitable audience. Eeva had a circle of close friends whom she liked to treat to dinner from time to time at the Edgewater Hotel, and she continued this practice even when she could no longer eat much or hear all of the conversation at the table. She would drink her glass of milk, nibble a scrap of salmon, and act the perfect hostess as her guests cleaned their plates. Her health was never a topic for conversation at these dinners.

Eeva decided in 2002 to return to Finland. At first, she lived in Helsinki in her own apartment adjacent to an apartment owned by her sister. In the end, it was necessary for her to move to a nursing home, but she remained sharp and no doubt critical to the end. Those of us privileged to know Eeva as a colleague and a friend will always remember her as one of the liveliest of people we have known — brilliant, challenging, funny, and irrepressible.

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