



IN MEMORIAM

Ernest M. Gifford
Professor Emeritus Plant Biology
UC Davis
1920 - 2006

Ernest Gifford was born in 1920; as a young boy in Riverside, California, Ernest Gifford made the acquaintance of Dr. Edmund C. Jaeger, a biologist at Riverside Junior College. Jaeger was a student and teacher of the desert flora and fauna, and young Gifford spent much time in Jaeger's company. From this sprung his lifelong interest in plants, so when he graduated from Riverside Polytechnic High School in 1938, he knew what he wanted to do — study plants. The place to do that was UC Berkeley, where he had a choice of accepting a football scholarship or an academic scholarship. Fortunately for botany and for generations of UC Davis undergraduate and graduate students, he decided to forego athletics and pursue his longstanding interest, as a botany major. While at Berkeley, Gifford participated in Reserve Officers' Training Corps (ROTC), as did many College men of his generation. Upon graduation in 1942 with an A.B. degree, he received a commission in the U.S. Army where he served in the 14th Armored Infantry Division as an officer in Europe as part of Patton's army, and saw action in the Battle of the Bulge. Gifford served initially as a tank commander, and later, in graves registration. He reached the rank of major and was awarded the Bronze Star. At the time of his demobilization in 1946, Gifford considered making a career of the military, but instead returned to Berkeley to pursue a Ph.D. degree in botany, although he remained in the Army Reserves until 1973, when he retired as a full colonel. Following completion of his Ph.D. in 1949, Gifford joined the faculty of the Department of Botany as an assistant professor and assistant botanist in the Agricultural Experiment Station. He progressed through the ranks and achieved the level of professor and botanist in the Agriculture and Environmental Sciences in 1962. Gifford retired in 1987, although he returned on recall status for five more years to teach his upper division class in plant morphology.

Gifford was an internationally renowned botanist, with interests in plant anatomy, morphology, and cytology. The main focus of his research was the formative region of the plant body that gives rise to leaves, the stem and to flowers, the apical meristem. He and his students and co-workers investigated the cellular and chemical changes that accompany the transition from the vegetative phase to the reproductive phase, particularly in the basal flowering plants and also in conifers. Prof. Gifford was a pioneer in the use of radioisotope techniques to observe and study DNA synthesis in plant nuclei. In 1958, Partanan and Gifford published a seminal paper in the journal *Nature*, showing applications of autoradiographic techniques to studies of shoot apices. In 1959, colleague Ralph Stocking and Gifford showed the first direct observation of radioactive thymidine (a precursor of DNA) incorporation into algal chloroplasts, the first evidence of DNA in chloroplasts. The next year, Gifford demonstrated the incorporation of tritiated thymidine into nuclei of shoot apical meristems and predicted the usefulness of this technique for information about sites of mitotic activity in growing shoot tips.

Professor Gifford collaborated with many other departmental and campus colleagues in both fundamental and mission-oriented research. Weed science and herbicide physiology were strengths of the Botany Department, and Gifford and his students investigated effects of several herbicides and other growth regulators on plant

growth and development, as well as virus effects on grape vines. With co-workers, Gifford worked to free the French Columbard grapevine from a devastating virus by heat therapy and tissue culture. Once free of the virus, the variety was propagated vegetatively and made available to growers. Somewhat later in his career, Gifford became interested in the cytology and ultrastructure of reproductive cells of non-flowering seed plants, such as the swimming sperms of Ginkgo. Many of his graduate students conducted research on apical meristems of non-seed plants, assessing structural and functional questions in ferns, horsetails, and clubmosses.

In addition to his more usual academic pursuits, Gifford assisted on several criminal cases in which plant anatomy and morphology provided information to help solve the crimes. One particularly noteworthy case was the 1971 murder of 25 farm workers by Juan Corona near Yuba City. Gifford and Prof. David Bayer, his weed physiologist colleague, visited the orchard gravesites to help determine when the plants growing on the graves had germinated so authorities could determine when and in what order the workers had been killed. They collected plants from the burial sites for analysis and subsequent identification by the UCD Herbarium.

Professor Gifford was active in campus and professional society leadership and service, and received many honors in his lifetime. He was chair of the Botany Department from 1963 to 1967 and 1974 to 1978. He was co-author with his former UC Berkeley major professor, Adriance S. Foster, of the widely used text *Morphology and Evolution of Vascular Plants*, author and co-author of more than 100 publications, and a member of numerous scientific societies. He was a National Research Council fellow at Harvard in 1956 and a Fulbright research scholar in France in 1966. He received a Guggenheim award and was also a North Atlantic Treaty Organization (NATO) postdoctoral fellow, also in France. He received the Davis Division Academic Senate Distinguished Teaching Award in 1986, a Botanical Society of America Merit Award in 1981, and a BSA Centennial Award in 2006. From 1975 to 1979, he served as editor-in-chief of *The American Journal of Botany*, and in 1982, the AS President of the Botanical Society of America.

Professor Gifford was born January 17, 1920 in Riverside, Calif., to Ernest M. Gifford, Sr. and Mildred Campbell Gifford. He died June 14, 2006, in Davis, from complications of Alzheimer's disease. He is survived by his wife of 63 years, Jean Duncan Gifford, his daughter, Jeanette Lewis and her husband Jonathan of Davis, and his grandson, Aaron Lewis of New York City.

The family encourages friends and colleagues to remember him by visiting the Ernest M. Gifford Cycad Garden in front of Storer Hall on the UCD campus, which was dedicated in his honor in September 2005. Donations in memoriam may be made to the UC Davis Foundation, One Shields Avenue, Davis, CA 95616 designating the Arboretum Endowment or Botanical Conservatory Endowment funds.

Judy Jernstedt
Tom Rost
Michael Barbour