



## IN MEMORIAM

William Eugene Berg  
Professor of Zoology, Emeritus  
UC Berkeley  
1918 – 2006

William Eugene Berg was born December 6, 1918, in Round Mountain, a small mountain town in the Smoky Valley region of south central Nevada. Though his later years were complicated by Parkinson's disease, he remained physically and mentally active until he passed away as a result of a stroke in Stockton, California, on October 27, 2006 at the age of 87.

William Berg was one of six children born to his pioneer father, who was a leading citizen and extraordinary entrepreneur in the gold mining town of Round Mountain. Bill was raised in a home where hard work and steadfastness were the coin of the day. Among other enterprises, his father developed, owned and ran the local water supply, dairy, and vegetable farm. Anecdotes suggest that Bill was regarded as the "bright one," and he was sent to Los Angeles to complete his schooling, since the one-room schoolhouse in Round Mountain was inadequate. He graduated as class valedictorian from Belmont High School in Los Angeles, and then in 1939 obtained a B.S. at California Institute of Technology, from which he also received an M.S. degree in 1940, studying experimental embryology under the tutelage of Albert Tyler. His Ph.D. degree work was done under the direction of Douglas Whitaker at Stanford University, where Victor Twitty was another important influence.

During the war years Berg briefly worked in medical sciences at the University of Southern California (1943), and then in the Division of Medical Physics at the University of California, Berkeley, with John Lawrence. The dissertation research at Stanford and his work in the Division of Medical Physics at Berkeley resulted in a series of publications of first-class research on respiration at high altitudes, a subject of considerable importance to aviators during the war and after. Probably because of his close relationship with John Lawrence, Berg was selected as one of three observers of the atom bomb tests carried out at Bikini Atoll in the Pacific in 1946.

Bill Berg, who preferred the nickname "Will" in his later years, was a valued member of the Department of Zoology at Berkeley, where he was appointed an instructor in 1947 and ascended the ranks, reaching that of professor in 1961. He was a Guggenheim Fellow in 1950. During the 1980s the faculty of the zoology department were reassigned to the present Department of Integrative Biology and the Department of Molecular and Cell Biology.

After obtaining his Ph.D. in embryology at Stanford, Berg began independent studies of the development of marine invertebrate embryos. He worked on embryos of many of the classical organisms of marine embryology: mussels, ascidians, sand dollars, and most especially, sea urchins. Berg's approach was an unusual combination: classical experimental embryology, which involved microsurgery to transplant and

remove single cells from live embryos in order to investigate the consequences, followed by biochemical analyses and characterization of the metabolism of normal and experimentally altered embryos. This approach was in line with the changes in biology generally brought about by application of modern biochemistry and genetics to problems of development. Joseph Needham in the U.K. and Jean Brachet in Belgium were the leading exponents; Berg was one of very few in the U.S. to apply these biochemical approaches, and his work was characterized by a kind of elegant precision. He was adept at delicate microsurgical techniques used to isolate and transplant individual cells in these small embryos, and he became a leading figure in the study of how the early embryo defines the body axis, i.e., how the embryo knows where to make the head and tail ends. He intensively studied the synthesis of proteins in developing sea urchin embryos, normal and experimentally altered, in an attempt to understand the chemical basis of development. He was among the first to apply radioisotopes in the study of biochemical pathways in developing embryos. He had a foot in each of two worlds, classical embryology and newer biochemical approaches, and was recognized as one of a small number of solid scientists pushing these approaches to the limits.

Berg was a patient and admired mentor of graduate students, several of whom went on to international reputations, notably Yoshihiro Kato (now deceased) in Tokyo and Alan Rapraeger, now at the University of Wisconsin. His teaching duties were always carried out with extreme care, and concern for the students was important to him. Berg was a reserved, almost shy man, but always amiable and helpful, and he communicated his love of science to all who knew him. His passions were research and working closely with graduate students. Changes in the culture of academic science, accelerating in the 1970s, often required large numbers of student researchers and a constant search for additional research funds. Neither of these was his cup of tea, which contributed to his decision to retire in 1980 at age 62.

Despite his individualistic approach, Berg was open to collaborative efforts, to which he contributed in a major fashion. For example, he happily applied his microbiological expertise to a study of metabolic characteristics of precancerous lesions in experimental breast cancer, patiently conducting analyses on tissue provided by Berkeley's Cancer Research Laboratory. He was fearless in learning new techniques and approaches, even as he was considering retirement, and it is reported that he followed scientific developments by regular, wide-ranging reading of scientific literature until he was afflicted by a stroke.

After retirement Will Berg resided in the Montclair neighborhood of Oakland, then moved with his second wife, Barbara, to Pollock Pines, California, in El Dorado County. Will and Barbara were married for 32 years. After his wife's death in 1999, Berg moved to Stockton, where he resided until his death. He was very active in environmental affairs during retirement, especially conservation activities with the Sierra Club. He spent substantial parts of his last years curating glass artifacts at a museum started by his brother in Nevada. A rich supply of old glass bottles was part of the culture in and around Round Mountain, having been used in construction of living and storage quarters.

Three of Will Berg's siblings predeceased him. He is survived by a younger sister, Shirley Ann Henle, and a younger brother, Karl (Skook) Berg, both of Round Mountain, Nevada; by his daughters, Doran Berg of Stockton and Susan Landauer of Oakland; and by grandson Benjamin Jacob Hirschfield of Santa Cruz.

Fred Wilt  
Howard Bern