

## Obituary Notice Renowned Neurobiologist: Theodore Bullock

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Professor Emeritus Theodore Bullock, a renowned neurobiologist who was affiliated with the University of California, San Diego, for nearly four decades, died on December 19 in La Jolla, Calif. He was 90. He remained active until the day of his death, when he experienced breathing problems and had died by the time he was taken to Thornton Hospital.

Bullock joined the university in 1966 and was a member of the Department of Neurosciences at the UCSD School of Medicine and maintained strong ties to UCSD's Scripps Institution of Oceanography.

Bullock's pioneering investigations included studies of sensory systems, especially in fish, neurophysiology of nerve cells, and electrical activity and evolution of the brain.

"He was an outstanding neurophysiologist, much beloved by his students, with an extraordinarily productive career," said Leon Thal, M.D., chair of the Department of Neurosciences at the UCSD School of Medicine, and a long-time colleague of Bullock's.

"Scripps has lost one of its closest UCSD collaborators and friends," said Scripps Director Charles Kennel.

"As a person and as a scientist, Ted Bullock was of the first importance. With the passage of time, I think there is a good chance that Ted will come to be recognized as second only to the immortal Ramon y Cajal in his accomplishments and his influence on his fellow neuroscientists," said Nicholas Holland, professor of marine biology and a colleague of Bullock's at Scripps for the past four decades.

A member of the National Academy of Sciences since 1963, Bullock received a variety of awards and honors during his long career, including, among others, a Fulbright Scholarship from the Zoological Station in Naples, Italy, in the 1950s, the Karl Spencer Lashley Award from the American Philosophical Society in the 1960s, a Queen's Fellow in Marine Biology in Australia in the 70s and an honorary doctorate from the University of Frankfurt in the 80s.

Bullock's investigations resulted in a lengthy record of research publications, a list of which can be seen under his profile at: <http://myprofile.cos.com/bullockt82s>. Bullock obtained his Ph.D. from the University of California at Berkeley in 1940. After serving for 20 years as a professor of zoology and member of the Brain Research Institute at UCLA, Bullock joined UCSD in July, 1966. According to his autobiography, Bullock was born in Nanking, China in 1915, the second of four children of Presbyterian missionary parents who came to China in 1909 (his autobiography is available at: <http://cogprints.org/130/00/Autobiog.htm>).

In the introduction to his autobiography, Bullock notes: "This is a story about ideas: thinking of them, reexamining them, formulating them for teaching to beginners or to postdocs, selecting them for investing research time—all within a defined domain of natural science. Sustained thought, reiterated questions, the rigorous boundaries of logic and evidence, the ever-present demand for controls and explicit effort to disprove, a

tremendous dependence on the subjective component, on imagery and imagination-these converged on a limited number and range of particular issues."

And in the conclusion Bullock wrote: "Today the driving motivation continues: what's going on; how does it work; what's the principle of the thing; there must be a good idea waiting to be recognized; think! At this writing I am surrounded by plots of human, turtle and ray EEGs analyzed for higher moments of nonlinear interactions among frequency components, called bicoherence, a hitherto almost untried descriptor of different states, brain parts and species. I am nearing the end of a labor of love, keeping the Walter Heiligenberg lab open and active for the two years after his tragic death in an air crash. My wife, Martha and I enjoy our children, grandchildren, friends, church, walk-in aviary and bonsai-and appreciate every day, as a gift."

In addition to his wife Martha, Bullock is survived by his daughter Chris Kazman (and son-in-law Michael), son Stephen (and daughter-in-law Nora), and five grandchildren.

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### **Bullock's Profile**

Autobiography