

DOCUMENTS OF THE GENERAL FACULTY

**REPORT OF THE MEMORIAL RESOLUTION COMMITTEE FOR
JAMES L. LARIMER**

The special committee of the General Faculty to prepare a memorial resolution for James L. Larimer, professor emeritus, neurobiology, has filed with the secretary of the General Faculty the following report.

Sue Alexander Greninger, Secretary
The General Faculty

**IN MEMORIAM
JAMES L. LARIMER**

James L. Larimer was born in Johnson City, Tennessee, on January 7, 1932, and died in Austin, Texas, on July 3, 2007. He grew up as a rural farm boy in the hilly country of Eastern Tennessee where his parents operated a plant nursery and an orchard. They had no electricity in their house until he was seven. Much of his early childhood was spent outdoors in the woods and fields where he developed a fascination with natural history that led directly to his interest in science. He received a B.S. in biology from East Tennessee State University in 1953. He explored the tolerance of immature insects to toxins for his M.A. at the University of Virginia in 1954. He earned his Ph.D. in 1958 at Duke University under famed comparative physiologist Knut Schmidt-Nielsen. His research focused on respiration and water balance in animals. The most cited contribution from this work was his demonstration that the blood of small mammals delivers oxygen at higher pressures to body tissues than does the blood of large mammals. This is an adaptation to sustain a small animal's high metabolic rate.

Jim then did a brief postdoctoral stint at the University of Florida with T.H. Maren where he studied the pharmacology of salt glands in oceanic birds. These glands allow oceanic birds like seagulls to eat a salt-rich diet and drink seawater by extruding the excess salt. This was an extension of his comparative studies of water and electrolyte balance and followed his abiding love of birds.

Jim joined The University of Texas faculty as an assistant professor of zoology in 1959, and he was promoted to associate professor in 1964; he then served as a full professor from 1968 until his retirement in 2005. During his early years at UT, Jim worked in Donald Kennedy's laboratory at Stanford University in 1967-68 as a John Simon Guggenheim Fellow. It was there that he began investigating the crayfish nervous system. He studied neural circuits underlying simple motor acts, mainly those involved in controlling the posture of the abdomen. In these experiments, Jim followed up on earlier work by C.A.G. Wiersma and showed that axons could be dissected from the nerve cord that, when stimulated, produced not a simple movement, but a coordinated set of movements. These neurons were called "command neurons" because their activity appeared to evoke a whole, coordinated motor program. Donald Kennedy (former president of Stanford University and editor of *Science* magazine) recalls that:

Jim Larimer spent two extended periods in our laboratory at Stanford, during which we worked together a lot and collaborated on a series of papers about motor control and the organization of behavior. These were really special moments for me and my colleagues. Jim had a wonderfully understated way of approaching problems; he would get a really good idea and start the experiment with an attitude that suggested, "aw, shucks, this isn't going to work" -- but it usually did. He was a real fixture in the lab, and he was generous almost to a fault in helping others. Most of all, he asked good questions in a way that didn't seem challenging at first but made one think harder about a problem than one otherwise would have.

When Jim returned to The University of Texas, he continued to work on command neurons and was one of the first scientists to use intracellular recording to examine how the command neurons were organized. His most seminal contribution was the demonstration in crayfish that the command neurons were organized into complex, synaptically interacting circuits. That is, they behave more like members of a committee than, as initially thought, CEOs! His work belied the then current idea that invertebrate brains are simple and hierarchically organized and presaged contemporary thinking about parallel processing and vectorial encoding of movement

trajectories by neuronal populations. Jim's work on motor control was widely recognized and culminated in his receiving a Jacob Javits Award in Neuroscience from the National Institute of Health.

Jim also studied comparative physiology in many species. The topics included circadian rhythms, vision and sensory ecology, communication and control of electrical behaviors in electric fish, and the contribution of joint receptors to motor control of scorpion appendages.

He was a storehouse of knowledge about animals and nervous systems of all kinds. His son, Bret, remarked:

He had a tremendous amount of knowledge allowing him to identify thousands of animals and plants. He was also an enthusiastic lifelong animal physiologist, and his interest in doing science was connected to his interest in observing nature. He thought about animal physiology when watching the hummingbirds he attracted to his yard, and after many years of attracting and watching hummingbirds, he published papers on hummingbird physiology. Even where the connection between his current research interest and his interest in naturalism was less obvious, it was always there, and I don't think he ever got tired of observing nature or doing science.

The biomechanics of hummingbird flight and blood pressure regulation was of special interest. He initiated studies on this topic with Robert Dudley. His passion for science resulted in over 100 publications and included a textbook on animal physiology.

In his unassuming, low-key manner, Jim was a popular teacher and an inspiring mentor. His comparative physiology course was a source of amazement and delight for undergraduates. His teaching was honored with a teaching award from the College of Natural Sciences at The University of Texas.

Jim mentored several generations of graduate students and postdoctoral fellows many of whom are now successful scientists. Recollections of his former colleagues and students give testament to the inspiration and guidance that he provided.

John Jellies, (former graduate student), commented on "... how pivotal Jim's influence was on a whole generation of scientists. His humanity and personality were as instructive and influential as his scientific mentoring."

Lawrence Brewer (former graduate student), noted that: "When I proposed a series of experiments I will never forget his response, which was delivered with his characteristic Tennessee drawl: 'Young man, sounds like a good idear, go to it!' That spirit and Jim's wisdom will always live on."

Nigel Atkinson (professor, UT Austin) described his experience as a colleague of Professor Larimer as follows:

He shared his equipment with us, gave us guidance, and helped us to grow in experience and expertise. He did all of this without ever asking for any credit for his help. I am very proud of the two papers that Jim and my lab published together, and I'm grateful to have had the opportunity to work with such an astute, accomplished, and generous researcher. I think that it is a great scientist who can collaborate and interact with zeal with young scientists of very different scientific backgrounds. He was a man of learning, warmth and grace.

Jim's hobbies included gardening, woodworking (including building telescopes and a grandfather clock with wood from his family farm in Tennessee), and watercolor painting. He was an astute observer of birds. His daughter, Linda, recalled:

He particularly loved birds. Once we were driving back from the Snake River Birds of Prey area in Idaho, and he spotted an owl. We stopped the car and went back, and sure enough, there was a burrowing owl maybe six inches high about 200 feet off the road. The rest of us needed binoculars to see it. My Dad made a bird list on that trip, with about forty birds on it. I had managed to see about five.

Jim also devised Rube Goldberg bird feeders to block the encroachment of squirrels, and he loved to tell stories about how the squirrels somehow always found a way to defeat his efforts.

Jim is survived by his son and daughter-in-law, Bret Larimer and Laura Albornoz, of Lakewood, Colorado, and their children, Nicolas and Juliana; his daughter and son-in-law, Linda Larimer and Bob Faucher, of Boise, Idaho, and their children, Madeleine, Sam, Ian, and Paul; and his brother, Victor Larimer, of Langhorne, Pennsylvania.

This memorial resolution was prepared by a special committee consisting of Professors Harold Zakon (chair), George Pollak, Austen Riggs, and Wesley Thompson.

Distributed to the dean of the College of Natural Sciences, the executive vice president and provost, and the president on February 6, 2008. Copies are available on request from the Office of the General Faculty, WMB 2.102, F9500. This resolution is posted under "Memorials" at: <http://www.utexas.edu/faculty/council/>.