

IN MEMORIAM

Robert D. Terry, MD The Passing of a Titan of Neuropathology

The death of Dr. Robert D. Terry on May 20, 2017 deprived neuropathology of a major figure in its transformation from descriptive histopathology to an exciting discipline in which the latest tools of biology and the physical sciences are used to unravel the causes of neurodegenerative diseases. Bob Terry's tool in this transformation was the electron microscope. In the late 1950's and early 1960's, the use of this instrument to examine tissues from human disease was transformative, allowing the alterations seen in disease to be correlated and related to the burgeoning understanding of cell biology and genetics. Fixation methods were primitive and the microscopes themselves required constant tinkering to obtain optimal results. Bob Terry was one of the earliest people to study the CNS by EM. His images of Tay-Sachs disease were revelatory and were featured in an exhibit entitled "Once Unseen" at the Museum of Modern Art in New York City in 1967. But it was in his studies of Alzheimer disease (AD) that he had his greatest impact. In 1963, he published, the first EM images of AD in which the argentophilic tangles of neurofibrils were seen to be composed of filaments quite different from the 10-nm diameter neurofilaments that comprised the argentophilic bundles in motor neuron disease. Over the years, Bob Terry extended his observations leading him to conclude that the morphologic alterations in AD (also known as "presenile" dementia) were also present in the majority of cases of "senile" dementia. Initially, these late-life cases were referred to as "Senile Dementia of the Alzheimer Type or SDAT". Today these conditions are grouped under the common title "Alzheimer Disease".

Bob Terry (only his wife Pat, called him Robert), was born into a prosperous mercantile family in West Hartford, Connecticut in 1924. He started Williams College in 1941 and then dropped out to join the Army and fight in World War II where he served as a paratrooper in the 82nd Airborne Division, seeing extensive combat including the Battle of the Bulge. After the war, Bob returned to Williams and received a BA in Chemistry in 1946. After rejections from over 30 medical schools, he was admitted to Albany Medical College where he received his MD in 1951. This was followed by an internship in surgery at Grasslands Hospital (now Westchester Medical Center) and residency and training in neuropathology under Dr. Harry Zimmerman at Montefiore Hospital in the Bronx. Bob joined the faculty of the newly formed Albert Einstein College of Medicine in 1959, having been



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1924–2017

recruited by the visionary neurologist/neurochemist Dr. Saul Korey who was building a multidisciplinary team to address neurological diseases. Bob was the recipient of the first NIH grant (NB-02255), that specifically focused on the study of AD. He was also an outstanding diagnostician and served for over 10 years as Chief of Neuropathology at Einstein and the Bronx Municipal Hospital Center. In 1969, he was named Chairman of the Department of Pathology at Einstein.

Bob had the foresight and charisma to recruit and maintain an international group of world-class investigators for decades. The Terry team worked on a broad range of neurological disorders spanning infancy through old-age. The tools of experimental neurology, enzyme histochemistry, and biochemistry were applied to these disorders with the electron microscope being the central tool of the laboratory. Early researchers in the lab included Nick Gonatas, Kinuko Suzuki, and Isabel Tellez-Nagel. In 1967, Henryk Wisniewski joined the group, soon followed by Mike Shelanski, Roy Weller, Jan Leestma, and John Prineas. Basic sciences were reinforced by the recruitment of Cedric Raine (1968) and Peter Davies (1977) from the UK. Subsequently, Bob's trainees also included Carol Miller, Dikran Horoupian, Mauro Dal Canto, Dino Ghetti, Jim Powers, Jim Goldman, and Dennis Dickson, among others.

Bob was a good friend to all his former trainees but that never spared us from his criticism. Bob's critical sense, sometimes almost intuitive, and his honesty visited the lives of all of us at one time or another (and we were better for the intercessions). Sage advice came easily and frequently. As a teacher/mentor, Bob could be stern, sometimes unsmiling but invariably responsive and fatherly, a great role model. Although he frequently mocked his training style as being akin to "benign neglect", to most of us he was inspirational. One of us recalls that three weeks into his fellowship, Bob showed up with an NIH R01 application kit and proceeded to expound on the NIH grant system and the importance of independent funding for young investigators. Bob then suggested that the fellow write the specific aims and experimental procedure sections for a proposal on his own work, which Bob would complete and submit to NIH with himself as principal investigator (postdocs could not serve as PI's). Five months after submission, it was learned that the proposal was to be fully funded. Surprisingly, but true to form, Bob then assigned the grant to the fellow for him to set up his own lab at the new rank of assistant professor—a career-shaping event from which the fellow never looked back. Where does "benign neglect" fit into this profile?

The Einstein years were marked by the deep friendship between Bob Terry and Bob Katzman. Katzman was initially interested in the blood-brain barrier and then in cellular transplantation, but it was Bob Terry who drew him into his interest in AD. Bob Katzman was key in "getting the message" out about AD and his publication in 1976 nucleated the focus on AD as the largest cause of human dementia. In 1970,

Bob Terry had come close to move to the new Medical School at the University of California at San Diego, but ultimately decided to remain at Einstein. In 1984, Bob Katzman accepted the Chair of Neurosciences at UCSD and convinced Bob Terry to accompany him to San Diego where they established one of the first NIA-funded Alzheimer Disease Research Centers. At San Diego, he recruited Eliezar Masliah and applied synaptophysin staining and quantitative image analysis to show the loss of synapses in AD and established that synaptic loss was the best single predictor of dementia in humans. Bob retired from UCSD in 1994 and continued to come into the lab until 2007. Among his many accolades, he was awarded the Potamkin Prize for Alzheimer's Disease Research in 1988, was one of the founders of the Alzheimer's Association, and was recipient of the prestigious Award for Meritorious Contributions to Neuropathology by the American Association of Neuropathologists, having served as its President in 1969.

Bob was devoted to his wife Patricia who was a noted translator of French and Norse poetry and to his son Nicolas, an artist living with his wife in Marfa, Texas. He was an avid skier, a grower of orchids, a lover of dogs, and a world-wide traveller. Of the thousands of photographic images he published, he was proudest of the photograph that he took of Pat which appears on the back cover of her translation of *La Chanson de Roland*.

**Cedric Raine,
James Powers, and
Michael Shelanski**