

In memoriam of William M. Landau (1924–2017)

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William M. (Bill) Landau was born in St. Louis, Missouri, on October 10, 1924, in a comfortable neighbourhood not far from the Washington University. Tennessee Williams and his sister's "Glass menagerie" lived a few blocks away. The grammar school in which he studied was named from Eugene Field, son on a lawyer who volunteered to defend Dred Scott, and lost. Dred Scott case decision of the Supreme Court of the United States was one of the catalyst of American Civil War, establishing that a person whose ascendants were imported as slaves could not be considered "part of the people" but an article of property. Bill then grew from his early life in a climate where culture, claims of justice and civil rights were a necessary endowment, and truth could not be separated from justice. He remained all this life faithful to this principle.

His college studies began at the University of Chicago, but he soon returned to St. Louis, at the Washington University, where he graduated cum laude in 1947, after his military service in the Army training program in the years 1944–1946. Passing from Chicago to St. Louis posed the risk of losing his position of medical student and his father, who was a smart businessman, went to Missouri representatives in Washington in search for a solution. An instructive anecdote followed. His father first went to the Missouri senator, Harry Truman, and got very directly the idea that Truman was not going to do anything without a contribution in cash. His father then contacted the district representative, and the problem

was independently and easily solved. Bill had told me the episode, which he reported in an interview given on August 10, 2012 for the American Academy of Neurology Oral History Project, and can be read on the web (aan.com history interview with William M Landau, accessed on November 21, 2017). Bill added that Truman "rose to greatness" after becoming president.

In Chicago, he met Roberta (Pudge) Hornbein, whom he married in 1947; she had a degree in astrophysics and became later teacher in physics. Bill developed his entire career in St. Louis at the Department of Neurology of the Washington University and at Barnes Hospital. He took his board in psychiatry and neurology in 1957, became assistant professor in 1954, full professor in 1963, head of the department from 1970 to 1991 and professor emeritus in 2012. In St. Louis, his mentors were George Bishop and James O'Leary, and his main co-worker Margaret Clare. He spent a research period in the years 1952–1954 at NIH in Bethesda, working with Walter Freygang, Seymour Kety, Louis Sokoloff and Lewis Rowland on cerebral blood flow; and in the years 1963–1964 as Gast professor fur Neurophysiologie und Neurologie at the Ludwigs Maximilien Universitat Munchen, working with Albrecht Struppler and Otto Mehls on passive movements in parkinsonism.

He had joined the St. Louis Washington University in a period of great scientific achievements. The Department of Physiology had become the seat of major discoveries on peripheral nerve fibers. Joseph Erlanger, Herbert Gasser and George Bishop, by the use of cathodic ray oscilloscope, described the different set of axons, their electrical potentials and their functional roles. In the same period, in Cambridge, Alan Hodgkin and Andrew Huxley were developing on squid giant axon a mathematical model of initiation and propagation of action potentials

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(by the way, Erlanger, Gasser, Hodgkin and Huxley all obtained, in different years, the Nobel Prize). Peter Heinbecker, a young graduate, and his trainer George Bishop were first to observe the C wave, the electrical potential of peripheral nerves unmyelinated axons, understanding that the unmyelinated fibers had a much slower conduction time than the myelinated. Erlanger thought this discovery too important for a young graduate and after an accusatory letter George Bishop was moved to ophthalmology, developing his interest to the optic nerve. I can testify that when I was in St. Louis more than 20 years later, there still was some resentment toward Joseph Erlanger. George Bishop, named professor of biophysics and then of neurophysiology, had joined the Department of Neurology and confirmed his uncommon scientific talent. He died in 1973, at the age of 84.

William Landau was a thorough clinical neurologist. His scientific interests were mainly directed to the pyramidal system, spasticity, movement disorders, pain, spreading depression and epilepsy. He published a series of papers on the fusimotor function whose lucid reasoning was the main reason for my joining the Washington University as Research Fellow in the years 1966–1967. Among his achievements are the origin of the Babinski response, the pathophysiology of spasticity, the physiology of pain and the relationship between sensation and peripheral nerve fibers size, a project in which was involved during my stay in St. Louis after a perplexing proposal from Ronald Melzack and Patrick Wall of a spinal gating responsible for noxious and non-noxious responses, which challenged the concept of specific sensory conduction lines. “Fiber size matters” was the unwritten motto of the department.

Together with Frank Keffler, he described in 1957 epileptic disorders responsible of a prolonged speech disturbance, which became known as Landau-Keffler syndrome. It will probably remain one of the last eponyms of clinical neurology since new diseases are becoming identified with acronyms.

Bill Landau will remain the magician who created neuromythology. Faithful to Occam’s razor rule (“*entia non sunt multiplicanda praeter necessitate*”, literally “concepts should not be unnecessarily multiplied”) he published on “Neurology” a series of papers in which he

censored without pity complicated formulations of simple concepts and unjustified interpretations of dubious results. “Neurology” was directed by Robert B. Daroff who anointed Bill as the Socratic gadfly of American neurology.

He often used the form of a dialogue between Dr. Equivocal and House Officer. I believe he took example from Galileo’s *Simplicio and Salviati*, in the “Dialogue on the two chief world systems” (“*Dialogo sopra i due massimi sistemi del mondo, tolemaico, e copernicano*”, Firenze, 1632). I know for sure that he was an admirer of Galileo’s lucidity. He went to the Galileo Museum in Florence to take a photograph of his right middle finger, “permanently erected in defiance of the Pope” (I still have photograph and comment).

His language was distinct by clarity, logic and humour. Some titles deserve being remembered as wonderfully witty. I will only mention “*Au clair de lacune: holy, wholly, holey logic*” (Clinical Neuromythology VI, 1989), on subcortical lacunes which he considered just ordinary and not special brand strokes, bearing no statistical evidence of a specific pathogenesis. The most inflamed debate rose from “*Piramide sale in the bucket shop: DATATOP bottoms out*” (Clinical Neuromythology IX, 1990) in which he demonstrated that from a drug with symptomatic effects like deprenyl (selegiline) one could not infer a protective role on the progression of Parkinson disease.

The 15 neuromythology articles, later collected in a book with two editions (1998, 2001), were not just a clever and amusing reading and a lot of fun but an appeal to rigid interpretation of clinical reality and to severe analysis of experimental results. He was not looking for and did not gain popularity, but the reputation of a grumpy person who always required the best and was uncompromising on professional ethics.

He was vigorously committed to social justice. He was consultant in the old city hospital that I visited with him touching by hand the difference between the best and the rest of American health structures, directed the Missouri section of American Civil Liberties Union and actively supported the National Health Program (I remember the sticker on his car “Single-payer Healthcare”).

Neurological practice and research gained a lot from his adamant and pertinacious opposition to overbearing and pre-

tentious theories. I consider him the best expression of American intellect.



William Landau (left) and George Bishop on August 27, 1967 at the log house of Bishop and Ethel Ronzoni, a biochemist and one of the first women scientist. Built in 1820 for an early settler, was restored by George and Ethel in 1930. Astounding was the kitchen counter, which continued directly with the lab where Ethel studied the bees larvae. Registered as an historic place, it now belongs to St. Louis County Parks and Recreation Department.