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Story Landis

Story Landis, Director of the National Institute of Neurological Disorders and Stroke (NINDS) at the NIH, says she owes her research career to a biology professor at Wellesley College who gave her the chance to be proven wrong. Landis recalls that the subject of her undergraduate senior research thesis was fat absorption in the goldfish intestine. "My thesis advisor, Geraldine Gauthier, had a very clear notion of what I would find but it turned out that her hypothesis was incorrect. When my findings didn't match, I went back to the literature and found ample precedent for my results. Hey, I was hooked. There's nothing more intoxicating than proving your advisor wrong."

"Sobering" might be a better word to describe the responsibilities facing Story Landis in her newest position. On September 1, Landis became Director of NINDS, an institute with an intramural staff of 900, a budget of \$1.5 billion, and the scientific responsibility for 600 diseases. Approximately 90 percent of the budget is spent outside the walls of NINDS, making the institute a primary supporter of biomedical research on the brain and nervous system in the U.S., from basic research to advanced clinical trials.

Colleagues and friends say that Story Landis is the perfect match for a difficult job. "The scientific work that Story is best known for today is on the fate determination of neural crest cells in the autonomic nervous system, that is, how a given cell decides to use one transmitter and not another," says Gerald Fischbach, who first met Story Landis at Harvard in the mid-70s and was later her boss as Director of NINDS from 1998-2000 when Landis was Scientific Director. "Story and her students did a number of studies to demonstrate that there could be a switch back and forth between those fates and it could occur in tissue culture and in the actual animal."

Neurons were considered anything but plastic in the mid-70s when Landis, still a post-doc, joined the Harvard lab of David Potter and Ed Furshman. Along with Paul Patterson, this group would rewrite on a cellular level the dogma of unchangeable neuronal fate, according to Fischbach.

"You have to see Story in the context of that group at Harvard," says Fischbach. "Today people talk about the 'plasticity' of the brain, but that wasn't the case then. Those were the earliest days of people growing nerve cells in culture, disassociating them for embryonic work or post-natal tissue and growing them again in tissue culture. It was that group and Story, in particular, who worked out the methods and helped to define the conditions that made these cells become one type of neuron or the other. It was definitive work and it was revolutionary at the time."

Story Landis grew up in western Connecticut where her mother raised and exhibited pedigree dogs and her father commuted to a job as an advertising agent on Madison Avenue. Just before her junior year of high school, her father took a new job in Pittsburgh and Story was uprooted to North Allegheny Joint High School District Number Nine. After earning a Biology degree from Wellesley in 1967, she worked for two years as a technician in the Harvard Medical School lab of Dick McIntosh. There she learned to culture HeLa cells, met (among others) her future husband Dennis Landis, and was accepted into the graduate biology program at Harvard University, just as her two most likely advisor prospects, McIntosh and Keith Porter, left for Boulder, Colorado. Landis had the good fortune to find a place in the HMS neuroscience lab of Richard Sidman. "Richard was several decades ahead of his time," says Landis. "He recognized early on that mutations in mice could be an important tool in deciphering the complex cell-to-cell interactions in neural development."

With Sidman, Landis embarked on an ultrastructural study of Purkinje cells in mutant mice with a characteristic "rounded up" malformation in cerebellar mitochondria. "What I did was technically quite challenging for the time," she says, "But it was not the same as cloning the gene for this mutation, which would now be much easier." It would also have been a lot easier if she could have stayed in one place. In 1971, Dennis Landis finished his MD degree and matched for an internship in San Diego. "So I packed up 50 cages of mutant mice and followed my husband to UCSD where I was lucky enough to find a place in John O'Brien's lab," Landis recalls. Two years later, Dennis Landis joined the U.S. Public Health Service and the NINDS intramural lab of Tom Reese. "So I packed up my 50 cases of mutant mice again and moved with him," says Landis. She found mouse and bench space with Floyd Bloom at the NIMH where she dashed to the end of her thesis work in 1973 and stayed on a year as a post-doc. Then Dennis Landis matched for a Neurology Fellowship at Harvard. Story Landis moved once again, without the mice, back to Harvard and her fateful association with neuronal plasticity. In 1978, Landis got her own appointment and lab in the Neurobiology Department at HMS.

In 1985, both Landises left Harvard for new positions at the Case Western University School of Medicine in Cleveland. Story Landis says she was hired to fill "the cell biologist niche" in the Pharmacology Department, but soon found herself on a committee charged with finding ways to grow the neurosciences at Case. She was instrumental in creating a Center for Neuroscience that eventually morphed into a Department of Neuroscience in 1990, which Landis served as Chair in 1990. In the meantime, Dennis

Landis prospered in the clinically-oriented Department of Neurology and became its Chair.

In 1995, the newly-appointed Director of NINDS, Zach Hall, invited Story Landis to Bethesda. Hall saw in Landis a widely respected neurobiologist who had demonstrated real administrative flair at Case Western, guided by her "superb sense of scientific quality." Hall was looking for "an administrative and scientific leader, not just a caretaker," and he offered Landis the post of Scientific Director, responsible for the NINDS intramural program. It was a wonderful offer, but a difficult choice, Story Landis remembers. "It can be difficult with two professional careers to find positions that are equally challenging. Dennis and I decided that this was a great job for me and that being Chairman of Neurology at Case was a great job for Dennis."

Their son Michael was a high school senior during her first year in Bethesda so Story Landis shuttled during the week between Cleveland and Washington. After Michael went off to college, her family's flying schedules normalized somewhat to the weekends.

Now graduated from the University of Pennsylvania, Michael Landis works in software development for a small start-up company. No interest in bioscience? His mother laughs. "Kids either do exactly what their parents do or they get about as far away from it as they can. Michael was always in that second category. He took biology courses but his heart was just never in it."

Outside their work lives, Story and her husband are birdwatchers. "I converted Dennis to bird watching," she says. "Dennis was already quite a good photographer so I guess he learned to tolerate the birds. When we go birding, he carries binoculars and a camera and I just carry binoculars. Dennis has taken some amazing photographs, especially on the trips we've taken to Africa and Alaska. I'd like to go to the Galapagos next." Word that Story Landis has moved up to the Director's job at NINDS is good news for the institute and for neurobiology, say two of her predecessors, Fischbach and Hall. Both expect her to bring her trademark "frankness" to the top post. "She can be very direct," says Fischbach, "and if you just said something dumb, she'll tell you. Story is the most open, generous person you can imagine, but if you're not used to her style, it can be startling."

Hall agrees. "One of Story's most refreshing qualities is that she says what she thinks and sometimes comes out with some quite outrageous things. 'This is a pathetic idea.' Or 'this one is a complete non-starter.' But she's never mean-spirited and it's always said to assess quality and deal with things in a non-personal, straight-up way. I admire her for it."