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LD In Depth

Jack Horner: An Intellectual Autobiography

By: Jack Horner

Breakthrough event

As a youth, I was an introvert. I was extremely shy and deathly afraid of having to speak in front of an audience of any size. But in 1979, I received a letter from Philadelphia inviting me to give a lecture on my dinosaur discoveries to the American Philosophical Society, the organization founded by Benjamin Franklin in 1743. This meant that I would speak in Philosophical Hall, a building attached to Independence Hall, where not only Benjamin Franklin had spoken, but also America's first paleontologist, Joseph Leidy, and his student and successor, Edward Drinker Cope. It was an invitation that I could not turn down, even though I knew I might be too afraid to speak. For nearly a month I labored over my speech, writing it out in large letters on a piece of typing paper. I read it over and over again, hoping that I would remember enough so that when I attempted to read it, I wouldn't stumble or stutter, or get lost.

After I was introduced, I shuffled up to the podium, looked out at the audience, and nearly passed out. I looked down at my speech, and began my mumbling and awkwardly slow delivery, trying not to miss a word. About 10 minutes into my speech, a venerable old gentleman sitting in the front row of the audience stood up and rapped his cane on the podium. "Mr. Horner!" he bellowed, halting my miserable performance. "Get rid of your paper and settle down. Just tell us what you've found and what you think it means. We're interested in what you have to say."

For a moment, I was thunder-struck. I stood there petrified. Then I stepped away from the podium and told the audience what I'd found and what I thought it meant. That was the beginning of what has become a very long speaking career, and not since that day have I attempted to read a speech or use notes.

That day was a big breakthrough for me because I suffered from a lack of confidence due to a learning problem. It's called dyslexia. It's a word that, ironically, most of us who have it can't spell or pronounce, but maybe that's the point. I wasn't diagnosed until well after I had reached adulthood, had struggled through school being considered lazy, dumb, and perhaps even retarded, and had flunked out of college seven times. Most people expected I'd wind up working at a service station, or if I was really lucky, I might get to drive a truck at my father's gravel plant. Nevertheless, I guess I've always found low expectations rather liberating. Disparaging assessments just fired my determination.

Kindergarten through eighth grade was extremely difficult for me because my progress in reading, writing, and mathematics was excruciatingly slow. I would never stand to read out loud in class, even if the teachers threatened to give me failing grades. The joke was that I only carried schoolbooks to ballast my lanky adolescent body against the strong winds of highline Montana. Eventually, I managed to graduate high school, but just barely, having received Ds in all required classes, including English, in which my grade was a D minus, minus, minus. The teacher told me that this was essentially an F, but that he never wanted to see me again. That was indeed the last time I saw him, but I did send him a copy of my first book!

There was, however, one area of school besides P.E. in which I excelled: science projects. After an inauspicious beginning when, while tinkering with a chemistry set as a boy, I generated an explosion which blew out the windows of my parents' basement, I went on to win several regional high school science fairs. My first project was a rocket fueled by zinc and sulfur. I launched it from the airport in front of a group of

spectators and it zoomed several thousand feet into the air. The next year, I made a large Van de Graff generator, and then a Tesla coil.

For my senior project, I made an exhibit on dinosaur fossils comparing the dinosaurs of Montana with those of Alberta. It was an ambitious project that caught the eye of one of the judges at Montana State University in Missoula where the state fair was held. The judge was a geology professor, and he informally invited me to come to Montana State University and major in geology. I couldn't bear to tell him that my grades were so poor that I might not even graduate from high school.

Amazingly, and to the complete surprise of my parents, I did manage to graduate from high school on time, even though I had average grades below D. Fortunately for me, at the time, all that was needed to enter a college or university in Montana was a high school diploma. So in the fall of 1964, I enrolled at Montana State University in Missoula, majoring in geology. By the time the university changed its name to the University of Montana in 1965, I would flunk out and get drafted by the United States Marine Corps.

I re-entered the University of Montana, and began where I left off, with a GPA of 0.06. Needless to say, I didn't fare well, and began a series of failed quarters where Dean of Students Richard Solberg would send me my "pink slip." Fortunately I had an advisor named James Peterson who believed I wasn't lazy or retarded, and he wrote letters of support for my quarterly returns to school. He had to write five such letters. I didn't finish college, but did take all the geology and zoology courses that I thought would pertain to paleontology. I also took a few courses in archaeology, microbiology, and even attempted English, but failed. When I left the University I believed I was as good a geologist and paleontologist as any other student at the doctoral level. I had even completed a thesis of sorts, and eventually published three papers from the data. It wasn't about dinosaurs, but concerned the paleontology and geology of a stratum containing 300-million-year-old fish from Central Montana.

My goal in life was simple: I wanted to be a dinosaur paleontologist and make some kind of contribution to the field of paleontology that would help our understanding of dinosaurs as living creatures. To accomplish this I knew I needed a job in a museum, but I also realized that with my college grades and no degree, I might not ever get such a job. I made a living driving an 18-wheeler for a while.

I began writing letters to every museum in the English speaking world asking if they had any jobs open for anyone ranging from a technician to a director.

A few months later, I got three responses. One open position was that of a lowly technician at Princeton University's Natural History Museum. One was for a head technician job at the Los Angeles County Museum. Another was for a research assistant at the Royal Ontario Museum in Toronto. I applied for all three, got interviews at each, and was offered all three. I made my decision not on the basis of rank or pay, but on where I'd rather live. I decided that L.A. and Toronto were too large for my taste, and that Princeton would be perfect, even though it was the lowest paying job. It was a paleontology position in a museum, and that was all that mattered. In 1975, my first wife Lee and I packed up our baby son Jason, and drove a U-Haul to Princeton, New Jersey. It would become seven years of culture shock for me, but home for both Lee and Jason.

Dr. Donald Baird was my supervisor in Princeton, and he, as the Director, and I the technician, made up the entire staff of the museum. Together, we made exhibits and worked on research projects. Two years after being hired as a technician, Don saw my potential as a research scientist and promoted me to research assistant. Two years later, I'd be in charge of my own research projects, with funding from the National Science Foundation. Although I had written the successful NSF grants, I had not been allowed to sign the grants on account of my lacking a PhD. As far as the geology department was concerned, however, I was a contributing paleontologist with scientific publications and grants, and was a full member of their research faculty.

In about 1976, a year or so after arriving at Princeton, I saw a sign on campus that was clearly aimed at getting the attention of people like myself. In large letters it asked a few pointed questions like, "Is reading

difficult?" "Would you rather watch a movie than read a book?" "Would you rather make a phone call than write or read a letter?" and several other questions that I subconsciously answered affirmatively. At the bottom of this sign, it said that if you answered yes to these questions, you should go to such and such office, and someone would evaluate your learning abilities. The offer was made to Princeton University students, and although I wasn't enrolled, I couldn't possibly pass up an opportunity to find out why reading and memorizing was so difficult. I went to the office and argued to have them test me. Lo and behold! I was diagnosed with some form or another of dyslexia! The diagnosis didn't make reading any easier, but at least it provided an explanation as to why I would probably never be able to pass even a simple college class, at least without having extraordinarily long periods of time to read and comprehend.

Coping with dyslexia

To this day, I struggle with the effects of dyslexia. It takes me a long time to read things, so it's an ongoing endeavor to become as well-read as I would ideally like to be. Self-paced learning is a strategy that helps me cope. Audio books are also a very helpful technology.

My first publications were traumatic. I was afraid to even attempt to write something that would go to an editor. I had plenty of data, so I wasn't fearful of critical review, but I had apprehension about people seeing how little I actually knew of the English language. It's a phobia I still live with. After two junior authorships, I wrote three papers on my own, and each was published: one in the Journal of Paleontology, and two in the British journal Nature. I discovered that editors would forgive my writing errors and fix them as long as the science was solid. Writing is still very difficult for me, and I would always rather a more fluent co-author did the actual writing. I know what I can do and what I can't do, and for the things I can't do, I try to find someone to help. I think that's really important, and certainly something I stress to people like myself. We must be able to admit that we need help where we do need it.

I don't want people to think that I encourage my undergraduate and graduate students to avoid reading books, writing papers, or getting college degrees, because I don't. I do, however, encourage different methods of learning and thinking. I don't give memory tests; I give exams where both critical and synthetic thinking are necessary. I give plenty of reading (or books on tape) assignments, and have extremely high expectations of student essays and other written documents. Nearly all of my students are either honors students, or graduate students in paleontology, which bears the prerequisite of being competent readers and writers. I believe strongly in high academic standards, but I am willing to offer my students flexibility in meeting them.

Students describe me as a Socratic teacher in that I seldom give a direct answer to questions, but rather answer with other questions. Usually the questions that I ask have no particular answer anyway, and the exercise, or ordeal, depending on the student's outlook, is intended to reveal rather than test. I teach the way I learn.

Mentors

When people ask me who my mentors were, or to what I attribute my success, I usually cite not having had any expectation barriers. But, as I think more about it, it's more realistically about family and teachers. My mother in particular, and some teachers were very supportive and made paths for me while others created barriers that I had to learn to get over and around. Both were equally important.