INTERVIEW

An Interview with Carla Shatz – Harvard's First Female Neurobiology Chair

by Carol Ann Paul

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Dr. Carla Shatz is Department Chair and Nathan Marsh Pusey Professor of Neurobiology at Harvard Medical School. She has received numerous awards, is a member of the National Academy of Sciences, and is a past-president of the Society for Neuroscience. neuro.med.harvard.edu/site/faculty/shatz.html

In early 2005 I had the opportunity to sit with Carla Shatz, in her office at Harvard Medical School and ask her about her life. My main question was really: "How did you become a famous neuroscientist?" But what emerged was more than a simple answer. I hope that my retelling the story of this meeting will be an inspiration to all involved in neuroscience education.

CAP: Tell me about your formative years and how you got into Neuroscience.

CS: Well – let me say first off a couple of things: What I expected to happen in my life, never happened, and what happened was not what I had expected.

I fully expected while I was growing up, that I would have kids and a family. I was married but I put off the decision to have kids for too long and when it finally came time to have them, I found that I could not conceive. The subsequent infertility treatments were very time consuming, so what time was saved by not having kids got spent in the difficult struggle to conceive.

There is never a good time to have children, so my advice is not to postpone this decision. Find an environment where having children is an acceptable part of life and where there are supportive senior faculty. Senior women in the field are increasingly more understanding about the needs of a professional woman to balance kids and career. Now there are several senior women on the faculty here at Harvard.

What I did not expected was to have such a successful career. I have found science to be thrilling, exciting and all consuming. It was so much fun that I didn't notice time passing. This love of science I got from mentors and parents.

CAP: Tell me about your family and your formative years.

CS: I had a very supportive home environment. My father was a mathematician and an engineer. My mother was an artist. Despite the differences between their disciplines, they both had the same advice, which was to choose my own path and not to worry about what others think about you. My father had no problem with his daughter being a math nerd! My brother and I both love arts and science and we were not burdened by expectations of traditional sex roles.

I went to public high school in the 1960s. At that time this was the best place to be to learn science. Public schools benefited by a huge infusion of money into math and science as a result of the perception that Americans were loosing the Space Race to the Russians, due to the success of Sputnik. Private schools did not benefit from these funds and were not strong in science. Most of my science courses were experimentally based. I had terrific chemistry and physics classes.

CAP: Now back to the development of your career…

CS: At Radcliff (1965-69) I was somewhat of a science nerd. I had wonderful science classes, many that were taught by Nobel Prize winners. I had a class taught by James Watson, who tried out his Molecular Biology of the Gene on the students. It was really marvelous. I majored in Chemistry but when I was not taking science, I was

taking design classes at the Carpenter Center.

When I was doing my senior thesis I went to my major advisor to talk about what I should do for a thesis. I didn't enjoy inorganic or physical chemistry and was unsure what I could do. He asked me "what do you like doing?" I knew that I liked art and science and I was interested in how you see. I had taken a course in art and visual perception and I was interested in how information gets from the eye to the brain. Upon hearing this, my advisor recommended two young faculty members at Harvard Medical School named David Hubel and Torsten Weisel! So I took his advice and in my junior year, went to the Medical School and hung out in their lab, read papers and watched them do experiments. For my thesis I wrote a summary of the papers that I had read.

Next, on Hubel's advice, I went to University College in London to study for my master's thesis with Bernard Katz and Ricardo Miledi. Upon completion of this degree I and was accepted to the PhD program at Rockefeller University, but I was strongly advised by Semir Zeki, who was at University College at the time, to go back to Hubel and Weisel's lab at Harvard.

CAP: So how do you see the role of mentors in making your career choices?

CS: Well firstly, I never had women mentors. Frank Westheimer, Hubel and Weisel and Semir Zeki were all wonderful mentors. They all listened, made recommendations and provided me with good contacts. However, more importantly I asked for their advice and took it. Asking for advice is so important and I have been doing it ever since!

Secondly, it would have been helpful to have women mentors. But I was the first woman to get a PhD from Harvard in Neurobiology, the first woman professor hired by Stanford Medical School in Neuroscience, one of the first women to be hired by a medical school. Most men had supportive wives and could choose to have a kid at anytime. The typical female role model at that time was one who took time off to have her kids and then returned to try to re-establish her career. However, I was of the mindset that women can do it all, a product of the feminist movement of the 1960s. I assumed that I could start a family after tenure in 1985, at the age of 38.

CAP: Where was your husband in his career at this time?

CS: My husband was younger. He had no hurdles professionally, but privately we had the two-body problem (how to deal with double careers). So I postponed the family decision until my husband had his PhD.

CAP: Why do you love science?

CS: I feel so fortunate to have science in my life. But I think it is important to point out to young scientists, that if you do an experiment and get the result you expect, you're missing something. It is the unanticipated findings that are the rewards.

Fortunately I was able to get support to do things that might not have been popular. I consider that my most important discovery is finding that there are spontaneous rhythms in fetal brain, a coherent test pattern. The brain is tuning up circuits with highly correlated and patterned activity. This was a big surprise, but when I tried to get funding to do whole cell recording, I was repeatedly told: "it'll never work - just remove the equipment request from the grant and do this other part". I was delighted to get support from small NSF and a McKnight NS Fund Grant.

At this point Carla jumped up from her armchair in her office and rushed over to her computer to show me the video of this activity. It was indeed impressive!

It is so important to believe in yourself and not get discouraged by failed grant applications. Don't get put off when you are told that you can't do experiments that you have a gut feeling are important.

CAP: Why did you come back to Harvard from Stanford?

CS: I had many offers of chairs but when I was offered this position at Harvard, it came with enough resources so that I could give back to the next generation. I saw that in this position I could act as a role model. There were no other women as chairs at that time of the basic science departments at Harvard Medical School (there was one chair of Health Policy), and I knew that if I declined, the next person to be asked would be a guy! This position is roughly 25% administration allowing me enough time to pursue my research.

These are most challenging times for women. As there are still just a few women in leadership, we are pioneers. For the first time, women are being hired as Presidents of major research institutions e.g. at MIT. This is totally uncharted territory for women.

CAP: What do you see for your future?

CS: For the immediate future, I am definitely looking forward to being chair of my department, and to working on uniting neuroscience across the entire university.

CAP: Thank you Carla for being so open about your private and professional life and giving me this time to capture it for other neuroscience educators who are in a position to influence the next generation. Your energy and enthusiasm for your research are palpable, and I know that sharing your experiences will impact the next generation.