

Painting Canvases

If I were getting a Ph.D. today, I would think of going to a start-up company. Some of the most exciting work in this country is being done at start ups. Of course, that was not a business model when I graduated.

I did my graduate studies with Carl Djerassi at Stanford University. He was a remarkable man, perhaps most renowned for being one of the inventors of "the Pill." He was also a natural products chemist, and at the time, he was interested in developing methods for structure elucidation. I worked with him to establish mass spectrometry in the lab. He stayed with it for about 15 years, before moving on to other techniques. I am still with it!

Mass spectrometry has been a terrific tool to address different kinds of science. During my post-doc in the laboratory of Nobel laureate Melvin Calvin, at the University of California, Berkeley, we used it to analyze moon rocks. When I moved to my first faculty position at Johns Hopkins Medical School, my job description was to apply mass spectrometry to biomedical research. They gave me a great canvas to paint on.

Many of the biological problems I have investigated arose from collaborations. One of my earliest collaborative projects was with Michael Colvin, an oncologist at Duke University. We studied the metabolism of certain drugs used to treat cancer and then became interested in the resistance that some patients develop to these drugs. Although I am no longer working with Colvin, my current research in drug-protein interactions and on the mechanisms of acquired drug resistance grew out of that collaboration.

I eventually left Johns Hopkins, because as a Ph.D. in a medical school, I faced some limitations to my professional development. But perhaps the real reason I left was that I am a restless person, and I wanted to try something new. At the time, my two sons were attending school in Baltimore, so I decided to look for new opportunities in the same geographical region.

Both my sons got the math gene, but neither one chose to pursue a career in science. They say that they watched their parents work too hard. It is true that my husband, who is also a scientist, and I always worked hard, but we

do it because we truly love our work. Like many of my colleagues, I fill my plate. If I have extra time, I take on another project.

I enjoy doing editorial work. I see it as another area of creativity—another canvas to paint on. I was founding editor of *Biomedical Mass Spectrometry* (now *Journal of Mass Spectrometry*), and I am associate editor for *Analytical Chemistry*. I handle about 350 manuscripts a year. This job gives me an opportunity to influence the field and keep abreast of new developments.

Last year, I was also involved in establishing the Human Proteome Organization (HUPO) in the United States, and I am currently president of U.S. HUPO. The organization grew out of the recognition that people doing proteomics need to talk to each other. Proteomics is such an interdisciplinary effort; there needs to be a focal point for conversation. We also recognized that a lot of new people were entering the field, and we wanted to provide mechanisms for teaching different techniques, including mass spectrometry.

It used to be that people who used mass spectrometers understood the instrument pretty well. But now many folks would like to regard it as a black box. This is probably good for instrument companies and probably good for the field, but we need to encourage biology users to pay a

little more attention to the technique.

I feel as enthusiastic about my research today as when I first started. Of course, I always think that the problem that I am working on "now" is the most exciting. But it is true that the questions we are asking today are more interesting because they are more complex. Every time there is a technological advance in the field, we can delve deeper into a biological problem.

I don't do as much of the work myself as I used to. The computers have put me out of business. I can't run the mass spectrometer unless I remember how to run the computer associated with it, and each computer has slightly different commands. But I don't really miss bench work, as I still get to think about the problems and the answers. And I have had several postdocs who have actively discouraged my return to the bench.



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*As told to Laura Bonetta,
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