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Off the Bench: Career Options for Scientists

By Mary Dillon Johnson

A common refrain of graduate students and postdocs in the biological and biomedical sciences goes like this: "I'd like to stay in science, but I don't want to do bench work." A variation: "I want to work in industry on the business side, not the research side."

Another variation: "I don't want to do bench work -- but I don't know what else I can do."

For a science Ph.D., the decision not to pursue a career in academic science can be an especially difficult one. All through the intense years of doctoral training, the long days and nights in a laboratory, students in science absorb the message that science is important work, maybe the most important work. They mean bench work -- conceiving of an experimental question, planning an experiment, and carrying it out -- with the goal of some day having your own laboratory. The hold of science on its students is so strong that in a recent counseling appointment an alumnus was very clear in telling me that he no longer derived satisfaction from bench science. He just didn't want to do it. But it was depressing for him to think about doing anything else because it meant never again in his life doing something important.

The stories I'm about to tell are of scientists "off the bench" who made the decision to leave academic research and forged paths to alternative career options related to science. These stories focus on self-assessment -- on how, and why, and when science Ph.D.'s decided to leave the bench.

Before scientists leave the laboratory, they think deeply about their own intellectual interests, skills, and sources of satisfaction as they wrestle with why they no longer enjoy research. The process of scientific discovery -- perpetually exciting for some -- can seem slow and frequently frustrating to others. The larger context of academic science also contributes to the eagerness of some science Ph.D.'s to get away from bench work. Biomedical science is an extremely competitive and overcrowded field, and even the best and the brightest who keep their eye on the prize cannot feel assured of becoming principal investigators with their own labs. And while the

biotechnology and pharmaceutical industries have opened up new and exciting research opportunities, these industries are struggling in the current economy. The good news is science Ph.D.'s have many options.

Tiring of the Discovery Process

For one Ph.D. in plant molecular biology who asked to remain unnamed, the decision to leave laboratory science came fairly easily. He describes research as "digging around in a black box hoping for discovery." His impatience with the discovery process may have led him away from research eventually, but two other elements combined with it to push him right off the bench. He married a woman who had an M.B.A. and anticipated continuing her business career, and they could foresee two-career couple issues if he was to end up at a research university that wasn't located in a major metropolitan area. While in graduate school he had been the head of a student organization with more than 6,000 members. He got a taste of teamwork and quick results, and liked it. He left the bench, earned an M.B.A. and now works for a company with a large practice in pharmaceutical-focused consulting.

Having Doubts

It took Karen Mangasarian five years after earning her Ph.D. to commit to leave bench work even though she began having doubts in graduate school. As a graduate student in pharmacology at the University of Wisconsin at Madison, she sometimes felt frustrated with her research. She developed some interest in a law career, but thought that she was just being an unhappy student and that she should finish her Ph.D. Six months into her postdoctoral fellowship she knew she wasn't happy with her project. When she happened to see an ad for a patent agent, she sent her résumé "on a whim." The law firm invited her for an interview, and she was offered the job. Then she began wondering whether her unhappiness with science was just temporary. Again she went back to her lab.

Four and a half years later, Mangasarian decided it really was time for her next career move. As she looked around at well-established principal investigators who had lost their grants and at young investigators who were struggling, she feared that in academic science she could work very hard and not become successful. She saw success determined by whether you got the money to continue your research, and getting the money seemed to depend on whether your research was in vogue. Her doubts grew. A symposium on alternative careers organized by American Women in Science prompted Karen to think again about a career in law, and she

applied to law school.

She applied to an evening law program, and for one semester remained a postdoc during the day while she tested her commitment to law in the evening. The next semester she applied to law firms. She accepted an offer from Fish & Neave and worked as a patent agent during the day while she attended law school at night. Four years later, she received her law degree and began work as a patent lawyer. Mangasarian says that working in patent law changed her outlook on work: She used to complain constantly at the bench but now she is happier even though she still works long days and her work is sometimes frustrating.

Preferring Something Else

Laurie A. Dempsey, an assistant editor for *Nature Immunology*, spent many years on the bench -- as a postdoc, research associate, and assistant research professor -- after receiving her Ph.D. in microbiology from New York University. As a researcher, her career moves were guided by her interest in the scientific questions she was exploring. But after about 10 years, her own knack for writing and her ability to help others improve their grant proposals and articles became apparent to her. She realized she gained as much, maybe more, satisfaction from helping scientists write about their work. "If you have an interest in how a field moves forward and not just in a specific aspect, science editing is a good career," Dempsey says. "As an editor you see a lot of top-notch science. You are always a student and learning something new." Most scientific editing positions require a doctoral degree and postdoctoral experience, she notes, but the path to an editing career would be considerably shorter for most people than it was for her.

Is It Still Science?

All of these Ph.D.'s have a keen awareness of their relationship to science now. Dempsey, the science editor, says you don't have to be working on the bench to make a contribution to getting science into the public sphere.

Paul Oestreicher, a Ph.D. in nutritional biochemistry from Rutgers University, has had a successful career in the biotech industry for some time. Asked whether he considers his work to be science, he replied, "Technically no. I help to interpret it, communicate it, make it important because I raise the visibility and demand for science. The fundamental contributions are made in the laboratory and the clinic. Yet, if there is no appreciation and support for those contributions, the pace of future discovery and innovation could be diminished."

Jenny Rooke, a Ph.D. in genetics from Yale University and a senior manager of business development for a biotech company, gave the following answer to the same question: "I am participating in science, contributing to science, and indirectly advancing science. My impact on science may be larger than if I were actually doing science as a scientist."

In my next column, I'll look more closely at the paths of science Ph.D.'s to careers in business and industry.

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