Starting Careers in Mathematical Biology
A Young Researcher's Journey

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I like to say that "I became a mathematician and research professor by accident". In fact, when I graduated from high school, what I wanted to study was biology. But my father made some denigrating comment about biology being a soft science, and so, to please my father and myself I ended up double majoring in Physics and Physiology at McGill. I enjoyed the degree, and was fortunate to work for several years under Mike Mackey, who has probably been my most important mentor throughout my career.

My undergraduate degree turned out to be about equal parts math, physics and physiology. By the end of my four years I had decided that I really didn't like the physics part all that much. This was probably largely due to the fact that most of my friends were honours physics students who wanted to talk physics all the time. I was nowhere near as interested in the subject, and so decided that I probably wasn't cut out to be a physicist. That left mathematics and biology, so I studied Mathematical Biology with Jim Murray at the University of Washington in Seattle. By the time I was more than halfway through my PhD, I realized that I was well on my way to becoming an applied mathematician with no biology training to speak of. I tried to remedy the situation and get a minor in botany, but Jim felt it important that his students concentrate on one degree and finish it quickly. So, in 1996 I graduated with a PhD in Applied Mathematics, thereby becoming a mathematician by accident.

Then followed a bewildering time. Once I obtained my PhD, I realized that I had never thought beyond that milestone, and I really had no idea what I wanted to do next. I applied for and obtained an NSERC PDF as it seemed the next logical step, but I didn't have any real goals. I remember talking with Gerda de Vries some time during those years, and being very impressed that she had had the self-confidence to apply for a tenure-track position, and even obtain one! That was amazing to me. To complicate matters, my postdoc was in the same city as my fiance, but I ended up cancelling our wedding because I had fallen in love with someone else back in Seattle.

I then essentially stepped out of research for the next 6 years, though I had to keep working because my new sweetheart wasn't earning much as a graduate student and then later as a postdoc. I honestly think that if my partner had been someone with a bigger income, I would most likely have become a homemaker and stay-at-home mother. I will never know what it would have been like to stay home with my children though, as finances kept me working. I continued to think I wasn't clever enough to be an academic, but my earning power was greatest in academic settings. So I held instructional positions for three years (teaching math to football players!), Then a visiting faculty position in Arizona for a year where my husband (I married my new sweetheart in 1998) had a postdoc. During that time our two children were born - at the same time!

In 2001 my husband obtained a tenure-track position at a small university college called Okanagan University College (OUC) in south central British Columbia. OUC had a strong teaching focus, and only some of the faculty there engaged in active research. I applied for and was offered a part-time faculty position in the math department there. I was

delighted: I would be able to earn some income but be home with the children part-time. By the time we arrived in Kelowna however, the new tenure-track hire in mathematics had fallen through and I was needed full time. I didn't think it would be a good idea to turn down full-time work at that point, so I accepted a temporary 2-year appointment. I quickly learned that under OUC union rules, no one could work in a temporary capacity at OUC for more than two years. I also quickly realized that we needed both my income and my husband's in order to pay the bills. So I needed a full-time tenure-track position at OUC. My department was, and still is, a pure math department, and so the chances of my getting a tenure-track position were slim. Fortunately for me, the University Faculty Award (UFA) program from NSERC program was still in existence, and I managed to win a Discovery Grant and a UFA.

So in 2003 I held a tenure-track position at OUC: a small university college with a focus on teaching. Then, fate took over again, and UBC made a successful bid to take over my campus of OUC (the remaining campuses became a college). Faculty already at OUC had to be given positions at UBC, according to British Columbia labour laws. Thus, in 2005 I found myself tenure-track at a big research institution: a research professor by accident!

By then I had a family, a mortgage, and my husband and I had solved the two body problem in a beautiful part of the world. So I screwed up my courage and kept doing my best, now under UBC tenure-track rules. I haven't achieved tenure yet - one of the costs of my circuitous route to that goal - but it turns out that I can write papers on my own, that I can come up with research ideas on my own, and that I can teach graduate students. Furthermore, I have received a great deal of support from the mathematical biology community, for which I am very grateful, and was even elected to serve on the SMB board. I have indeed been fortunate in all of the mentors I have had. In addition to Dr. Mike Mackey, I wholeheartedly thank Dr. Leah Keshet, Dr. Mark Lewis, Dr. Gerda de Vries, Dr. Thomas Hillen and Dr. Pauline van den Driessche in particular. When I first started working at OUC, I phoned up all of these people to tell them that I was back in Canada. Each one of them welcomed me and then invited me to conferences and helped me write my first research grants. Their support was invaluable. Prof. Jim Murray was also very helpful, extremely prompt in producing reference letters, which were always glowing, and full of confidence in my ability to succeed. So after assiduously avoiding professorship for so many years, I am now fairly confident that I will obtain tenure at UBC some time in the next three years.

My story I think is really one about self-confidence. My own self-confidence was never strong enough to put me in a career as a research professor, and it was finances and quirks of fate that kept pushing me. I don't know why my self-confidence was so low: I had straight A's in all of my courses, lots of scholarships and research awards, and supportive faculty who believed in me. I was convinced however, that I wasn't really as smart as everyone thought I was and that someday someone would discover that I was a fake. Apparently however, many people feel this way, in spite of all sorts of evidence to the contrary. While I was a student at McGill University, the Physics department was in the habit of every year inviting a Nobel prizewinner in physics to come and give public and specialised lectures, and also to meet with the undergraduate and graduate students in the Physics department. I will never forget sitting in the back of a very crowded room, full of eager students asking all sorts of physics questions, when the conversation turned towards employment. The speaker, a Nobel prizewinner mind you, admitted that when he had been a graduate student he had been certain that someday someone would figure out that he wasn't as smart as everyone seemed to think. It gave me great comfort to know that someone as bright as a Nobel-prize winning physicist could suffer from lack of self-confidence too!

While I do occasionally envy my stay-at-home-mother friends - I think their lives are considerably less complicated than mine - I also find a great deal of fulfillment in my work, and feel very lucky to be able to do something that I enjoy so much. I also think that I am still doing a good job as a mother and wife. I am grateful to fate for the twists that made it necessary for me to hide my fear and step into the scary world of professorship. It is a fun and exciting career, and is a constant source of inspiration for me and my family!