Despite being told she would have “a stillborn PhD” if she got married, having a pitifully small starting salary as an assistant professor, and having a distinct aversion to the subject of heart development, Margaret Kirby went on to become Professor of Cell Biology at Duke University and one of the world’s leading experts on heart development. She even wrote a well-known textbook on the subject.1

Kirby focused her research on cardiac neural crest cells. She had started her scientific life as a neuroanatomist and was drawn into cardiology only after discovering a population of neural crest cells in the heart. She went on to show that these cells control the division of the aorta and pulmonary artery,2 regulate growth factor signaling to the developing myocardium,3 and contribute to the development of the outflow tract.4 These studies caused significant steps forward in scientists’ understanding of heart development and the defects that occur when it goes wrong.

In the early 1970s, when Kirby was starting her career, women were often discouraged from pursuing science, and those who did tended to be unmarried and childless. Unbeknownst to Kirby, she was helping to forge a path for women scientists who wanted normal family lives. But, she explained to Circulation Research, she didn’t blaze the trail by speaking out, she just quietly “worked her butt off.”

Kirby retired from Duke University last December and now lives in Copper Harbor, Michigan, running a photography gallery.

Where Did You Grow Up?

In Fort Smith, Arkansas. My father was French; he was born in Paris and moved to America with his parents when he was about 11. They also lived in England, Cuba, and Mexico, so my father’s family is pretty exotic. My mother was a 9th generation Arkansan, so just the opposite. They met in New York, where my mother had gone to modeling school and my father worked on Wall Street as a business analyst. He had graduated from Purdue University with a degree in mechanical engineering. They moved back to Arkansas when they wanted to start a family.

Did Your Parents Encourage You Toward Any Particular Career?

Dad was very encouraging that I should and could do whatever I wanted to do. He said, if you go to a small school and only have a small library, it doesn’t matter, just make sure you read all the books in it. His idea was that you should take advantage of everything you have, no matter how big or small.

When Did You Know You Wanted to Be a Scientist?

Actually, I was pretty convinced that I was going to be an English major. My mum and I read extensively together. We used to exchange books all the time.

But when I was in the tenth grade, my dad gave me a microscope, and I was fascinated with it. When I declared that I was going to study English at college, he shook his head and said, “No, you’re not an English major.” Sure enough I fell in love with biology in my first semester and switched to be a biology major.

I just really loved biology class. I had 2 women teachers who were fabulous. One was a garden-variety American who stayed pregnant almost my whole time in college. The other was this Hungarian woman—a developmental biologist. She had a very heavy accent. I could never tell whether she was saying nucleolus or nucleus, but she was a wonderful, dynamic teacher. She was tiny, she smoked these little cigars, and she could never remember any of our names, so she would call us all “girl.”

Was It a Natural Choice to Do a PhD?

Actually, first I went to medical school, at the University of Arkansas. But I became quite frustrated at how fast we were going through things. I wanted to know more about everything.
For one of my courses, I had to do some laboratory work, and I realized that I really missed it. I had been in the laboratory a lot at college. So I decided medical school wasn’t for me. I dropped out and was accepted into the graduate school, under the supervision of Shirley Gilmore.

**Did You Feel More at Home?**
Yes, but about a year before I graduated, I got married, and everybody shook their heads and said, “stillborn PhD.” I had a major falling out with my advisor about it, but anyway, I made it through.

In fact, even before that, in medical school, I had this neuroanatomy instructor, Ervin Powell. He was in his 60s, and he would strut across the front of the classroom and say, “You know, you women really shouldn’t be here; you should be at home taking care of your babies and your husbands.”

There were only 6 girls out of 108 students.

I actually got an A in neuroanatomy and became good friends with him. We published a paper together before I got out of graduate school, so he changed his thinking about women in science.

You know, when I graduated in 1972, women scientists were single, strong; they were very single-minded about their science. They believed you really couldn’t dilute yourself by doing other things besides your career.

I was on the cusp of the new generation, where the thinking is to make science adaptable to women. It was a new era, though of course I didn’t realize that at the time, and I had to make a new way if I was going to have a family.

**Did You Ever Have to Fight to Be Accepted?**
No, I was never confrontational with anyone about my sex. My philosophy has always been to just work harder and show people. Instead of trying to convince by words, convince by doing.

I didn’t think of it as difficult at the time, but when I had kids it became a very busy life. I worked late into the night and got up early in the morning and had a lot of help from my kids (now my ex-spouse)—I couldn’t have done it without him.

**Is He a Scientist Too?**
No, he’s a writer. He was a reporter for the local paper in Little Rock, where the University of Arkansas Medical Center was based, where I was at graduate school. We met in a bookstore.

**What Happened After Your PhD?**
I graduated in 1972, and I had gotten funding for a postdoctoral position, but then Nixon froze all the funds, and I couldn’t get a job anywhere in Little Rock. I managed to get a teaching job at the University of Southern Arkansas. But I really wanted to get back to research.

Eventually, I got a postdoc at the University of Chicago in pharmacological and physiological sciences. I was pregnant with my second child. We picked up our household and moved into student housing in Chicago, which was pretty grim.

I did a pretty productive 2-year postdoc with Al Heller, who was crazy as a betsy bug, and then I started looking for a job. But it was difficult to find one as a married woman with 2 children.

Finally, I was offered a position at the Medical College of Georgia in Augusta. My salary was $18 000, with a $5000 startup. We could barely live on it. In fact, we were eligible for food stamps, though we never did that. Anyway, I worked like a dog to get my laboratory set up. I wrote grants, started getting money and being successful, and my boss, Dale Bockman, was very supportive. After the first year, he gave me a raise of 17%, which was unheard of. Each year, he gave me good raises that meant I finally caught up with everybody else.

**Young Kids, a New Laboratory, and a Tiny Salary; It Must Have Been Hard**
It wasn’t easy. Life was so intense that I was really efficient. I could get stuff done in a day that would take most people 3 days, so that I could go home and fix dinner for my kids and be with them for a few hours before going back to work once they were in bed.

I remember when they hit their teen years and they weren’t going to be home for dinner because of this or that, or they were staying with a friend, and I suddenly had all this time on my hands. I’d sit in my office and wonder what to do. When they left home, it was even worse. That’s when I took up photography.

**Had You Always Been Interested in Photography?**
When I was about 8, I got a Brownie camera for Christmas, and then when I was 12, we moved house, and our new neighbor had a dark room, and he taught me how to develop film and prints. Then in high school, I became the school photographer. I did a lot of photography and actually sold a few to the local media, but then, for many years, I just didn’t have the time to do it.

**How Did Your Work on Heart Development Come About?**
I was really interested in the autonomic nervous system. I wanted to take one side of it out and see what happened to the other side during development. I learned how to do neural crest extirpations and make chick chimeras with C.H. Narayan at Louisiana State University in New Orleans, and then set up the technique in my own laboratory.

I saw these neural crest cells in the hearts of the chick chimeras and I took them out, but I got heart defects that I knew couldn’t have been caused by innervation problems. They were developmental defects.

I was a neuroanatomist; I didn’t know anything about heart development. We had been through it at graduate school, and I hated it because it was so poorly presented. I had been working with the heart but only with the nerves to it. I didn’t want anything to do with heart development—no, thank you. So when I saw that I had this heart defect, I was overjoyed that I had a result, but also my heart sank as I realized I was going to have to learn about heart development.
So You Were a Reluctant Cardiologist?
Absolutely.

Why Did You Move to Duke University?
The medical college of Georgia had an early retirement package that I could not refuse, but I had just had a several million dollar project program grant renewed, and I had a big group, and I really didn’t want to retire. So I ended up being recruited by several different universities and decided that Duke was a place where everybody in my group could afford to live. I was there until the end of last year.

How Did You End Up in Michigan?
I had fallen in love with Copper Harbor. I vacationed here and also came up here when I was writing my book, Cardiac Development. And I got to know the people. The population in the winter is only 90. In the summer, it is about 300.

I also knew I would really like to get back to photography, and one of my postdocs several years ago said, “You know at some point, you have got to leave the field to the young people, because you’re taking money and resources that young people need.”

I took that to heart and thought, well, there is a lot of life in me yet, there are things I would like to do, and maybe it is a good time to go out on a high note—I was well funded and very happy. Duke was very good to me. I also decided this was a really good time to make the transition. I am still young enough to cope with a move and the weather up here.

Do You Have Any Advice for Young Scientists?
I don’t have much. The way I got through was just by working my butt off. Sometimes when you’re in the middle of working your butt off, it might not feel so good, but you know, I look back on it and I’m glad I did it. I’m glad I had my kids, and I’m glad I didn’t base my career on confrontations but on working harder.

Also, I think if you can find a good mentor, that’s really important. A lot of my luck was in having really good bosses and mentors. Dave Bockman, for example. I can’t thank him enough. Also, Ervin Powell, once he decided that I was okay, Ronald Goldberg at Duke, and lastly, my Dad. He was amazingly supportive throughout my whole career. He was very proud of me, and he made that clear.

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Ruth Williams

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