Know Your Wisconsin Mathematician

Interview with Professor Charlotte Chell, Carthage College by Erik Tou, Carthage College.

Where did you grow up?

In the small town of Cloquet, Minnesota, outside of Duluth.

At what point in your life did you discover that mathematics was something you wanted to do?

When I was 5 or 6 my father drew for me the frame outline of a cube, and I could look at it from two perspectives, and was totally amazed that I could see it in either of two ways. That you could look at something that appeared to be so stable and see it become unstable in front of you—it absolutely fascinated me. So that was probably my first mathematical experience. After that I noticed there were certain things I really liked doing that didn't seem to amuse other people at all. When I was 12 I really liked thinking about how I would organize the books on my shelf. Should I organize them from the tallest to the shortest? Should I organize them by author? But then again, it was one of those intractable problems: why couldn't I organize them so that they had both features at once? Why couldn't I solve what I now know is a 2 dimensional problem on a 1 dimensional line?

Did you have any teachers who particularly influenced you to become a mathematician?

My high school geometry teacher was Ludwig Hiti, and what I liked most about his class was that it was absolutely orderly: he came in and ordered the class a certain way every day, and geometry went in a certain way, and we had 2-column proofs, and we had statements and reasons, and it was all so beautifully logically sequenced and ordered. And I loved that about it.

Where did you go to undergraduate school and graduate school?

I was an undergraduate at St. Olaf College and a graduate student at the University of Wisconsin, Madison for both the Master's degree and the Ph.D.

What brought you to Carthage?

My husband took a job at Carthage with the understanding that the following year there would be an opening in the math department for which I could apply. That actually took 11 years to come about.

What do you think is the best part about being a mathematician?

Seeing things fall into patterns; organization.

What do you think will be the most important development in math instruction in the next 10 years?

I read an article this morning in MAA FOCUS talking about students' writing on discussion boards about their mathematics homework problems. We've talked a lot about writing in mathematics in at least the last 15 years, but that has usually been about writing *completed* mathematics. Because of the notation problem we haven't talked so much about writing mathematics *back and forth*, though I'm sure every professor has had a student or two or 10 who has written them a homework problem in e-mail. I was very encouraged by the FOCUS article about using discussion boards or forums for students to discuss homework. How many homework problems could be solved outside of class, more quickly for students and with greater efficiency? And that could create more ownership of the problems, and also student ownership of a class. So I'm interested to see how that develops.

What advice do you have for graduate students or new teachers?

Love what you do—if you're teaching, let your students know that you love it, but also let them know that you love *their* doing it as well. I heard something valuable this week from someone in her first year of teaching—she's not even teaching mathematics, she's teaching political philosophy. She said, "If I'm not having fun, then my students aren't having fun." And I realized that this past semester, even though it was a difficult term for me in many personal ways, I had more fun with my students than I've had in the past 10x years of teaching.

For graduate students: you got to graduate school because you liked doing this thing; when I asked my seniors last year what they liked about doing mathematics, they said things like they liked getting the answer, they liked knowing the answer was right, they liked the certainty. And surely that has attracted all of us. (I have sat in English classrooms that the instructor has considered very successful and at the end of the period, I couldn't figure out what had been accomplished, because I couldn't see what the *answer* was!) So we all enjoy “getting the answer.” But for graduate students we've also got to be able to enjoy thinking about all the different ways to get to the answer; seeing all the paths can be as exciting as getting to “the answer.” And sometimes you don't! But that’s okay, too.