that led to the *Origin of Species*—a pivotal point was Darwin's trip to the Galapagos Islands. (It turns out that the mathematician George Peacock helped to get Darwin his position as a naturalist on the expedition. See the Darwin Correspondence Project or AboutDarwin.com's People of Note section.) Often, we learn about such stories only for historical figures like Ramanujan and Darwin. Ma's story may be a thought-provoking contrast because part of it occurs in present-day academe. (And, of course, as a past president of AWM, I have no objection to telling a story in which the AWM *Newsletter* plays an important role!)

On the last day of 1988, Liping Ma came from China to Michigan State University. She enrolled as a graduate student and her advisor, Sharon Feiman-Nemser, found her a job as a research assistant at the National Center for Teacher Education. There, she coded responses from practicing and prospective teachers to items from the Teacher Education and Learning to Teach (TELT) survey. (These items, she was later to learn, were developed by Deborah Ball.) Ma was surprised by the responses and told Mary Kennedy, the director of the center, that she thought Chinese teachers would answer the questions differently. She was offered $1000 to go to China and interview a small group of teachers, using the TELT questions. That summer, she went to China and interviewed 12 teachers.

Ma's family did not adapt to Michigan very well and in 1991, she transferred to Stanford and Lee Shulman became her advisor. She told him about her data coding at Michigan State and data collection in Shanghai. She remembers his response, "This could be a dissertation and you should write a book." Until then, Ma had not considered doing comparative work for her dissertation. She interviewed 72 Chinese teachers and wrote a dissertation about their responses and those of U.S. teachers collected by the National Center for Teacher Education.

I met Liping in 1996 when she came to Berkeley as a post-doc under the direction of Alan Schoenfeld, and began to work with her to turn her dissertation into a book. (I am indebted to Schoenfeld for the idea that I do so.) In 1998, Ginger Warfield wrote an education column about TIMSS in the AWM *Newsletter.* I disagreed with some of its details and wrote a response, citing, among other references, Liping's book which was then in manuscript form. Richard Askey read my article and wrote to ask me about the book. Liping and I sent him the manuscript. (Interestingly for this story, Askey is an expert on the work of Ramanujan.) He brought the manuscript to the attention of others concerned about mathematics education. Copies of the manuscript began to circulate and be discussed. Thus, by the time of the Joint Meetings in 1999, the book was being discussed before it appeared in print.

This short account is only a segment of the "confluence of person, idea, and time" that Fang and Paine describe. Their narrative begins with Ma's life in China and extends to events in 2007. Currently, *Knowing and Teaching Elementary Mathematics* is being translated into Chinese and Spanish. Liping and I are contemplating a revised second edition that elaborates "Profound Understanding of Fundamental Mathematics," and Liping is working on a second book that explains the causes of the findings in her first book. I was fortunate to have joined this expedition, which continues to be a fascinating intellectual trip.

Math Teachers' Circles Bring Problem Solving to Middle School Teachers

Brianna Donaldson, AIM

When Mary Fay-Zenk, a math teacher and assistant principal at Miller Middle School in Cupertino, CA, used to attend math circles with her students, she loved the math—but hated being relegated to the sidelines. "They have a rule that adults are not allowed to participate," she explained. "This was very frustrating because it was so interesting! I decided that we needed something like this for teachers." To pursue her idea of a math circle for teachers, Fay-Zenk teamed up with area mathematicians Tatiana Shubin, a professor of mathematics at San Jose State University, and her math circle colleagues, Tom Davis, formerly of Silicon Graphics; Joshua Zucker, then a math teacher at Castilleja School in Palo Alto; and Sam Vandervelde, co-founder of the Mandelbrot Competition, to organize a workshop at the American

Institute of Mathematics. This event launched the first Math Teachers' Circle (MTC) in August 2006.

The success of this original MTC, which continues to meet monthly, underlies AIM's current initiative of expanding the Math Teachers' Circle Program across the country. The national Math Teachers' Circle Program, aimed at U.S. middle school math teachers, has a mission of enriching these teachers' experience of mathematical problem-solving and enabling them to tackle open-ended problems with confidence. At the core of the program are lively math sessions based on the highly successful Eastern European model of student math circles, which emphasize participant-centered, mathematician-led collaborative problem solving. A local MTC typically starts with a weeklong summer immersion workshop, during which participants get to know other local teachers and mathematicians and spend time doing math in an informal setting. After the immersion workshop, the MTC meets once a month during the academic year for further math sessions and to provide support as the teachers work to incorporate interactive problem solving into their classrooms.

Although the Math Teachers' Circle Program focuses on math enrichment for teachers, it is hoped that it will result in better middle school math education for students as well. "The beauty of the program is that by exposing one teacher to the kind of open-ended problem solving you encounter in a Math Teachers' Circle, you can potentially affect thousands of students over the course of that teacher's career," explained AIM Executive Director Brian Conrey. Shubin elaborated, "All of the organizers of the original Math Teachers' Circle have had years of experience with math circles for students and strongly believe in the impact they have on kids. Yet the impact of the Math Teachers' Circle program on teachers has greatly exceeded our wildest expectations. I believe the program has a profound effect on the kind of mathematics that these teachers present in their classrooms."

Beginning in 2007, AIM has held three workshops, organized by Shubin, Davis, Zucker, and Matthias Beck, an assistant professor of mathematics at San Francisco State University, to inform teams of middle school math teachers, school administrators, and mathematicians from around the country about the Math Teachers' Circle Program and equip them to begin MTCs of their own. Called

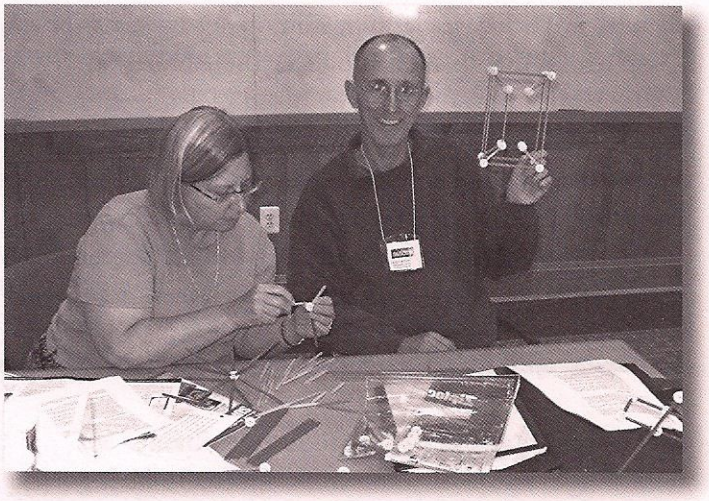
Math Teachers' Circle co-founder Tom Davis (center) leads workshop participants in a "rope dance" during a popular session on John Conway's Rational Tangles.

"How to Run a Math Teachers' Circle," these workshops include mock MTC sessions and also help teams develop their goals and plans for finding a venue, recruiting teachers and mathematicians, evaluating their program, and fundraising at the local or state level. As a result of these workshops, it is anticipated that by Summer 2009, the Math Teachers' Circle Program will include Member Circles from 19 communities in 17 states.

Each Member Circle has preserved the program's focus on problem-solving but has also developed its own creative "hooks" to get teachers involved, such as having a classroom-ready handout at each meeting (Lincoln), piggybacking on the successes of an existing student math circle program (Salt Lake City and Charlotte), or even hosting "Math and Margarita" nights (South Bend) to attract potential recruits. Many Circles meet on a weeknight and serve dinner as part of the meeting, which also attracts participants and contributes to the collegial atmosphere.

When teachers who attend MTCs around the country are asked about their experience with the program, several common themes emerge. First and foremost, they say they are more confident in the classroom and more knowledgeable about math. Says one teacher from the original AIM MTC, "When I was taught basic arithmetic, geometry, and algebra, I was never taught the underlying math inherent to these ideas. My understanding has been enhanced, and therefore my teaching has improved." Another teacher, who credits winning Teacher of the Year in part to her participation

Workshop participants explore the geometry of Zome tools.



Workshop participants explore more geometry of Zome tools.

in the program, summed up her experience by writing, "The collaborative effort of solving a complex problem has been a new experience for me. I have found that math 'comes alive' when it is shared and used to reach a common goal."

The sense of mathematical community developed through the program is valued by teachers and mathematicians alike. To be a part of their closest MTC, teachers will often travel long distances. For example, to attend meetings in Ames, IA, teachers come from up to 100 miles away, and one teacher drives over 200 miles each way and stays overnight in order to attend meetings of the Salt Lake City MTC. Mathematicians appreciate working with the teachers and being a part of their mathematical development. "It is enormously rewarding to be able to share the intrinsic beauty, austere clarity, and intriguing complexity of mathematics with middle school teachers and see how they revel in conquering challenging problems and get to appreciate the fact that there are valuable lessons to learn even in failing to completely solve a problem," says Shubin. The casual setting of most MTC meetings also has its appeal. Harold Reiter, a professor of mathematics at UNC-Charlotte and a leader of the Charlotte MTC, says, "Saturday morning meetings are my favorites because of the winning combination of coffee, bagels, and math."

For more information about the Math Teachers' Circle Program, please visit http://www.mathteacherscircle.org/ *or e-mail* circles@aimath.org. *Applications for the Summer 2009 "How to Run a Math Teachers' Circle" workshops are available on the website.*

McClure Named AMS Executive Director

AMS, January 2009

Professor Donald E. McClure of Brown University has been named Executive Director of the American Mathematical Society. McClure succeeds Dr. John H. Ewing, who has held the post for the past 13 years and who is now president of Math for America, a program that aims to attract mathematically talented young people to teach in the nation's schools.

"Don has served the Society for much of the past 13 years, first as an elected member of the Board of Trustees and then as Associate Treasurer," Ewing commented. "He knows the AMS extremely well. I can't imagine any circumstances that would better guarantee a smooth transition from one Executive Director to the next. He is superbly qualified to lead the Society in the coming years. I am both grateful and proud that someone of Don's caliber wants to take on the job."

McClure's background and experience make him an ideal candidate for the Executive Director position. He has a deep commitment to service on behalf of the mathematics community—a commitment that has led him to play a variety