

AWM

ASSOCIATION

FOR WOMEN IN

MATHEMATICS

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NEWSLETTER

July-August 1995

PRESIDENT'S REPORT

After a difficult selection process, the Schafer Prize Committee chose six talented and determined undergraduate women. The winner was Ruth Britto-Pacumio of MIT, and the runners-up were Wung-Kum Fong of UC Berkeley, Nancy Heinschel of UC Davis, and Jessica Wachter of Harvard University. Tara E. Brendle of Haverford College and Karen Shuman of Agnes Scott College received honorable mentions. The awards will be presented at the Opening Banquet of the Mathfest on August 5th. I would like to thank the selection committee, consisting of Chair Linda Rothschild (UCSD), Ruth Charney (Ohio State) and Lesley Sibner (Polytechnic) and the many colleagues who supported and nominated their outstanding young women for the prize. [A complete report follows on pages 3-5.]

The Mathfest will be held August 6-8 in Burlington, VT. In addition to the presentation of the Alice T. Schafer Prize, AWM plans these activities on August 6th: a panel titled "Do Women and Men Have Different Career Trajectories?" from 3:00 to 4:30 P.M., a membership meeting immediately afterward, and a reception at 9:30 P.M.

In this issue, we start a forum on "Affirmative Action: What Is It and What Should It Be?" with the lead article by Mary Gray (Founding President of AWM) "If It Ain't Broke, Don't Throw It Out!" I would like to encourage people to submit articles to this forum; all points of view are welcome, and we hope to present a representative sample of the many opinions on this topic.

The United Nations World Conference on Women will be held in Beijing at the end of August, and Mary Gray will be the AWM representative. I have been lecturing at the Nankai Institute of Mathematics at Tianjin, China from April 21st through May 29th. During a short visit to Beijing, I saw many signs on the street welcoming the conference participants.

Below I would like to give some impressions I have on the situation of women mathematicians in China. I was very much impressed by the economic progress China has made since my last visit in 1987. But I was surprised to see very few women mathematicians attending lectures and conferences (less than five percent). Many professors told me that the percentage of women students and faculty in

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AWM

ASSOCIATION FOR WOMEN IN MATHEMATICS

The Association was founded in 1971 in Boston, MA. The purpose of the association is to encourage women to study and to have active careers in the mathematical sciences. Equal opportunity and the equal treatment of women in the mathematical sciences are promoted.

The *Newsletter* is published bi-monthly. The Editor welcomes articles, letters, and announcements.

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mathematics departments in China has actually been declining, so during a panel discussion chaired by S.S. Chern, I brought up the question of why there was this dearth of women mathematicians in China. I received many different explanations from male faculty, for example: women students prefer working in biology, medicine and business; mathematics is not a popular subject; etc.

But many girl students believe that girls do well in mathematics in elementary school, but boys do much better later, and boys are better in logical thinking than girls — for this is what they are told. And girls have been under considerable social pressure not to be “too smart” ever since China started coeducation in middle and high schools some years ago. They also feel that it is very difficult for women graduate students to find faculty positions. In a Chinese family, even though both spouses almost always have outside jobs, the wife is usually expected to do a larger share of the housekeeping and child-rearing than her husband. This will sound all too familiar to our members.

So I explained to the audience what AWM was, how it started, its purpose and my relation to it. I urged women mathematicians in China to form a similar association to encourage and support women to pursue careers in mathematics. At the end of the panel discussion, Chern suggested that he and I try to raise funds to set up a fellowship program for women mathematicians in China as one concrete step to improve the situation here. After the panel was over, many girl students stayed for more discussion with me. We could not finish our discussion before the end of the second hour and had to schedule another meeting time. It seemed to me that these questions had not been raised before, and women students were very happy to find that someone is sympathetic. Unfortunately, it is almost impossible for students in China to join AWM, because the monthly stipend for graduate students here is only twenty dollars. So I sincerely hope China will have its own AWM soon.

To end my report, I would like to thank the several people who have taken over some of my AWM duties to make if possible for me to make this trip to China: Cora Sadosky (Past President) and Judy Green (Treasurer) for taking care of ongoing AWM affairs, Becky Herb for representing AWM at the May CBMS meeting, and to Angie, Dawn and Joanna for keeping the AWM office running smoothly.



Chuu-Lian Terng
Tianjin, China
May 20, 1995



1995 ALICE T. SCHAFER PRIZE WINNERS ANNOUNCED

Ruth Britto-Pacumio, a junior at the Massachusetts Institute of Technology, is the winner of the sixth annual Alice T. Schafer Mathematics Prize. The Schafer Prize, sponsored by AWM, is awarded to an undergraduate woman in recognition of excellence in mathematics. Ms. Britto-Pacumio will receive a cash prize of \$1,000.

The Schafer Prize was established in 1990 by the executive committee of the AWM and is named for AWM former president and one of its founding members, Alice T. Schafer, who has contributed a great deal to women in mathematics throughout her career. The criteria for selection include, but are not limited to, the quality of the nominee's performance in mathematics courses and special programs, an exhibition of real interest in mathematics, the ability to do independent work, and if applicable, performance in mathematical competitions.

Wung-Kum Fong, a junior at the University of California, Berkeley; Nancy Heinschel, a senior at the University of California, Davis; and Jessica Wachter, a junior at Harvard University, were declared runners-up and will each receive \$150. Two Honorable Mention citations were awarded to Tara E. Brendle, Haverford College and Karen Shuman, Agnes Scott College. The prize presentation will be held on August 5, 1995 in conjunction with the Opening Banquet at the Mathfest in Burlington, Vermont.

"The selection committee was extremely impressed with the quality of the nominees this year. The selection of these six talented, determined young women was difficult, among the many others who also deserve recognition," stated Linda P. Rothschild, University of California, San Diego, Chair of the 1995 Schafer Prize Committee. Serving on the committee with Rothschild were Ruth Charney, Ohio State University and Lesley Sibner, Polytechnic University.

The Alice T. Schafer Mathematics Prize is funded by an open endowment. Additional contributions will help to ensure the long-term viability of the prize. Checks made payable to "ATS Prize Fund" may be sent to AWM, 4114 Computer and Space Sciences Building, University of Maryland, College Park, MD 20742-2461.

Our winner **Ruth Britto-Pacumio** is a junior at MIT, where she has already completed the requirements for a mathematics major with no grade below "A" in any subject. One faculty member writes, "Ruth is a truly outstanding student. [As a sophomore last year] she took our hardest undergraduate math courses.... She was the top student, in very tough competition, in my algebra course. This year she continues to excel in graduate courses." Another faculty member comments, "Every few years an individual dominates a class here at MIT. In the class of 1996 this is occurring, [and it is]"



Ruth Britto-Pacumio



Wung-Kum Fong

MEMBERSHIP AND NEWSLETTER INFORMATION

Membership dues

Individual: \$40

Family (no newsletter): \$30

Retired, part-time: \$20

Student, unemployed: \$10

Contributing: \$100

All foreign memberships: \$10 additional for postage

Institutional:

Level 1 (two free basic job ads and up to ten student memberships): \$120 (\$200 foreign)

additional student memberships: \$10 (\$18 foreign) for next 15; \$6 (\$14 foreign) for remainder

Level 2 (two free basic job ads and up to three student memberships): \$80 (\$105 foreign)

Affiliate: \$250

Corporate: \$150

Subscriptions and back orders

All members except family members receive a subscription to the newsletter as a privilege of membership. Libraries, women's studies centers, non-mathematics departments, etc., may purchase a subscription for \$40/year (\$48 foreign). Back orders are \$6/issue plus shipping/handling (\$5 minimum per order).

Payment

Payment is by check (drawn on a check with a U.S. branch), U.S. money order, or international postal order. Cash payment will be accepted if necessary, but only in U.S. currency.

Ad information

AWM will accept advertisements for the *Newsletter* for positions available, programs in any of the mathematical sciences, professional activities and opportunities of interest to the AWM membership and other appropriate subjects. The Association Administrator, in consultation with the President and the Newsletter Editor when necessary, will determine whether a proposed ad is acceptable under these guidelines. *All institutions and programs advertising in the newsletter must be Affirmative Action/Equal Opportunity designated.*

Institutional members receive two free basic job ads as a privilege of membership. For non-members, the rate is \$60 for a basic ad (eight lines of type). Additional lines are \$6 each.

Deadlines

Editorial: 24th of January, March, May, July, September, November

Ad: 1st of February, April, June, August, October, December

Addresses

Send all **Newsletter** material except ads and book review material to Anne Leggett, Department of Mathematical Sciences, Loyola University, 6525 N. Sheridan Road, Chicago, IL 60626; phone: (312) 508-3554; fax: (312) 508-3514; email: leggett@math.luc.edu. Send all material regarding **book reviews** to Marge Murray, Department of Mathematics, 460 McBryde Hall, Virginia Tech, Blacksburg, VA 24061-0123; email: murray@calvinmath.vt.edu. Send everything else, including ads and address changes, to Dawn V. Wheeler, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461; phone: (301) 405-7892; email: awm@math.umd.edu.



Nancy Heinschel

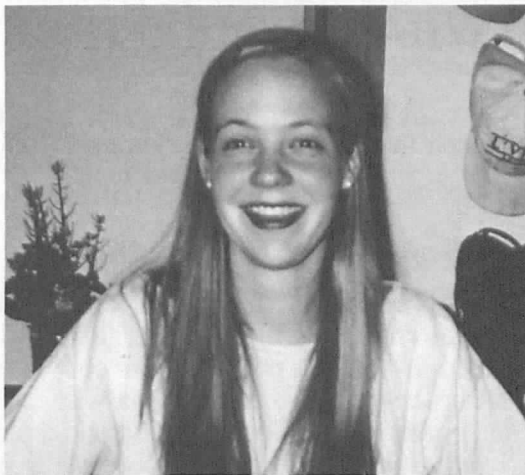
Ruth Britto-Pacumio. She seems to know everything and be everywhere." Britto-Pacumio was also a participant in a 1994 Research Experiences for Undergraduates (REU) program at the University of Minnesota-Duluth and wrote a paper on graph theory, which has been submitted for publication. Her performance in that program was described as "truly extraordinary." This year, she won the Elizabeth Lowell Putnam Prize for her excellence in the Putnam Competition.

Runner-up **Wung-Kum Fong** is currently in her third year at Berkeley. Having completed several undergraduate honors courses with flying colors, she is now taking graduate level courses and reading courses in which she is also excelling. She is described as an "exceptional student," "stronger than many graduate students" at Berkeley. In the summer of 1994, she participated in the Mills College/Mathematical Sciences Research Institute (MSRI) Summer Program.

Runner-up **Nancy Heinschel** is a senior at UC, Davis. She has taken an impressive array of advanced math courses there while maintaining a 3.99 GPA. She participated in an REU program at Oregon State University last summer where she completed a research project on "Sufficient Conditions for Global Stability in Population Models." She has also served as president of both the UC Davis math club and the UC Davis chapter of the Pi Mu Epsilon honor society. In the fall, Heinschel will begin graduate studies in mathematics at Stanford University.



Jessica Wachter



Tara E. Brendle

Runner-up **Jessica Wachter** is a junior at Harvard. Having completed some of Harvard's most challenging undergraduate courses with an outstanding performance, she is now taking graduate courses. In the summer of 1994, she participated in an REU program at the University of Minnesota-Duluth and wrote a paper for publication entitled "Universal Destinations in Graphs." She has also worked as a teaching assistant at a National Science Foundation (NSF) summer program for mathematically talented high school students. One faculty member, in whose class Wachter was the top student, summed up his recommendation by writing, "Jessica is very talented, very mature, and strongly motivated."

Honorable mention awardee **Tara E. Brendle** is a senior at Haverford who will enter graduate school in mathematics in the fall. In the summer of 1994, she began research in knot theory at an REU program at the University of Tennessee, Knoxville, and has been writing an impressive senior thesis on the subject. Her undergraduate thesis advisor writes, "The quality of her performance in my course, her level of interest in mathematics, and her ability for independent work are all among the highest I have ever seen."

Honorable mention awardee **Karen Shuman** is a senior at Agnes Scott College in Decatur, Georgia. She has taken a full range of math courses, consistently earning top scores and straight A's. In the summer of 1994, she participated in an REU program at the College of William and Mary where she

worked on a research project in linear algebra. She is described by one of her professors as "unusually talented and creative ... disciplined and conscientious ... simply outshining every other student."

Photo not available for Karen Shuman.

AWM SLATE ANNOUNCED!

We are pleased to announce the slate for this fall's AWM election. Sylvia Wiegand (University of Nebraska) has been nominated to serve as President. Lynn Butler (Haverford College), Teresa Edwards (Spelman College), Lee Lorch (York University), and Sara Robinson (UC Berkeley) have accepted nominations for Member-at-Large. Kay Smith (St. Olaf College) has been nominated to serve as Treasurer.

The election of Members-at-Large is contested for the first time in many years. Also, Lee is our first male candidate for AWM office, and Sara is our first graduate student candidate.

Nominations by petition signed by 15 members are due to our president by **September 1, 1995**.

Thanks to the Nominating Committee (Carol Wood, Chair; Mary Gray; and Rhonda Hughes) for their efforts in producing this fine slate of candidates.

AFFIRMATIVE ACTION: WHAT IS IT AND WHAT SHOULD IT BE?

Mary Gray leads off below; several others have agreed to give us their thoughts next issue. We invite all of you to send us your views on this important topic.

If It Ain't Broke, Don't Throw It Out!

Provost of a college in Florida, coordinator of special mathematics programs for a District of Columbia high school, professor of computer science at a university in North Carolina who is skilled in getting grants for equipment and scholarship for her African American students, coordinator of calculus courses at an engineering school and principal investigator on grants for workshops for Native American junior high students and their teachers, faculty members at two universities and one community college in Maryland. All these women received their Ph.D.'s from the mathematics department at American University under the Patricia Roberts Harris fellowship program. Named for a prominent lawyer and Cabinet member, this U.S. Department of Education program took *affirmative action* to make it possible for many women, African Americans and Hispanics to receive Ph.D.'s in the sciences. One year my students represented one-quarter of all African Americans receiving Ph.D.'s from mathematics departments (one in four); another year my students were one-third of the total (three in nine). Not all were Patricia Roberts Harris fellows, but almost all would not had been there had the university not reached out to them in some affirmative way.

Yes, affirmative action works. My students have been, with few exceptions, women who had not had the opportunity to go on for a Ph.D. immediately out of undergraduate school. Several were single mothers; none had much in terms of family resources for backup should emergencies arise, for the scholarships are a means-tested program. Most universities do not seriously expect graduate students to support a family on what fellowships pay, but Patricia Roberts Harris provided enough extra to make it possible for those with family responsibilities to survive. They seized the chance the program provided with great enthusiasm and

with intelligence and persistence earned their degrees. The "fellows" studied the effect of radiation treatment on mathematics ability, researched the contributions of Africans to the early development of mathematics, developed software for teaching statistics, designed and implemented programs for African American junior high school students, studied bias in standardized testing, and worked on other topics more esoteric and perhaps less useful in the view of most people. But none was unqualified, for none did we lower any standards: all we did was give them a chance.

The Patricia Roberts Harris program was designed to bring women and other underrepresented groups into selected fields. In mathematics, for years the percentage of Ph.D.'s going to women hovered at six percent, while less than one percent went to African Americans. Ending overt discrimination helped — when I was in graduate school, some of the top universities simply refused to offer fellowships to women, although the days were past when Johns Hopkins University could delay for a generation the award of a Ph.D. in mathematics to a woman simply on the basis of her sex. But it did not help enough; the percentage of Ph.D.'s in mathematics going to women is up to twenty-two percent, but the improvement for African Americans is slight.

Even today, women are funded less well in graduate school, being more likely to have teaching assistantships which pay less and require more duties than research assistantships or fellowships. The success rate for men applying for National Science Foundation fellowships in mathematics is three times that for women. Because of years of being told that they are not good at math, after years of no encouragement, women and African Americans *do* need affirmative action. They need affirmative action in the form of encouraging them to continue in mathematics and science; they need affirmative action in being sure that they receive fair consideration for funding — and frankly, the best way to assure this is by setting aside funds so that they *have* to be considered; they need affirmative action in hiring.

It used to be that faculty at the top schools hired each other's students through, literally, an old boys'

Mary W. Gray, American University

network. Now at least somebody else gets to hear about the jobs — and maybe the beneficiary will be a white male, just as talented, just as promising, but not plugged into the network. Of course, there have been abuses of affirmative action; unqualified candidates have been admitted to graduate school or given jobs. In fact, there is widespread suspicion that such “mistakes” were deliberate efforts to undermine real equal opportunity. However, there are relatively few such cases compared to the number of times disappointed white males have been told that “we had to hire a woman,” when in fact these men were simply not the best candidates.

Three Patricia Roberts Harris grantees are still in our program, but if President Clinton has his way, this program will be no more. In an excess of zeal to balance the budget or to propitiate the critics of affirmative action — or who knows why — the Administration proposes to cut this successful program, a program that has enabled bright, needy students to become faculty members at colleges and universities, researchers in private industry and government, and teachers in our public schools. All the money spent on the Patricia Roberts Harris grants over the years would probably not buy the military one of their favorite pieces of sophisticated equipment; it could easily be financed by forgetting about some of the favorite tax breaks proposed for upper income people. Why should a modest, successful program be sacrificed?

AWARDS AND HONORS

CONGRATULATIONS to the women listed below for their meritorious achievements.

ANN HIBNER KOBLITZ was a commencement speaker at and was awarded an Honorary Doctorate from Saint Mary-of-the-Woods College (the oldest Catholic women's college in the country) in Indiana in May. Dr. Ellen Cunningham, S.P., chair of the Department of Mathematics and Sciences at the College, nominated her and made the introductory speech at the ceremony. The College has an external degree program for women who would not otherwise be able to attend college, so the graduating class included women of all ages and from several countries.

LINDA PELLER ROSEN has been appointed executive director of the National Council of Teachers of Mathematics (NCTM), effective June 1, 1995. Rosen comes to NCTM from the Mathematical Sciences Education Board (MSEB) where she served as associate executive director and director of policy studies. During her nine-year tenure at MSEB, Rosen contributed to the intellectual development and writing of such publications as “Measuring What Counts: A Conceptual Guide for Mathematics Assessment,” “Measuring Up: Prototypes for Mathematics Assessment,” “Counting on You: Actions Supporting Mathematics Teaching Standards,” “Reshaping School Mathematics: A Philosophy and Framework for Curriculum,” “On the Shoulders of Giants: New Approaches to Literacy,” and “Everybody Counts: A Report to the Nation on the Future of Mathematics Education.”

Rosen is an adjunct professor at the University of Maryland. She has taught secondary mathematics at Yorktown High School in Arlington, VA and at Dwight Morrow High School in Englewood, NJ. In addition, she was an instructor in the department of mathematics at both Montgomery College in Rockville, MD and Northern Virginia Community College in Alexandria, VA.

Rosen holds a doctorate in mathematics from the University of Maryland and a master's degree and a bachelor's degree, both in secondary mathematics education, from Columbia University and George Washington University, respectively. She resides in Bethesda, MD with her husband and two daughters.

Alfred P. Sloan Research Fellowships for 1995 have been awarded to: ANDREA L. BERTOZZI, University of Chicago; LUCIA CAPORASO, Harvard University; and RUTH J. LAWRENCE, University of Michigan.

CHAO AGNES HSIUNG and REGINA Y.C. LIU were elected Fellows of the Institute of Mathematical Statistics. MARY ELLEN BOCK, KATHRYN CHALONER, MARGARET C. WU, and LINDA J. YOUNG were elected Fellows of the American Statistical Association.

DONNA JOAN BROGAN received the Elizabeth L. Scott Award at the Joint Statistical Meetings in Toronto, August 1994.

ELLEN O'BRIEN was awarded the 1994 (Canadian) Governor Generals' Gold Medal for her Ph.D. thesis at the University of Ottawa.

THE MYSTERY IN THE MATH BOOK

Twenty years ago when I was desperately pursuing a Ph.D. in mathematics and simultaneously struggling with full-time teaching, marriage, motherhood, and housekeeping, I found a dusty book in the back of my closet. It was *The Haunted Attic*,¹ book #2 of the Judy Bolton juvenile mystery series written by Margaret Sutton. Heady with guilt, I let semigroups simmer on my desk and settled down to read the book from cover to cover, time traveling to the ten-year-old self I was when I first read the book in the 1940's.

Judy Bolton was a contemporary of the better known fictional girl sleuth Nancy Drew; she solved at least 38 mysteries (the number of books in the series) between 1932 and 1967 before the books finally went out of print.² With her astonishing aptitude for deductive reasoning, was she good at math?

Early in the story, her mind busily processing the clues she has uncovered, Judy must nevertheless do her homework. She asks her older brother for help: "... I wish you'd help me with this algebra too. I can't understand what X stands for." But later in the story she tells a friend's grandfather, "Languages aren't so easy, but I love English composition and math." Apparently she *did* figure out what X stood for!

From that point on I was hooked, not only with curiosity about the math references I may have read before I even knew I loved math, but with a desire to read, just for fun, all the Judy Bolton books as well as other series books featuring girl sleuths: Nancy Drew, Dana Girls, Beverly Gray, Penny Parker and Trixie Belden, for example.

Fortunately I did manage to finish the Ph.D. first, but for years my favorite shopping hours have not been spent in fancy malls, but in musty old bookstores and flea markets, pretending I am looking for reading material for my nieces, devouring the "young adult" sections.

I stopped being embarrassed about my book buying habits when I dignified them by becoming a

"collector," and a few years ago I found out that I am definitely not alone. Through several newsletters³ I learned that my fellow collectors are grown men and women who are engineers and lawyers and teachers and homemakers ... in other words, normal people.

I wrote to one of the newsletters asking for help in finding math references. As an aside, I also asked female correspondents to tell me about their own early attitudes toward math. I believe the references and the responses are equally interesting and informative, and I will include both here. I learned things that I can use in my teaching, particularly in "liberal arts" math classes, often populated with book lovers.

A teacher and author of young adult fiction wrote, "I can tell you that the last time I took a math class was 10th grade Geometry. I always hated math (though unlike Trixie, I did learn fractions!) and found that I wasn't especially encouraged to try, since my talents clearly lay elsewhere. I wish now I weren't such a math bimbo!" She went on to say she has made sure that her fictional girl heroine is a top student who has no difficulty whatever with math.

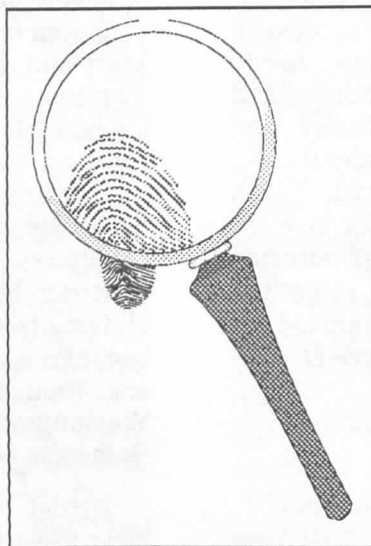
The reference she sent me was from *Trixie Belden and the Mystery in Arizona*.⁴ Trixie is flunking math, and she and her friends Di and Honey are discussing her problems with Trixie's

brother Mart.

Mart threw up his hands in disgust. "How dumb can you women get? What was this nightmarish problem anyway?"

Honey giggled. Imitating the others, she masked her face with her yellow cardigan and intoned, "One train was traveling at the rate of forty miles per hour; the other at the rate of fifty miles per hour. And their starting places were one hundred and forty miles apart. Question: What will happen and when?"

Di unmasked her face and narrowed her eyes. "Simple, huh? The next one was even more simple. So simple in fact that I ignored it completely. Any time I see the word single track ..."



"For pete's sake," Mart exploded, "single track isn't a word, dopey. It's a phrase."

Di groaned more loudly than ever. "Must we bring grammar into this horrible conversation? If there is one thing Trixie and I hate worse than math, it's grammar. Right Trix?"

Trixie, of course, agrees. Trixie's aversion to math might not seem so strange if we could forget that this same girl who covers her face with a cardigan rather than look directly at a math problem constantly manages to deduce the solutions to complicated mysteries!

Three more women sent me the Trixie reference. An elementary school teacher wrote, "I remembered it immediately, probably because at her age math was a problem for me too. During my grade school years (I am 37) my impression was 'girls don't need math.' ... I really believe I had 'math anxiety' and try to avoid that attitude while substitute teaching."

Another Trixie submitter also claimed math anxiety, though she said she did fairly well in Geometry because "Geometry is different from Algebra. It is about puzzles, puzzles you can see. I actually found it kind of fun." She then added:

I guess I am confused about my feelings about math because I love numbers. What I mean is, numbers form patterns for me, to the point that I have memorized, without trying to, all of my friends' addresses, zip codes, telephone numbers, all of the license plate numbers we've ever owned, all of my credit card and utility account numbers, and my husband's driver's license number.... This is not something I consciously do, either! However, without a calculator I am paralyzed.

A woman who loves puzzles and patterns and numbers and yet is convinced she has math anxiety? Now there is a real mystery for Trixie to solve!

Along with yet another Trixie anti-math submission, I read: "Personally, I hated math, until I got to college, that is. The teacher there made it much more interesting, using word problems, useful types of calculation like how to determine odds. I even got to write two essay papers in the classes, based on girls series books!" The books she mentioned were Lewis Carroll's *Alice* books, which indeed could be considered an early girls series.

We love Good Math Teacher stories, but we know that Monster Math Teacher stories unfortunately abound. A woman who, because of her high math ACT, was encouraged by a counselor to take more math courses wrote:

I did that for most of my first two years, getting through beginning calculus. I was one of only two girls in each class every quarter. I got lots of attention from boys and loved it until I aced a test and the professor got up and denounced the male students for letting me get a higher grade — unthinkable for a girl. From then on I received no good attention from the boys and quickly got a real lesson about male-female competition.

Her mother's reaction was the last straw:

She questioned what I was doing taking college math classes — what did I think I'd end up being — an engineer? Certainly I'd have a hard time finding a husband if I did that! I switched to a Home Economics major and taught kindergarten. How feminine!

A woman who told me her collecting tastes run to books written long before Trixie Belden mentioned early 1900's books in which the girls did well in math. She added:

... from my own experience, I speculate (strictly superficially) that the idea of math phobia being a particularly feminine failing is a product of the June Cleaver era. As Trixie's contemporary, I know that I, myself, bought into it for too long.... I realize that my relationship to math is on an intuitive level, and it's not taught that way. I do much better at mathematical concepts if I don't think about them too much. I wonder if this might be, in fact, a gender-linked trait?

Her theories may well have merit, but in *Grace Harlowe's Plebe Year at High School*,⁵ definitely written prior to the June Cleaver era, I met a Monster Math Teacher who would have given Hypatia herself math anxiety.

Certainly Miss Leece was the most unpopular teacher ever employed in the High School as far back as memory could reach. She was cruel, strict and sharp-tongued. Often her violent, unrestrained temper got the better of her in the class room; then she gave an exhibition that was not good for young girls to see.

The faculty "convened in secret session" to discuss whether to keep her. (Was this an early version of a Promotion and Tenure Committee?) They decide to let her stay at least through the year because she has a contract and is "moreover an excellent instructor in mathematics."

As an example of her "excellent" instruction, we later find Miss Leece choosing the shyest girl in class and then reading aloud "in a disagreeable voice" a problem "well in advance of what they had

been studying." As you may have guessed, it's another railroad problem, these trains barreling along at the phenomenal speeds of 30 and 35 miles an hour.

When the poor girl can't do the problem, our Miss Leece thunders, "Stupidity and inattention are not to be supported in any student, and I must ask you to leave the room."

Well, that was only fiction, wasn't it. Surely, you think, real teachers don't act that way! Then read what I got from a collector who said up front that she loathed math. She named a seventh grade teacher who caused her fear and frustration and said:

He expected everyone to *know* without being taught. I can still recall a math quiz where he yelled out numbers and expected us to translate them into Roman numerals. He didn't explain that he wanted us to write the numbers *first*, then take our time figuring them out. When I struggled along, he snatched the page from my hand and began screaming that I was stupid, etc. To this day I freeze up if someone hands me change and asks me to count it.

He apparently didn't manage to ruin mathematics completely for her, however, since she added that she did enjoy algebra because "it was like a puzzle."

I have my own Monster Teacher story to relate, but mine is about a Monster Physics Teacher. In college I braved a 95% male physics class only because it was required for the math major. I had absolutely no background. No girls took physics in my high school. I'm not sure it was actually forbidden, but successfully "integrating" a trigonometry class was all I had managed.

The first time I tried to explain a physics problem on the board, I bungled it, and tried to cover up by saying, "Well, this part is so ... just because it's so!" The professor roared with laughter and said, "Isn't that just like a woman?"

But the following candid confession made me reconsider my MT story. This woman wrote:

I never liked math. Actually I can honestly say I *hated* it ... but not for the reason you might assume ... that as a "girl," I was discouraged from pursuing an interest in math. Quite the opposite! ... The reason I dislike math? I'm lazy. I have no ambition. I take the easiest way out and math can't be rushed; it needs to be figured carefully or errors result. English and History I was able to whiz through without thought or much effort. I

always preferred writing stories or drawing pictures to doing "real" schoolwork.

Could it be that I blamed that professor for all my trouble with physics when deep down I was really too lazy to put in the time and effort to make up for my poor background?

A woman who seemed to be relatively neutral about math said that she doesn't believe that her math ability was affected by any of the stories she read when she was young. Nevertheless, she wrote, "I *was* impressed by the fact that Nancy Drew could do everything (swim, fly a plane, etc.), and I wanted to be able to do everything too."

The next excerpt is from *By the Light of the Study Lamp*,⁶ the first book in the Dana Girls series.

She was deep in the adventures of the famous x and his inseparable companion y who were engaged in a walking contest which was more perplexing than their usual activities, when she heard a gentle tap in the hall. Looking up, she saw a man standing in the open doorway of the room. He was in overalls, wore spectacles and a small but ambitious mustache, and looked timid and inoffensive. He carried a monkey wrench.

I find that passage intriguing, not just because 1934 algebra problems sound so much more graceful than they do today, but because Jean Dana lets this monkey-wrench-carrying stranger into her room (I don't care how timid and inoffensive he looks!), and no bloody head-bashing scene follows! He merely claims to be a plumber and snoops around.

Later she does have second thoughts about what she has done, and says to her sister, Louise:

... if any [worker] comes sneaking around here while we're away, chase him out. Throw a book at him. Use my algebra if you like. I'm often tempted to throw it out of the window myself.

The woman who sent me the Dana reference had a positive math story to tell:

I have always been math-deficient and now resort to advice given to me by my father, who suggested I look at a problem as a puzzle to be solved or a quest to be won. The change of outlook from a "hard chore" to a "difficult quest" (only *I* could solve!) may not have made me a better mathematician. But I tried harder and longer, which usually ended up in a better result and better grades!

Math people don't like to generalize on scanty evidence, so I am not going to try to make any sweeping conclusions about relationships between

series book heroines and readers and math, but I will report one correspondent's hypothesis.

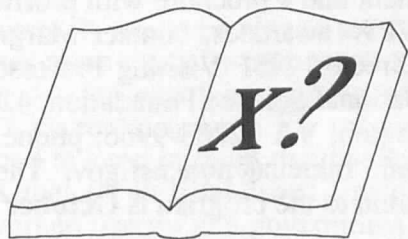
"Have you considered," she wrote, "the possibility that girls who hate math or find it difficult do not represent women as a group, but rather girls who read the books? Generally, girls who love reading hate math, and vice versa.... A female reading (or writing) a book is likely to dislike math; therefore the heroines reflect the attitudes of the readers and authors, *not* the attitudes of/towards all women in the world.

Yes, I have considered this possibility, and quickly rejected it because I didn't want to believe it and because I myself am a counterexample. But I must admit that my series book heroines and their readers/collectors do appear more likely to dislike math than to love it.

I plan to keep this in mind in all of my math classes. I'll reveal my love of books to them, try the "puzzle/quest" approach, and most definitely avoid any Monster Math Teacher tendencies.

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TEMPORARY JOBS

The AMS, AWM, and MAA have all voiced concern about the current employment situation, particularly with respect to temporary and part-time employment. At the Joint Mathematics Meetings in Cincinnati in January 1994, both the AMS Council and the AWM Executive Committee unanimously passed a resolution about recent doctorates and temporary jobs, a slightly modified version of the statement "Supportive Practices and Ethics in the Employment of Young Mathematicians" proposed to the AMS Council by the AMS Committee on the Profession. At the Joint Mathematics Meetings in San Francisco in January 1995, the Board of Governors of the MAA unanimously passed a similar resolution. That resolution contains three recommendations to departments and institutions. [The text of the first of these resolutions may be found on page 202 of the March 1994 issue of the *AMS Notices* and page 8 of the March–April issue of the *AWM Newsletter*, while the second is on page 12 of the February 1995 issue of the *MAA Focus*.]

More recently, the AWM Executive Committee unanimously passed a resolution to send the letter below to the chairs of the thirty-one departments which advertised temporary positions in the *AWM Newsletter* that were not clearly identified as post-doctoral positions.

Dear Department Chair:

AWM has long recognized the importance of the early post-Ph.D. years in the development of a career in mathematics. It is because of this importance that we are concerned about the practice of offering temporary faculty positions to new and recent Ph.D. mathematicians. (By temporary positions, we mean temporary faculty positions that are not postdoctoral fellowships or postdoctoral assistant professorships.) Thus we are writing to all department chairs whose departments advertised temporary positions that are not clearly identified as actual postdoctoral positions.

We know that the occasional use of temporary positions is sometimes unavoidable. Our concern is with the repeated hiring of young mathematicians in temporary positions, often for a period of one year or less.

The Executive Committee of AWM expressed its concern at its January 1994 meeting in Cincinnati

by endorsing the recommendations contained in the statement "Supportive Practices and Ethics in the Employment of Young Mathematicians." This statement of The AMS Committee on the Profession (CoProf) has also been endorsed by the AMS Council. The MAA Board of Governors has endorsed its own version of this statement. (A copy of each of these statements is enclosed with this letter.)

We are asking departments that will be hiring temporary faculty in one-year positions for the next few years to consider converting these to multi-year positions. In addition, those departments that will be hiring temporary faculty for the next 5–10 years are requested to work with their administration in order to convert these temporary positions to tenure-track positions.

It is our belief that the repeated hiring of temporary faculty not only impedes the career development of the young mathematicians holding these positions, but also increases the work load of the permanent faculty in the department concerned. An individual in a one-year position must begin searching for a new job in October. He or she will not have the time and energy, and indeed can hardly be expected, to contribute to the life of the department and of the institution.

It is our hope that those departments that have been forced to hire temporary faculty on a regular basis will be able to work with their administrators in order to reduce or eliminate this practice.

Sincerely yours,

Harriet M. Lord, Member, Executive Committee
Chuu-Lian Terng, President

VPW PROGRAM

Since 1982, the National Science Foundation has administered the Visiting Professorships for Women (VPW) Program as part of its efforts to increase the numbers of women who are active and recognized researchers in science and engineering and to promote the visibility of women in the sciences. The program is designed to provide female scientists and engineers with opportunities for research and collaboration at host institutions.

The VPW program seeks applications from female scientists and engineers at all levels in their career: those in non-tenured positions in academic, industry, or government settings; those who are tenured or tenure-track in academic institutions; and those who are established scientists and engineers. An awardee is expected to conduct research at a host institution for a period of six to fifteen months, with the grant being administered through the host institution. A key component of the VPW program is the emphasis on both research and interactive activities: approximately 70% of the award period must be spent on research activities, with the remaining 30% devoted to interactive activities.

I am currently finishing my VPW position at Northeastern University. I completed my Ph.D. in Differential Geometry in 1992 and started a tenure-track position at the University of Northern Iowa in Cedar Falls. Through my VPW award this year, I focused on research in an active research environment. Since I had no teaching or advising duties during my first two quarters at Northeastern, I was able to participate in seminars all over the Boston area as well as travel to attend conferences and pursue collaborations with other mathematicians. It has been wonderful to have access to libraries, seminars, conferences and active mathematicians during my time at Northeastern. In addition to the research activities, there were several aspects to the interactive component of my visit. I taught a Calculus III course for engineers and a graduate-level Differential Manifolds course. Teaching manifolds was a new experience for me, since we don't offer such a course at Northern Iowa. I also met with the math club, gave research talks at nearby schools, and organized a weekly lunch meeting for female graduate students and faculty members in the department. I will go back to Northern Iowa with a revitalized focus on research, and I expect that my VPW experience will enrich my participation in the mathematics program at Northern Iowa.

To obtain more information, including a program announcement and a brochure with profiles of some previous VPW awardees, contact Margrete Klein, Program Director, NSF Visiting Professorships for Women, National Science Foundation, 4201 Wilson Blvd, Arlington, VA 22203-9966; phone: 703-306-1697; email: mklein@note.nsf.gov. The deadline for application to the program is **October 15**.

Maura Mast, University of Northern Iowa, VPW at Northeastern University

BOOK REVIEW

Peter J. Feibelman. **A Ph.D. Is NOT Enough!** Addison-Wesley. ISBN 0-201-62663-2 (paper), \$12.95.

Reviewed by Dr. Catherine Roberts and Rebecca Bryant. Catherine (CR) and Rebecca (RB) are sisters. Catherine is an Assistant Professor of Mathematics at the University of Rhode Island; she will join the faculty of Northern Arizona University in the fall. Rebecca is a fourth-year graduate student in Molecular and Cellular Biology at the University of Massachusetts.

Probably the last thing a graduate student wants to hear is the advice contained in the title of Peter J. Feibelman's book. Described as a guide to survival in science, this book is a valuable resource for graduate students and new Ph.D.'s in math as well.

RB: I only wish I had been given this book when I first arrived at graduate school. The frank advice it contains on choosing advisors and post-doctoral positions was insightful. I found it helpful to look at the process of advising from the advisor's, rather than the student's, point of view. Reading this book is like listening to the wisdom of a knowledgeable and friendly mentor.

CR: As a new Ph.D., I found the chapters on "Writing Papers: Publishing without Perishing" and "Getting Funded" most helpful. Come to think of it, given the varying quality of talks at professional meetings, the chapter on "Giving Talks" could help many of us at any stage of a career! This book is a quick read providing solid advice.

RB: The first chapter comprises a series of vignettes about mistakes one may make during the beginning years of a career. Unfortunately, the scenarios involved "rising star" newcomers in top-notch job situations — situations perhaps more typical of the "boom years" of the 1980's. I was hoping to read about the challenges facing the typical new Ph.D. of the 1990's. Because I was unable to identify with the people in the stories, I did not find this chapter very helpful.

CR: I agree. It would be nice to see stories illustrating issues more typically encountered by today's new Ph.D. — for example, starting a family or designing a career in today's job market. Readers are cautioned to keep in mind that the author's perspective is that of an established (male) physicist who has worked mainly in a government laboratory over the past twenty years. In the only vignette involving a woman scientist, the woman's most

pressing problem is the fact that she chose her career path mainly to please her father!

RB: I am in the process of writing my first scientific paper, a trying task for the first-timer. Feibelman's chapter on this subject was quite useful. His many suggestions varied from the general — make your paper tell a story — to the specific — a discussion of the growing acceptance of using personal pronouns ("I" and "we") in papers.

CR: Dr. Feibelman makes a strong case that a doctoral degree alone is no ticket to a successful career. I think that this book is optimally useful at two career stages: the first year of graduate school (putting things in perspective, helping to choose an advisor, etc.) and the last year of graduate school (finding a job, giving a quality talk, developing a viable research program, etc.). The advice is so good that I kept wanting more of it. In the section on negotiating, for example, I would like to see a list of potentially negotiable items, including lab renovations, equipment, travel money, book money, student support, and guest lecturer funds. I don't think young people starting out typically know the sorts of things that can be negotiated.

RB & CR: We both found the chapter on "Choosing a Career Path" the highlight of the book. Academic training frequently biases students toward academic careers. This chapter compares jobs in academia, industry, and government laboratories. Although we dispute Feibelman's position that the ultimate career path is from industry directly into a tenured faculty position (indeed, we think it is an unlikely occurrence), this chapter made reading *A Ph.D. Is NOT Enough!* worth our time.

Peter Feibelman told us that he hopes this book may spark the formation of formalized "Science Survival Training" in graduate programs. We agree! Mentorship is critically important for graduate students and new faculty. Reading *A Ph.D. Is NOT Enough!* is a good place to start.

REMINDER:

Deadlines are *firm* for the September–October issue (it will leave my hands on July 25th). Editorial submissions by July 17 and ads by July 24 would be appreciated.

GABOR SZEGO: ONE HUNDRED YEARS

Gabor Szego was a great mathematician. His profound contributions are gathered in the three large volumes of his *Collected Papers* (edited by Richard Askey) and in the six books he authored or co-authored. They influenced greatly the content and direction of both pure and applied mathematics. They will continue to do so long into the future.

His writings, like his lectures and discussions, were lucid. They led directly and gracefully to the essence. The breadth, depth and precision of his knowledge of mathematics were legendary, but never paraded. He helped; he did not overwhelm. One story, presumably apocryphal, came to me from one of his contemporaries, probably Karl Loewner. The young Szego was undergoing his doctoral examination. From the examiners came question after question, all answered swiftly, completely and correctly — until one stumped him. Another professor turned to the questioner, saying that he found that question most intriguing but could not think of the answer himself, and asked his colleague for the answer. Came the reply: “I don’t know. Had I known, I would not have bothered to ask.”

He was only twenty when he published a seminal paper in one of the world’s most distinguished mathematical journals. By 1925 he had published thirty papers, all noteworthy. That same year witnessed the publication of the celebrated *Polya-Szego Aufgaben und Lehrsätze aus der Analysis*. These two volumes changed the landscape of advanced instruction and research in mathematical analysis, becoming world-famous immediately. Translated into Chinese, English, Hungarian and Russian, they remain beacons today.

The next year, only 31, he was appointed Ordinarius (Professor) in Königsberg, heir to the mathematical legends Jacobi, Hilbert, Hurwitz, Minkowski, to the philosopher Kant, in the city of the artist Kathe Kollwitz. Years later, he would become Head of the Mathematics Department at Stanford University, one of America’s most famous universities, and develop that department so dramatically that it became one of the world’s meccas of mathematical analysis.

From all this it would seem that his path was smooth, from one triumph to another. Yet the very opposite was the case. It required his strong character to preserve his mathematical talent and give the world his memorable contributions.

Serving as a frontline officer in the Austro-Hungarian army in World War I, he worked on his doctoral dissertation. That massive slaughter, in G. H. Hardy’s words, of young men sent off to die by old men, left a lasting impression on him. It may well have intensified the passion he lavished on mathematics his entire life. It certainly affected his view of society. He later supported World War II against fascism, seeing no alternative, but he was an outspoken opponent of the Cold War which followed it. He opposed the development, use or testing of nuclear weapons and sought to moderate the growing international tensions which could have destroyed humanity.

There were but few opportunities for mathematical employment in pre-World War I Hungary or in the post-war Horthy times, for both economic and political reasons. Like many other Hungarian mathematicians destined to become well-known internationally, he had to look abroad, first to Berlin, leading to the Königsberg professorship in 1926.

This distinguished post was to fall victim to the Nazi accession to power. The years of peaceful, productive scholarship soon were swept away. His life, and those of his wife and two children, in danger, his post soon to be taken away, he had to flee abroad, this time to the U.S., there being no possibilities in Hungary or elsewhere where he had personal connections.

The depression and the growth of anti-Semitism also in the U.S. did not make the transition easy, for him or for the numerous other refugees. However, his reputation and personality led to a temporary position at Washington University (St. Louis) — outside the normal university budget. The local Jewish community provided much of the requisite financial support.

His presence and work added greatly to the prestige of that university, badly in need of someone of

By Lee Lorch, York University, lorch@mathstat.yorku.ca. Szego was born on January 20, 1895 and died in July, 1985. A celebration of the centenary of Szego's birth was organized in Hungary. This statement, which Lee sent to be read at the meeting, will appear (in Hungarian translation) in Math Lapok, along with three other remembrances. Lee and Szego's son Peter have been long-time mathematical collaborators.

his standing. Its subsequent development into an excellent mathematical center owes much to the years he spent there. He published while there a string of papers and a book, quickly classic, on orthogonal polynomials, which has undergone four editions, many printings and translation into Russian.

In 1938 came the call to Stanford University where he spent his remaining years, except for occasional leaves elsewhere. He seized the opportunity to expand the department with appointments of world-famous scholars, bringing first his teacher, collaborator and friend Polya (a Hungarian working in Switzerland), then Loewner, Bergman, Schiffer and younger analysts.

His personal productivity never slackened. His capacity for work rivaled his talents. But he was far from being merely a mathematical machine. He was a modest, good-humored man, devoted to family and friends, reserved but warm, a pleasure to be with, ever helpful to those in difficulty. A strong character, but not domineering, he possessed a considerable personal charm and a remarkably wide culture.

Mathematics for him was not just his own research. Generous with his time and experience, he sought out young people with whom he shared his knowledge and guidance and whom he assisted in their careers.

Well-read in ancient and modern literature, he worried that scientists who did not read the humanities could be ensnared by demagogues.

He never stinted in seeking help for those threatened by Europe's fascist storms. In the post World War II era he gave moral and financial support to victims of McCarthyism in the U.S. He rose to the defense of the eminent Uruguayan mathematician Jose Luis Massera, now the holder of a dozen honorary doctorates, but imprisoned for nearly ten years while a military junta ruled his country.

He opposed racism and sexism. When the first campaign began to end the discrimination against African-American mathematicians then routinely practiced by U.S. mathematical organizations, he quickly lent his aid. He also took time from his busy schedule to spend time at a college for Black students, helping and encouraging them.

In his will, he left money to one organization dedicated to opposing racism and to another supporting civil liberties in the U.S.

The Cold War repelled him. He opposed nuclear weapons and the whole atmosphere and policy which the Cold War engendered in his adopted

country. He was not given to initiating campaigns on the various social issues which commanded his attention, but he never withheld his open moral and financial support.

Never did he forget his country of origin. He visited it often, even during the long, trying years of his final illness. A number of his distinguished publications up to the end of his research activities are in Hungarian journals.

He translated and prepared for publication the notes dated March 12, 1944, left by "the young and able Hungarian mathematician, E. Feldheim," to quote the footnote Gabor Szego appended, "a few months before he became the victim of the terror of the Nazis."

He invited Hungarian mathematicians to visit Stanford and was in all ways in constant touch with Hungarian mathematical life and personalities. It gave him great satisfaction when he was elected to the Hungarian Academy of Sciences.

To the end of his life, he remained true to science, to peace, to human values, to friends. His birthplace, his native land, his adopted country, scientists everywhere, have ample cause to celebrate the life of this eminent scholar and fine human being. He has brought honor to all.

I congratulate you for organizing this celebration and thank you for allowing me to be with you in spirit on this day.

DISCOVERING WOMEN

This wonderful series produced by WGBH Boston aired on PBS in March and April. The documentaries chronicle the lives of women whose work has enhanced our understanding of the world. Each one-hour story revolves around a real scientific drama, such as computational neuroscientist Misha Mahowald's engrossing quest to build a computer chip that mimics the human eye, or geophysicist Marcia McNutt's determined pursuit, in the face of frustrating setbacks, of unique geological information deep under Nevada's Lake Mead. Woven throughout these tales of discovery are snapshots of the scientists' daily lives. We see them at work and at play, giggling with their children and relaxing at home with rock music blaring on the stereo. The series is available on videotape.

EDUCATION COMMITTEE

Report from Shanghai: ICMI Regional Conference on Mathematics Education

On the sunny day of August 16th, 1994, the International Commission of Mathematics Instruction – China Regional Conference opened. The site was the beautiful campus of East China Normal University (ECNU), Shanghai, P.R. China. It was sponsored jointly by ECNU, the Teacher Training Center of Eastern China Higher Institutes, the Shanghai Education college and the Shanghai Association for Science and Technology.

The hosts received eighty-two local representatives as well as one hundred twelve scholars, including thirty-five female mathematics educators, from nineteen countries and areas outside China: the U.S., Canada, UK, Germany, Netherlands, Belgium, Denmark, Australia, New Zealand, Japan, Korea, India, Indonesia, Philippines, Darussalam, Malaysia, Singapore, Hong Kong and Macau.

Among the participants there were several world-famous experts on mathematics education: Peng Yee Lee (Singapore, Vice-chair of ICMI), Mogens Niss (Denmark, General Secretary of ICMI), Sir Wilfred Cockcroft (UK, Chair of the report "Mathematics Counts"), Zalman Usiskin (U.S., designer of UCSMP), Jan de Lange (Netherlands, Director of the Freudental Institute), Jerry P. Becker (U.S., Representative of ICMI), John Mack (Australia, Chair of the Australian Mathematics Education Association), Toshio Sawada (Japan, Director of the Research Center for Science Education), V.G. Kulkarni (India, Director of Homi Bhabha Centre for Science Education), and B.F. Nebres (Phillipines, former Vice-chair of ICMI). Professors Glenda Lappan (U.S., Michigan State University), Marjorie Carss (Australia, University of Queensland) and Rui Fen Tang (China, East China Normal University) were some of the distinguished women educators.

The conference began with an opening ceremony conducted by Professor Dianzhou Zhang of ECNU and a welcoming speech by Professor Peng Yee Lee, chair of the International Program Committee. General Secretary Mogens Niss announced that Professor Zhang had been elected to the executive

committee of ICMI, a first for a Chinese educator. The Commissioner of UNESCO in China, Mr. John Elfick, made a special trip from Beijing to address the conference.

The theme of the conference was the preparation of mathematics teachers. There were eight public lectures: "Challenge to the preparation of teachers of mathematics," M. Niss; "The in-service teacher training system in Shanghai and East China Areas," M. Zhang and Z. Zhang; "Mathematics, learning and understanding, teaching and technology," J. Mack; "Mathematics teacher preparation in Japan," Y. Sugiyama; "The Chinese mode of mathematics teacher preparation," R. Tang; "Mathematics education towards 2000," J. de Lange; "Teacher preparation in developing countries," V.G. Kulkarni; and "Issues, dilemmas and directions in mathematics teacher education in the United States," G. Lappan.

Also there were reports and discussions in ten working groups every day. Five of these groups were divided by school levels: primary, middle secondary, upper secondary, university and adult education, and university teacher preparation courses. The other five groups were concerned with the following topics: structure of educational systems and teacher preparation policies; the mathematics curriculum, professional courses, practice teaching and the role of technology. Activities in each group were led by both a local and foreign leader. Among the group leaders were Peggy A. House (U.S., Northern Michigan University), Linda Sheffield (U.S., Northern Kentucky University), and Jun Li (East China Normal University).

Plenary discussion sessions were held on the last day, and later the group leaders reported the findings from their groups. During the conference there was also a book and video exhibition.

There was a consensus that the conference was a great success. Some important inspirations on the preparation of mathematics teachers presented at the meeting included: the characterization by Professor Niss of the ideal mathematics teacher, setting up a theoretical framework for teacher preparation; the introduction by Professor Lappan of standards for curriculum and evaluation, for teaching and for assessment, proposed in the U.S. in recent years, relating practical experience and a theoretical basis for teacher preparation; and discussion of problems

By Tang Rui Fen and Xuhui Li, Department of Mathematics, East China Normal University, Shanghai. Any comments? Write to: AWM Education Committee, c/o Sally I. Lipsey, Chair, 70 E. 10th Street, #3A, New York, NY 10003-5106.

that related closely to the preparation of teachers such as the application of modern technologies, mathematics competitions and the load from the proportion of students entering higher schools.

Proceedings of the conference will be published by the Shanghai Education Press in the summer of 1995. The Chinese educators are looking forward to enhancing their contact with specialists and scholars all over the world, improving the level of mathematics education in China and making a greater contribution to international mathematics education.

MATHEMATICS EDITING

I am a freelance mathematics textbook editor, specializing in college-level texts. As far as I know, my profession is unique. For reasons I can't understand, editing is never mentioned as a career choice to math majors. Not everyone is cut out for teaching and/or research. Mathematics editing needs to be suggested as a career option for mathematics majors.

When I edit a manuscript, first of all I make sure that everything in the book is mathematically correct and clearly stated. At the same time I edit for grammar and syntax. As I read along, I mark all the spacing, decide what should be displayed, *typemark* the manuscript (which means that I mark codes that tell the printer how to set the book according to the design specifications), and make creative decisions as to what should be set in boldface or italics, what should be set off as a theorem or a definition, where the art is best placed, and so on. And I edit the art.

I communicate with the author(s) through little notes ("flags") glued onto the manuscript, so I must be concise and nonoffensive. I have to be a psychologist, really, and "woo" the author(s), who feel *very* possessive about the book. But my goal is to sculpt it into something clean, beautiful, and mathematically correct, and in the end they are always grateful. It is so important that we have clear, accurate mathematics books! And it makes me feel wonderful to know I am contributing to that.

In recent years, a new aspect of my job has emerged, one that I find equally fulfilling: I have the responsibility of making sure the problems are

not gender-biased in any way, in particular, in the wording of the applications problems. For example, why should women be making recipes or cleaning houses while men go on bike rides or do yard work? I have the women flying planes and the men being nurses. Most authors are very cooperative in this area.

I have been involved in mathematics editing since 1970, and I still enjoy it: I work in my own home, I structure my own time, it is intellectually stimulating, and it has the additional benefit of being a job that can be done on a part-time basis, which makes it ideal for parents of young children. And always, I have the satisfaction of knowing that, like teaching, I'm making the subject clear for the student.

Tensor Foundation Grants

The Tensor Foundation has announced a new program to encourage women and girls in mathematics. Five grants of \$5,000 each will be made in August 1995 for student-centered projects conducted by high school or college mathematics faculty, to begin in academic year 1995-1996. The deadline for proposals is **July 26, 1995**. A Request for Proposals containing guidelines for proposal preparation and submission is available on the MAA Gopher or from the Mathematical Association of America, 1529 Eighteenth Street, NW, Washington, DC 20036; email: maahq@maa.org; phone: 1-800-3311MAA.

SLOAN FELLOWSHIPS

Nominations for candidates for Sloan Research Fellowships are due by **September 15**. Candidates must be members of the regular faculty at a college or university in the United States or Canada and must be at an early stage of their research careers. For information write: Sloan Research Fellowships, Alfred P. Sloan Foundation, Suite 2550, 630 Fifth Avenue, New York, NY 10111.

Susan Gerstein, Santa Barbara, CA

THE FUTURE (AND PRESENT) OF MATHEMATICAL COMMUNICATIONS

I attended the Conference on the Future of Mathematical Communications at MSRI in early December, 1994. In this note I want to share with other AWM members my impression that "the future is now."

Many of us have been using electronic mail for a while, and this has dramatically changed the way we work and communicate with each other. A lot of AWM business is done over electronic mail, and the AWM-Net just had its first birthday.

The next revolution in our professional lives is the birth and growth of mathematics electronic journals. These are traditional refereed journals, with several advantages over traditional "paper" journals. The journals I am aware of are: *Electronic Journal of Combinatorics (EJD)*, *Electronic Journal of Differential Equations (EJDE)*, *Electronic Transactions of Numerical Analysis (ETNA)*, *Ulam Quarterly*, *New York Journal of Mathematics*, and two forthcoming ones: *Electronic Journal of Linear Algebra (ELA)*, a publication of the International Linear Algebra Society and *Electronic Research Announcements of the AMS (ERA-AMS)*.

One submits articles — I consider the word "paper" no longer descriptive of our creative output, since they are not necessarily on a piece of paper — using electronic mail (or ftp). The editors send the article electronically to the referees. The reviewers' reports are sent to the authors by electronic mail. Once an article is accepted, and the "author's agreement" is received signed (this is the only non-electronic part of the process), the article is posted in the electronic journal for everyone (or everyone who subscribes) to obtain. Usually, when a new article is posted, electronic mail is sent to the subscribers with the announcement of the new posting.

The obvious advantage over traditional paper journals is time and space. There is no backlog, since there is no time lag between acceptance and posting or "publication." There is no page limitation for the articles or an issue, and thus, longer articles can easily be accommodated, together with color graphs, for example, which would be unthinkable in standard journals. But the revolution is in the fact that most of these journals are not run by publishing

companies. The authors are mathematicians, and so are the editors and referees, none of whom charge for their work. We have always been paid by our institutions to perform these activities. As a consequence, these journals are either free or very cheap. This is of course a welcome development for our libraries, presently struggling to maintain their periodical holdings.

A further revolutionary development is that most of these journals allow the author to retain the copyright (ownership) of their work. This means, for example, that you can post your articles electronically or make copies for your colleagues and students without breaking the law or fearing that a publisher will come after you.

The electronic journals are available by electronic mail, through gopher, or via the World Wide Web and its browsers (Mosaic, Netscape, etc.). The articles are reviewed in *Math. Reviews* and the *Zentralblatt* in the usual way, and they appear in the *Science Citation Index* as well.

The problem most people mention about these journals is that tenure committees may not consider them to be as serious or prestigious as the long-established paper journals. I believe this is more myth than reality, since the editorial boards of these journals have the same leaders in their respective fields as the paper journals do, and the colleagues who write letters of recommendation know this to be the case. Moreover, as senior authors submit their work to electronic journals, junior colleagues will join their company.

The future is now.

CORRECTION

Bernard H. Neumann noticed an errant minus sign in the total income/expense line in the Schafer Prize Fund column of the treasurer's report last issue. We apologize for the error introduced by an electronic glitch; rest assured that the books are correct.

Daniel B. Szyld, Temple University (szyld@math.temple.edu)

CALL FOR NOMINATIONS: THE LOUISE HAY AWARD

The Executive Committee of the Association for Women in Mathematics has established the Louise Hay Award for Contributions to Mathematics Education, to be given annually to a woman at the January Business Meeting. The purpose of this award is to recognize outstanding achievements in any area of mathematics education, to be interpreted in the broadest possible sense. The awardee will be selected by a committee appointed by the President and will receive a citation at the AWM Business Meeting.

While Louise Hay was widely recognized for her contributions to mathematical logic and for her strong leadership as Head of the Department of Mathematics, Statistics, and Computer Science at the University of Illinois at Chicago, her devotion to students and her lifelong commitment to nurturing the talent of young women and men secure her reputation as a consummate educator. The annual presentation of this award is intended to highlight the importance of mathematics education and to evoke the memory of all that Hay exemplified as a teacher, scholar, administrator, and human being.

The letter(s) of nomination should outline the nominee's contributions and indicate both the quality and depth of these contributions. Letters of support from colleagues and/or students are encouraged. *Five* copies of nominations for this award should be sent by **October 1, 1995** to: The Hay Award Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461; phone: (301) 405-7892; email: awm@math.umd.edu. Nominations via email or fax will not be accepted.

WOMEN'S ORGANIZATIONS ONLINE 1995

Africa

Angola: Development Workshop, Peri-Urban Women Entrepreneur's Program dwang@angonet.gn.apc.org

Kenya: ECONews Africa Team econewsafri@mukla.gn.apc.org; FEMNET Miss_Nancy_Gikori@mukla.gn.apc.org

Senegal: Synergie Femmes et Developpement mhms@endadak.gn.apc.org

South Africa: (SangoNet/WorkNet) Black Sash: Sheena Duncan sn0157@connectinc.com, Gille De Vlieg sn0226@connectinc.com; Cape Town, Barbara Molteno sn0295@connectinc.com; Durban, Seema Ramburuth sn0286@connectinc.com; East London, Penny Geerds sn0287@connectinc.com; Johannesburg, Marj Brown sn0283@connectinc.com; Grahamstown, Dorothy Holder sn0288@connectinc.com; Pietermaritzburg, Ashnie Padarath sn0285@connectinc.com; Knysna, Mads Vestergaard sn0290@connectinc.com; Port Elizabeth, Joanna Cartmell sn0289@connectinc.com; Pretoria, Laura Best sn0284@connectinc.com

Consultative Forum on Drought & Rural Development, Laurie Adams sn0143@connectinc.com; Education Policy Unit, Linda Chisolm sn0012@connectinc.com; Independent Magazine Group Women's Desk sn0123@connectinc.com; Institute

for African Alternatives Women's Desk, Susan Godt sn0237@connectinc.com; Learn & Teach Publications Women's Desk sn0081@connectinc.com; National Land Committee, Hilary Kromberg sn0096@connectinc.com; National Youth Development Forum, Penny Foley sn0199@connectinc.com; Surplus People's Project, Susan O'Leary sn0102@connectinc.com; Transvaal Rural Action Committee, Janet Small sn0097@connectinc.com; Valley Trust Women's Desk sn0133@connectinc.com; WILDO, Bibi Khan sn0012@connectinc.com; Institute for Contextual Theology Women's Desk ict@wn.apc.org; Speak Magazine Jacqui speak@wn.apc.org; SA Union of Journalists Karen Stander sauj@wn.apc.org; Sister Community Project, Mysha Jenkins scpjhb@wn.apc.org

Tanzania: Tanzania Media Women's Association tamwa@hnettan.gn.apc.org

Zambia: Zambia Association for Research and Development zard@unza.gn.apc.org

Asia/Pacific

Australia: East Sepik Council of Women escow@peg.apc.org; Office of the Status of Women osw@peg.apc.org; University of New South Wales Women's Studies nswsul@peg.apc.org; Women in Supportive Housing wish@peg.apc.org; Women's

Enterprise Connection womenbiz@peg.apc.org;
Women's Legal Service wmsqld@peg.apc.org,
syates@peg.apc.org

Bangladesh: Narigrantha Prabartana Feminist
Collective farida_akhter@dak.gn.apc.org

China: All China Women's Federation acwf@igc.apc.org

India: Forum Against Oppression of Women
inforum@inbb.gn.apc.org

Philippines: Center for Women's Resources
cwr@phil.gn.apc.org; Cordillera Women's Educa-
tion and Resource Center cwerc@phil.gn.apc.org;
ISIS International (Philippines) isis@phil.gn.apc.org;
Women's Media Circle Foundation, Inc.
wmc@phil.gn.apc.org; Women's Resource
and Research Center wrrc@phil.gn.apc.org; Women's
Media Circle Foundation womedia@phil.gn.apc.org

Sri-Lanka: Resource Centre for Community
Groups Womens Unit Hyacinth@slnet.gn.apc.org

Europe

Belgium: Women in Development Europe, NGO
Liaison Committee, Irish National NGO Assembly
wide@gn.apc.org

England: Akina Mama Wa Africa amwa@gn.apc.org;
Baby Milk Action babymilkacti@gn.apc.org;
Global Forum UK Women's Committee
gwomen@gn.apc.org; Microsystem (The London
Women's Mailing List) microsystem@gn.apc.org;
Manchester Women's Electronic Village Hall
womensevh@gn.apc.org; National Women's Net-
work (England) nwnukwide@gn.apc.org; Oxfam
Gender & Development Unit UK oxfamhk@gn.apc.org;
Womankind Worldwide womankind@gn.apc.org;
Women in Development Europe Environment
Group, Society for International Development
wedwide@gn.apc.org; Women's Aid to Yugoslavia
waty@gn.apc.org; Women's Environmental Net-
work wenuk@gn.apc.org

Switzerland: NGO/ECE Working Group on
Women ngoceewomen@gn.apc.org

Latin America

Brazil: Associacao Democratica Feminina Gau-
cha (ADFG) foebr@ax.apc.org; Centro de Investi-
gacion y Capacitacion de la Mujer cicam@igc.apc.org;
Centro Informacao Mulher (CIM) cimulher@ax.apc.org;
Coletivo Feminista Sexualidade e Saude
cfssaude@ax.apc.org; Grupo de Saude da Mulher

soscorpo@ax.apc.org; Rede Mulher rmulher@ax.apc.org;
Rede de Defesa da Especie Humana
redeh@ax.ibase.br; Religious Support Against Aids
(ARCA-ISER), Women and Aids Project layoli@ax.apc.org;
Sempreviva Organizacao Feminista
(SOF) sof@ax.apc.org

Chile: ISIS International isis@ax.apc.org

Ecuador: Agencia Latinoamericana de Informa-
cion, Area Mujeres mujeres@alai.ecx.ec; Centro de
Estudios e Investigacion Sobre el Maltrato de la
Mujer admin@ceimme.ecx.ec; Instituto de Estudios
Ecuador mujeres@iee.ecx.ec

Mexico: Catolicas por el Derecho a Decidir/
Mexico cddmx@laneta.apc.org; Comunicacion, In-
tercambio y Desarrollo Humano en America Latina
cidhal-cuar@laneta.apc.org; Grupo de Educacion
Popular con Mujeres gem@laneta.apc.org; Mujer a
Mujer mam@laneta.apc.org; Sociedad Mexicana
Pro-Derechos de la Mujer smpdm@igc.apc.org

Uruguay: Cotidiano Mujer cotidian@chasque.apc.org;
Catolicas por el derecho a decidir (Pro-
Choice Catholics) cdd@chasque.apc.org

North America

Canada: Canadian Beijing Facilitating Commit-
tee cbfc@web.apc.org; Canadian Women's Net-
working Support Program women95@web.apc.org;
Ecumenical Decade for Women ecdec@web.apc.org;
Department of Human Resources Development
Canada, Women's Program jackie@web.apc.org;
Mujer a Mujer perg@web.apc.org; Nova Scotia
Advisory Council on the Status of Women nacsww@web.apc.org;
OISE-Centre for Women's Studies in
Education oise@web.apc.org; Status of Women
Canada kkenswc@web.apc.org; Women & Envi-
ronmental Education Development weed@web.apc.org;
Women for a Healthy Planet whp@web.apc.org;
Young Women's Christian Association
(YWCA) International Programs, Ottawa YMCA-
YWCA ywywcaot@web.apc.org, BC Area Coor-
dinator ywcabca@web.apc.org, Chief Executive
Officer/Canada ywcaceo@web.apc.org, Eastern
Area Coordinator ywcaea@web.apc.org, Interna-
tional Cooperation ywcaic@web.apc.org, MAST
Member Services ywcamast@web.apc.org, Member
Services ywcams@web.apc.org, Public Affairs and
Advo-cacy ywcapaa@web.apc.org

United States: American International Health
Alliance, Magee Women's Hospital aihamagee@igc.apc.org, Brigham and Women's Hospital

aihabrigham@igc.apc.org; Border Women's Communication Network sherrera@igc.apc.org; American Women's Expedition awe@igc.apc.org; Asian Immigrant Women Advocates aiwa@igc.apc.org; Boston Women's Health Book Collective bwhbc@igc.apc.org; Casa de Colores casadocolores@igc.apc.org; Center for Women's Global Leadership cwgl@igc.apc.org; Center of Concern coc@igc.apc.org; Change of Heart heart@igc.apc.org; Chicago Foundation For Women ljanuary@igc.apc.org; Common Wheel mlerner@igc.apc.org; DSA Feminist Commission criddiough@igc.apc.org; Equality Now equalitynow@igc.apc.org; Foundation for a Compassionate Society ffacs@igc.apc.org; Equal Means equalmeans@igc.apc.org; Global Fund for Women gfw@igc.apc.org; International Center for Research on Women icrw@igc.apc.org; Institute for Women, Law and Development iwld@igc.apc.org; International Women's Health Coalition iwhc@igc.apc.org; International Women's Tribune Centre iwtc@igc.apc.org; League of Women Voters lwv@igc.apc.org; Mujer Obrera lamujer@igc.apc.org; Network of East West Women neww.igc.apc.org; NGO

Planning Committee, Forum '95 ngoforum95@igc.apc.org; Union of Palestinian Women Association upwana@igc.apc.org; Women in Development Europe Environment Group, Society for International Development wedwide@igc.apc.org; Women of Color Resource Center chisme@igc.apc.org; Women's Cancer Resource Center wcrc@igc.apc.org; Women's Committee of Lawyers for Tibet ictl@igc.apc.org; Women's Environment and Development Organization wedo@igc.apc.org; Women's Feature Service wfs@igc.apc.org; Women's Foreign Policy Council wedo@igc.apc.org; Women's International News Gathering Service wings@igc.apc.org; Women's International League for Peace & Freedom wilpfnatl@igc.apc.org; Women's International Policy Action Committee on Environment & Development wedo@igc.apc.org; Women's Ordination Conference woc@igc.apc.org; Women's World Banking ww@igc.apc.org

For additions and corrections please email: womensdesk@igc.apc.org. Note: some addresses have been split between lines.

THE FIELDS INSTITUTE FOR RESEARCH IN MATHEMATICAL SCIENCES

In 1996-97 The Fields Institute for Research in Mathematical Sciences, located in Toronto, will be sponsoring an emphasis year in Algebraic Model Theory. The organizing committee for the program consists of B. Hart (McMaster University), A. Lachlan (Simon Fraser University), A. Macintyre (Oxford University), M. Makkai (McGill University), R. McKenzie (Vanderbilt University) and M. Valeriote (McMaster University). All activities will take place during the period August, 1996 to June, 1997. The program will consist of a mixture of workshops, graduate courses and several lecture series and seminars.

At this time, three workshops are planned: January 13-17, 1997, Geometric Model Theory; March 17-21, 1997, The Model Theory of Analytic Functions; and May 26-June 9, 1997, a longer workshop with emphasis on permutation groups, stable groups, the model theory of modules, model theory of analytic functions, decidability theory and tame congruence theory. In the fall term there are three graduate courses scheduled: Geometric Model Theory, the Model Theory of Analytic Functions, and Tame Congruence Theory. Also, there will be a weekly colloquium, regular research and graduate seminars, and a lecture series concerning the interactions of model theory and other disciplines.

Some of the participants besides the organizers will be: G. Cherlin (Rutgers), L. van den Dries (University of Illinois), R. Freese (University of Hawaii), E. Hrushovski (Hebrew University at Jerusalem), D. Marker (University of Illinois at Chicago), A. Pillay (Notre Dame), and R. Willard (University of Waterloo).

Support is available to cover some of the transportation and accommodation costs of short- and long-term visitors. The participation of graduate students and postdoctoral fellows will also be an integral part of the year's activities. Postdoctoral positions for 1996-97 will be offered as will support for graduate students. These positions will be advertised by The Fields Institute in the Fall, 1995.

Anyone wishing to participate in the program or who has any questions about the program should send e-mail to model@fields.uwaterloo.ca or mail or fax to: Algebraic Model Theory Program, The Fields Institute, 185 Columbia Street W, Waterloo, Ontario, Canada N2L 5Z5; fax: 519-725-0704.

WORKSHOP FOR WOMEN GRADUATE STUDENTS AND POSTDOCTORAL MATHEMATICIANS

The Association for Women in Mathematics, with funding from the Office of Naval Research, will continue to hold a series of workshops for women graduate students and postdoctoral mathematicians in conjunction with major mathematics meetings.

The next workshop in the series will be held in conjunction with the annual AMS-MAA Joint Mathematics Meetings to be held in Orlando, FL, January 9-13, 1996. Applications for participation in this workshop are invited. The exact date for this workshop will be announced at a later time but will be held during the week of this meeting.

We invite graduate students to present posters on their thesis problems and postdocs to present talks on their research. AWM will offer funding for travel and subsistence for up to ten women graduate students and ten women postdocs to participate in the workshop. Participants will have the opportunity to present and discuss their research and to meet with other women mathematicians at all stages of their careers. Each workshop will also include a panel discussion on issues of career development, a luncheon, and a dinner banquet.

All mathematicians (female and male) are invited to attend the entire program whether or not they are funded. Departments are urged to help graduate students and postdocs obtain some institutional support to attend the workshop and the associated meetings.

To be eligible for funding, graduate students must have begun work on a thesis problem; postdocs must have received their Ph.D. within approximately the last five years. All non-U.S. citizens must have a current U.S. address. All applications should include a curriculum vitae and a concise description of research; graduate students should include a letter of recommendation from their thesis advisor. Nominations by other mathematicians (accompanied by the information described above) are also welcome.

Please send **five** copies of the application materials to: Workshop Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. Applications must be received by **October 1, 1995** for the Orlando workshop; applications via email or fax will not be accepted. For more information contact the AWM office at (301) 405-7892 or awm@math.umd.edu.

NSF-AWM TRAVEL GRANTS FOR WOMEN

The objective of the NSF-AWM Travel Grants program is to enable women to attend research conferences in their fields, thereby providing a valuable opportunity to advance their research activities and their visibility in the research community. By having more women attend such meetings, we also increase the size of the pool from which speakers at subsequent meetings may be drawn and thus address the persistent problem of the absence of women speakers at some research conferences.

Travel Grants. These grants provide full or partial support for travel and subsistence for a meeting or conference in the applicant's field of specialization. A maximum of \$1000 for domestic travel and of \$2000 for foreign travel will be applied. International travel must be on U.S. flag carriers whenever possible.

Eligibility. These travel funds are provided by the Division of Mathematical Sciences of NSF, and the research conference must be in an area supported by DMS. For example, this includes certain areas of statistics, but excludes most areas of mathematics education and history of mathematics. Applicants must be women holding a doctorate (or equivalent experience) and having a work address in the U.S. (or home address, in the case of unemployed mathematicians). Anyone who has been awarded an AWM-NSF travel grant in the past two years or who has other sources of external funding, including *any* NSF grant, is ineligible. Partial support from the applicant's institution or from a non-governmental agency does not, however, make the applicant ineligible.

Applications. There will be three award periods per year, with applications due February 1, May 1 and October 1. An applicant should send *five* copies of 1) a description of her current research and of how the proposed travel would benefit her research program, 2) her curriculum vitae, 3) a budget for the proposed travel, and 4) information about all other sources of travel funding available to the applicant along with *five* copies of her cover letter to: Travel Grant Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. For more information, contact AWM by phone (301-405-7892) or email (awm@math.umd.edu). Applications via email or fax will not be accepted.

NSF PROGRAMS FOR WOMEN

National Science Foundation officials have set an ambitious goal for the agency and the scientific community: to make women an equal part of the United States scientific work force by the turn of the century.

For its role in the effort, NSF has appropriated \$7 million in each of the last two fiscal years, a 200 percent increase over FY 1993 outlays. Currently there are three separate competitive grants programs, each tackling the issue of underrepresentation from a different perspective:

- **Experimental Projects for Women and Girls (EPWG).** These three-year grants are intended to induce long-term changes in academic, social, and scientific climates.
- **Model Projects for Women and Girls (MPWG).** MPWG's are one-year grants designed to produce short-term, immediate results through innovative, highly focused activities which improve the access of women and girls in science and math education and/or careers.
- **Information Dissemination Activities (IDA).** These grants are intended to produce information that improves the participation of or reduces the barriers to girls and women in science and math, as well as for distributing such information among teachers, administrators, and the general public.

For more information, contact: Programs for Women and Girls, National Science Foundation, 4201 Wilson Boulevard, Arlington, VA 22230; phone: 703-306-1637; email: hrdwomen@nsf.gov.

supported by NSF will be considered. Proposals should have the strong support of the scientists' home institutions and should lead to significant publications and long-term sustained linkages.

The Twinning Program requires a two-year commitment beginning in January 1996. Subject to the availability of funding, support will be provided for travel and living expenses for research visits by American grantees and junior scientists from the same institution to the countries listed above and for visits by their foreign counterparts to the U.S. Applicants may also request modest funding for scientific supplies, telecommunications fees, and publication costs. Grants will generally be in the \$12,000 to \$15,000 range; requests for higher amounts will be considered on a case-by-case basis.

Applications will be accepted from individuals who are U.S. citizens, nationals of a possession of the U.S., or permanent residents of the U.S. All applicants must hold a Ph.D., be engaged in research careers (or research and teaching careers), be affiliated with an educational or research institution in the U.S., and have existing contacts with researchers and/or institutions in the countries listed above. Although qualified U.S. specialists of any age are eligible, those who have received their doctoral degrees within the past six years or who are entering into an international collaboration for the first time are strongly encouraged to apply. NRC also welcomes the inclusion of postdoctoral students and graduate students in the program.

For more information on applying for the program, contact: Office for Central Europe and Eurasia (FO2014), National Research Council, 2101 Constitution Avenue, NW, Washington, DC 20418; phone: 202-334-2644; fax: 202-334-2614; email: ocee@nas.edu. The application deadline is **September 1, 1995.**

NRC TWINNING PROGRAM

The Office for Central Europe and Eurasia of the National Research Council (NRC) is accepting proposals for collaborative research programs which link individual U.S. scientists with their counterparts in Belarus, Bulgaria, Kazakhstan, Moldova, Romania, and Ukraine. As funding for the Twinning Program is provided by the National Science Foundation, only proposals in fields normally

CBMS CHAIR COLLOQUIUM

The 10th Anniversary Board on Mathematical Sciences Department Chairs Colloquium will be held October 20-21, 1995, in Arlington, VA. Its theme is "Managing While Science and Education Evolve." Highlights of the Colloquium include a keynote address by George E. Brown, Jr., Ranking Minority Member, Committee on Science, U.S.

House of Representatives, along with sessions on the view from Harvard, the University of Michigan, Stanford, and the University of Texas-Austin; the American Association for Higher Education's project on evolving assessment of faculty teaching; an administrator's view of mathematical sciences departments; mathematical sciences employment opportunities, federal research and education programs; successes encouraging underrepresented groups; statistics departments and statistics within other departments; successes in undergraduate and calculus reform programs; and the annual employment survey. Workshops focus on information for new and future chairs; prototype interdisciplinary initiatives; changing school mathematics: challenges and opportunities; concerns and professional roles of new faculty: lessons from project NExT; assessment in Ph.D. granting departments; and removing barriers to student success. The goal of this Colloquium is to provide department chairs, chair-candidates, and department leaders with timely, practical information to help as the mathematical sciences adjust and adapt in education and research to the manifold changes taking place and on the horizon. The registration fee is \$160. More information, including that for registration, is available from: Board on Mathematical Sciences, National Research Council, NAS 315, 2101 Constitution Avenue, NW, Washington, DC 20418; phone: 202-334-2421; fax: 202-334-1684; email: bms@nas.edu.

Note: AWM President Chuu-Lian Terng will give a report entitled "Programs Aimed at Cutting the Attrition of Women in Academia: Current Status. New Directions?" in the session "Successes Encouraging Underrepresented Groups" to be held Saturday, October 21, 2:30-3:20 P.M.

PUBLICATIONS OF INTEREST

A series in three parts called "How to Be a Good Graduate Student" by Marie desJardins appeared in *Concerns of Young Mathematicians* about a year ago. (The YMN archives may be accessed via anonymous ftp to <ftp.ms.uky.edu>.)

Abstract: This paper attempts to raise some issues that are important for graduate students to be successful and to get as much out of the process as possible, and for advisors who wish to

help their students be successful. The intent is not to provide prescriptive advice — no formulas for finishing a thesis or twelve-step programs for becoming a better advisor are given — but to raise awareness on both sides of the advisor-student relationship as to what the expectations are and should be for this relationship, what a graduate student should expect to accomplish, common problems, and where to go if the advisor is not forthcoming.

Introduction: This article originated with a discussion I had with several women professors about the problems women face in graduate school, and how more women could be encouraged to go to graduate school in computer science. Eventually, the conversation turned to the question of what these women could do in their interactions with women students to support and encourage them. I volunteered that ... I had collected ... papers and email discussions about how to be a good advisor, how to get through graduate school, and issues facing women. They were eager to get this material, and I told them I would sort through it when I got a chance.

After mentioning this project to a number of people ... — all of whom expressed an interest in anything I could give them. — I realized two things: first, the issues that we were talking about really were not just women's issues but were of interest to all graduate students, and to all caring advisors. Second, in order to disseminate the information I had collected (and was starting to collect from others) it seemed to make more sense to compile a bibliography, and write a paper that would summarize the most useful advice and suggestions I had collected.

I solicited inputs from friends and colleagues ... and collected almost an overwhelming amount of information. Sorting through it and attempting to distill the collective wisdom of dozens of articles and hundreds of email messages has not been an easy task, but I hope that the results provide a useful resource for graduate students and advisors alike. The advice I give here is directed towards Ph.D. students in computer science and their advisors, since that is my background, but I believe that much of it applies to graduate students in other areas as well.

In my experience, the two main things that make graduate school hard are the unstructured nature of the process, and the lack of information about what you should spend your time on. I hope that this article will provide information for both graduate students and advisors that will help make the process less painful....

Women and Work: In Their Own Words, edited by Maureen R. Michelson, was published by NewSage Press, 1994. With surprising honesty, these women's stories reflect the changing status of working women in the 1990's. UC Berkeley Professor Jenny Harrison and Lawrence Hall of Science Director and Professor Marian Cleaves Diamond are represented in this book.

Flirting or Hurting? is a teacher's guide on sexual harassment in schools for grades 6–12. The lessons and activities, which take at least seven class periods, can be used in a variety of courses. Written by Nan Stein and Lisa Sjostrom of the Center for Research on Women, Wellesley College, it is published by the National Education Association.

The exchange in the *AMS Notices* between Larry Shepp and those who disagree with him continues. The March issue contained letters from Marie Vitulli *et al.* and Lee Lorch. The June issue contains Shepp's answers to them.

A new twenty-page color booklet designed to encourage high-school-age women to pursue careers in astronomy, astrophysics, and related fields has been published by the Harvard-Smithsonian Center for Astrophysics (60 Garden Street, Cambridge, MA 02138; 617-495-7461). The booklet will be sent free upon request to students, teachers, and career advisors nationwide.

"Space for Women: Perspectives on Careers in Science" features profiles of women who work at the CfA, ranging from scientists to administrators, describing their backgrounds and training, and highlighting their accomplishments as well as their everyday duties. Interspersed among the profiles is practical information about how to prepare for a science-related career, including advice on course work, choosing a college, finding mentors, and more. The booklet also includes a glossary and an appendix that lists reading materials, organizations, internship, and other resources of assistance to aspiring scientists.

Mathematics in Industry: The Job Market of the Future, the report of the 1994 SIAM Forum, is now available. At the forum, a series of panel discussions explored such topics as: Mathematicians in Small Firms; SIAM's Mathematics in Industry Project: Preliminary Results; Hiring in Business, Industry, Government: The Manager's Perspective;

Report from the Front: Experiences of Recent Industrial Hires; and Reaching from Academia to Industry. The comments of the panelists are summarized in the report, along with special sections that provide hints for job seekers and advice for departments desiring to build relationships with industry.

The report can be accessed via World Wide Web at <http://www.siam.org> or via Gopher at Gopher.siam.org under the Reports directory. It is also available via anonymous ftp at ae.siam.org in the /pub/forum directory.

P.O.V., a New York-based lifestyles magazine, compiled a list of ten top jobs and ten "no-so-hot" jobs for the rest of the decade. Most of the ten hot jobs are computer related (e.g., multimedia software designer, Internet surfer); funeral director was also listed. Among the ten worst jobs, #1 was bank teller and *mathematician* was listed at #10. Here is what P.O.V. has to say about our profession:

Pure mathematics, the stuff of blackboard equations on university campuses, isn't a huge field to begin with — about 16,000 jobs. But expected reductions in research and development mean much slower-than-average growth. Math wonks need to combine their skills with computer science, engineering or operations research to survive. Telling fact: A microscopic 8% total growth in jobs through 2005.

[adapted from postings by Ed Aboufadel, YMN newsletter]

In Her Master's Voice: Five Thousand Years of Put-Downs and Pin-Ups, compiled by Tama Starr, was published last October by Penguin Books, London. Says the enlightened actor Oliver Reed [1978]: "When a woman says she wants to go out and get a job to express herself, it usually means she's hopelessly behind in the ironing."

"Seeking Employment in the Mathematical Sciences is available from the AMS Gopher. [Recently I saw the latter word referred to as "computer nerd humor" by someone who has evidently never heard of a go-fer!]

The Back-to-School Money Book: A Financial Aid Guide for Midlife and Older Women Seeking Education and Training is available from AARP Fulfillment, 601 E Street, NW, Washington, DC 20049. It was produced by the AARP Women's Initiative.

ASSESSMENT STANDARDS

The National Council of Teachers of Mathematics (NCTM) released "Assessment Standards for School Mathematics" in May. The document calls for a shift toward assessment that is ongoing and based on multiple sources of evidence. Six standards address the major issues of mathematical assessment: mathematics, learning, equity, openness, inferences, and coherence. These standards promote the dynamic process of improving the mathematics curriculum, mathematics teaching, and mathematics assessment. "As teachers in the classroom, we have learned a very valuable lesson. If we teach students to memorize answers, they will do well on a test; if we teach students to solve problems, they will succeed in life," said NCTM President Jack Price.

DIVERSITY IN SCIENCE

"Diversity in Science: Perspectives on the Retention of Minority Women," Third Annual Conference of the Committee on Women in Science and Engineering of the National Research Council, will be held October 22-23, 1995, in Washington, DC.

The purpose of the conference is to inform policymakers of the significance of diversity in science, engineering, and health careers based on better understanding of the factors underlying the underparticipation of minority women in science, engineering and health education and employment and to recommend actions necessary to heighten their retention in these areas.

There will be keynote addresses by federal policymakers; small-group sessions focusing on major issues; plenary sessions promoting interactions among minority scientists and engineers, researchers, educators, and employers; a resource room and poster sessions.

In the poster sessions, students and researchers are invited to describe their recent or in-progress research about the underparticipation of women in science, engineering, and health education and employment, whether focused on women of all racial/ethnic backgrounds or on a particular minority group; effects of legislation on the retention of minority women; diversity in employment and the benefits of retaining minority women; educational

programs that work for minority women; programs to retain minority women faculty; federal efforts to retain minority women in science, engineering, and health-care employment; or the status of minority women employed in industry.

You will have the opportunity to make direct contributions to the conference deliberations, to share your research findings, and to network in the hospitality suite. Sessions are planned on developing support systems, writing resumes, preparing grant proposals, and legislating to effect change, among others. Employment information will be available in the resource room.

The targeted audience is federal agencies; private foundations; institutions of higher education; employers of scientists, engineers, and health-care professionals; professional science and engineering societies; female minority students; and researchers interested in the issues to be addressed.

Questions to be considered at the conference include: What do the data show about the effectiveness of institutional programs designed to retain minority women? What are the needs of minority women who want to succeed in science, engineering, and health careers, in the various employment sectors? What are an institution's responsibilities for meeting those needs? What actions are particularly effective in retaining minority women? What are the effects of gatekeeping courses on minority women, and what is being done to eliminate practices that discourage them in science, engineering, and medical careers? What are the roles of advisors, RA's and TA's, heads of research labs, supervisors, and managers? What is the employer's responsibility for acclimating employees and for promoting their career development? What are the near-term and long-range plans for policies and programs of specific organizations for diversifying their work force? What is required for career advancement in specific employment sectors? What steps might minority women take to succeed in the current work environment? How can retraining and re-entry programs contribute to a diversified work force?

To receive registration materials, send a postcard to Ms. Gaelyn Davidson, Administrative Assistant, National Research Council, Committee on Women in Science and Engineering, 2101 Constitution Avenue NW, Room TJ 2004, Washington, DC 20418, or fax 202-334-2753. The materials will be available on July 1; the registration deadline is **August 15**. Conference registration is limited to 200 individuals.

AWM IN SAN FRANCISCO



Sylvia Bozeman, Spelman College; Mary Gray, American University
Two of the panelists: "AWM: Why Do We Need It Now?"



AWM Business Meeting: Rebekka Struik, Chandler Davis,
Lee Lorch (at mike), Helen Moore (behind Lee), Beth Ruskai, Jean Taylor

THE WORKSHOP



Graduate Students: Front: Laura Monroe, Christina He, Jeanne Nielsen Clelland, Susan Morey, Brooke E. Shipley
Back: Helen Moore, Sarah K. Merz, Julia A. Barnes, Catherine Kriloff, Joan E. Hart, Carol Wood (Workshop Co-Chair)



Noetherian Ring Presentation: Gillian Elston, President; Sara Robinson, Vice-President



Susan Morey at her poster



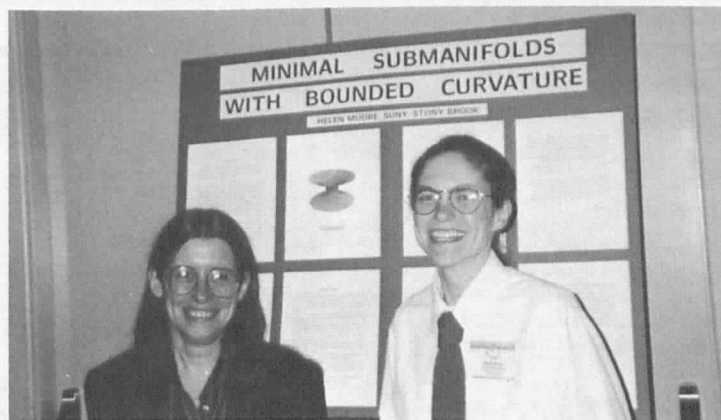
Post-docs: Front: Tamara J. Hummel, Aurelija Trgo, Laura Anderson, Victoria Pambuccian, Yoshiko Hayakawa;
Back: Wendy Brunzie, Cymra Haskell, Karen E. Clark, Michele Cook, Gretchen Wright, Ruth Charney (Workshop Co-Chair)



Cora Sadosky (Workshop Co-Chair), Ruth Gornet, and Jeanne Nielsen Clelland at Jeanne's poster



Julia A. Barnes and Cymra Haskell at Julia's poster



Anne Leggett and Helen Moore at Helen's poster

ADVERTISEMENT/ANNOUNCEMENTS



ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

The Swiss Federal Institute of Technology in Lausanne (EPFL) invites applications for a

Faculty position in Applied Probability Theory

The teaching duties will include basic mathematics courses for engineering students, as well as introductory and advanced courses for students of mathematics. Willingness and talent to teach at all university levels are a necessary requirement.

The new professor is expected to develop an important research programme in collaboration with the professors of the Department of Mathematics as well as with the professors of one or the other of the eleven other Sections of EPFL. He/she must have thorough knowledge of the theoretical branches of probability theory, such as Markov processes. Competence in the applications of probability theory in one of the following areas would be an advantage: queuing, stochastic optimization, mathematical biology, communications theory.

Applicants should have shown their ability to carry out and to direct high level research projects.

Female applicants are particularly welcome.

Deadline for applications: **July 31, 1995**

Start of the appointment: as convenient

Interested persons can write to **Présidence de l'EPFL, CE-Ecublène, CH-1016 Lausanne, Suisse**, for more information concerning position.

◆ ◆ ◆ ◆ ◆ ◆
Renew Now for 1995-96!
◆ ◆ ◆ ◆ ◆ ◆

We're gearing up for the upcoming membership year! We'd like to ask our individual and institutional members to be on the look-out for renewal notices to be sent out in **JULY** and **AUGUST**. Our new membership year officially begins **OCTOBER 1, 1995**, but you can send your dues in **NOW** using the form on **PAGE 31** (see form for dues structure).

Also, we could use help in recruiting new members. Copy our membership form on **PAGE 31** and encourage a colleague to join AWM.

SEND MEMBERSHIP DUES AND/OR CONTRIBUTIONS TO:

AWM Membership
4114 Computer and Space Sciences Bldg.
University of Maryland
College Park, MD 20742-2461

Any questions, please contact us at
301-405-7892 or awm@math.umd.edu

JOHNS HOPKINS UNIVERSITY - DEPARTMENT OF MATHEMATICS - The analysis group at Hopkins does research in linear and nonlinear partial differential equations with applications to geometric and physical problems. We are seeking a senior analyst with broad interest in linear and nonlinear PDE and its applications to complement our current research interests. More specifically, some of the fields of expertise that are of interest to us include harmonic analysis, microlocal analysis and geometric analysis. Outstanding research credentials and excellence in teaching are required. Minority and women candidates are encouraged to apply. The Johns Hopkins University is an Affirmative Action/Equal Opportunity Employer. Applicants should submit a curriculum vitae and list of references or arrange for letters of recommendations to be sent to: **Appointments Committee, Department of Mathematics, 404 Krieger Hall, Johns Hopkins University, Baltimore, MD 21228**. Decisions will be made anytime after September 10, 1995.

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL - DEPARTMENT OF MATHEMATICS - Applications are invited for one faculty appointment in applied mathematics effective Fall 1996. Candidates with research in computational partial differential equations and related areas are especially encouraged to apply. Rank and salary depend on qualifications and budget considerations. Ph.D. in mathematics and exceptionally strong research record and commitment to excellent teaching required. At least 3 years experience beyond the Ph.D. preferred. Send curriculum vitae, abstract of current research program, and four letters of recommendation to: **Search Committee Chairman, Mathematics Department, CB #3250 Phillips Hall, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-3250**. EO/AA Employer. Women and minorities are encouraged to identify themselves voluntarily. Completed applications received by November 1, 1995 are assured of full consideration. We also request that you send us a completed AMS Application Cover Sheet (Fall issues of the AMS Notices).

◆ ◆ **AWM Events at Mathfest - Burlington, Vermont - August 5-8, 1995** ◆ ◆

Preliminary Schedule as of June 1, 1995

Saturday, August 5th

7:30 p.m.

Opening Banquet:

A special feature of this banquet will be the presentation of the AMS, AWM & MAA prizes. AWM will award the Sixth Annual **Alice T. Schafer Prize** to six honorees (1 winner, 3 runners-up, and 2 honorable mention.) [see pages 3-5 for more details] The banquet will be preceded by a cash bar reception at 6:30 p.m. It is suggested that you purchase your ticket(s) from the AMS (meet@math.ams.org) prior to the meeting. Tickets are \$25.

LOCATION

**Ballroom,
Burlington Sheraton**

Sunday, August 6th

3:00 p.m. - 4:30 p.m.

Panel Discussion: "Do women and men have different career trajectories?" TBA

4:30 p.m. - 5:00 p.m.

AWM Membership Meeting: AWM President Chuu-Lian Terng, presiding

TBA

9:30 p.m.

AWM Open Reception: All participants are invited for camaraderie and refreshments.

Living/Learning Complex

AWM will have a table in the exhibit area (North Lounge, Billings Student Center) throughout the meeting. For more details on the above events, please stop by the **AWM Information Table** for an **AWM Events Program** or refer to your **Mathfest Program**.

ASSOCIATION FOR WOMEN IN MATHEMATICS

1995/1996 MEMBERSHIP FORM

LAST NAME _____ FIRST NAME _____ M.I. _____

ADDRESS _____

AWM's membership year is from October 1, 1995 to September 30, 1996. Please fill-in this information and return it along with your DUES to:

AWM Membership
4114 Computer & Space Sciences Building
University of Maryland
College Park, MD 20742-2461

The AWM Newsletter is published six times a year and is part of your membership. Questions? (301) 405-7892, or awm@math.umd.edu

Home Phone: _____

Work Phone: _____

E-mail: _____

Please include this information in: (1) the next **AWM Speaker's Bureau** (Yes/No) _____ (2) the next **AWM Membership Directory** (Yes/No) _____

PROFESSIONAL INFORMATION:

If student, GRADUATE or UNDERGRADUATE (circle one)

Position: _____
 Institution/Company: _____
 City, State, Zip: _____

DEGREES EARNED:

	Degree(s)	Institution(s)	Year(s)
Doctorate:			
Masters:			
Bachelors:			

INDIVIDUAL DUES SCHEDULE

Please check the appropriate membership category below. Make checks or money order payable to: **Association for Women in Mathematics**.
 NOTE: All checks must be drawn on U.S. Banks and be in U.S. Funds. AWM Membership year is **October 1st to September 30th**.

- REGULAR INDIVIDUAL MEMBERSHIP \$ 40 _____
- 2ND FAMILY MEMBERSHIP \$ 30 _____
 (NO newsletter) Please indicate regular family member: _____
- CONTRIBUTING MEMBERSHIP \$100 _____
 Indicate if you wish for this contribution to remain anonymous: _____
- RETIRED or PART-TIME FACULTY (circle one) \$ 20 _____
- STUDENT or UNEMPLOYED MEMBERSHIP (circle one) \$ 10 _____
- ALL FOREIGN MEMBERSHIPS (INCLUDING CANADA & MEXICO)....**FOR ADDITIONAL POSTAGE ADD \$ 8** _____
All payments must be in U.S. Funds using cash, U.S. Postal orders, or checks drawn on U.S. Banks.

INSTITUTIONAL DUES SCHEDULE

- | | U.S. | FOREIGN | |
|--|-------|---------|-------|
| _____ Sponsoring CATEGORY I (may nominate 10 students for membership)..... | \$120 | \$200 | _____ |
| _____ Sponsoring CATEGORY II (may nominate 3 students for membership)..... | \$ 80 | \$105 | _____ |

INSTITUTIONAL MEMBERS RECEIVE TWO FREE JOB ADVERTISEMENTS (up to 8 lines) IN OUR NEWSLETTER PER YEAR. Ad deadlines are the 1st of every EVEN month. All institutions advertising in the *Newsletter* are Affirmative Action/Equal Opportunity Employers. Also, Institutions have the option to nominate students to receive the newsletter as part of their membership. NOTE: List names and addresses of student nominees on opposite side or attach separate page. [ADD \$10 (\$18 for foreign members) for each additional student add-on over initial 10 students for Category I; over initial 3 students for Category II]

TOTAL DUES ENCLOSED \$ _____

J/A 95

ADDRESS CORRECTION FORM

- Please change my address to:
 Please send membership information to my colleague listed below:
 No forwarding address known for the individual listed below (enclosed copy of label):
(Please Print)

Name _____

Address _____

City _____ State _____ Zip _____

Country (if applicable) _____ E-mail Address _____

Position _____ Institution/Org. _____

Telephone: Home _____ Work _____

- You may include this information in the next AWM Membership directory.

MAIL TO:

Database Corrections
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 4114 Computer & Space
 Sciences Bldg., University
 of Maryland, College Park
 Maryland 20742-2461

or E-MAIL:

awm@math.umd.edu

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 FOR WOMEN IN
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