AWM
ASSOCIATION FOR WOMEN IN MATHEMATICS

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PRESIDENT'S REPORT

Letter from the President

Dear AWM members and friends,

What should be the direction of AWM, and what should we try to accomplish in the next two years? As your new president, I've been directing this question to myself and others; here are some of my thoughts.

1. I am in awe of the accomplishments of my predecessors in this position. My main goal is to carry on with what they have started. Many successful AWM programs have made a substantial difference in people's lives.

2. AWM has a grand tradition of encouraging and spotlighting women in mathematics — women of all ages. There are more new promising enthusiastic young women mathematicians than ever before; they may not realize what struggles the rest of us have had, but, as they embark on their careers, they may still encounter problems related to gender. High school girls and younger girls still need to be encouraged and to be informed about the importance and the rewards of studying mathematics. Many of us who have benefited so much from AWM now feel that it's our turn to help. We are strapped for time, though, and we may feel that we live a bit on the edge: one small thing (such as a baby-sitter getting sick, an extra committee meeting, frustration about a research problem) can start a landslide! We all appreciate companionship, support and inspiration. Let's continue to provide these for each other, formally and informally.

3. AWM has grown so much and does so much that it can't be just a volunteer effort on a shoestring budget. We're short of funds and we constantly need to apply for grants. We've had wonderful volunteers administering and participating in our workshops and panels, but often we haven't been able to cover the basic operating costs of our activities, even with the grants. For example, our AWM office at the University of Maryland acts as a clearing-house for information about women in mathematics; this doesn't come for free. Expenses may

IN THIS ISSUE

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The Association was founded in 1971 at the Joint Meetings in Atlantic City. 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.
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exceed income in the general fund this year. Many of you contributed generously to the AWM 25th year endowment fund last year, and we received over $18,000 as a result. Even many student members sent whatever they could — $5, $10. We are so grateful for your support, even though we do need to continue to ask for donations, especially for operating funds. I would like for us to be solvent — as much as possible!

4. How can you support AWM? Many of you have asked. First, let's try to increase our membership by everyone asking at least one other person to join. Some men may not realize that they are entirely welcome in AWM, the association *for* women in mathematics. Any man who wants to assist his female colleagues, his daughters and female descendants, his female students — and all capable women — should support AWM, become a member or make a donation. (That's an inclusive mathematical "or!") Many women who "just haven't gotten around to" joining need a reminder and a welcome. Second, we appreciate all ideas and help with the newsletter. Please send in articles and communications of interest to our members. For example, submit articles about women mathematicians or articles about men and women who have been successful mentors for women. Our newsletter and organization should continue to provide a friendly welcome and haven for our profession and our allies. Third, at the meetings we need people to sit at the AWM table, talk to others about AWM, and participate in AWM functions. Fourth, we welcome suggestions about funding sources for AWM and help in submitting grant applications. Fifth, if you would be willing to serve on one of our selection committees or panels, please let me know.

Thanks in advance for your help!

Sincerely, Sylvia

Postscripts

1. **Chuu-Lian Terng** has been an outstanding president of AWM. I am grateful that she will remain on the AWM Executive Committee and that she has left me with good records. Thank you for everything, Chuu-Lian!

2. Who is **Sylvia** — what does she do? I'm a Professor at the University of Nebraska, where I have been since 1972. Mary Gray, one of the founders of AWM the year before, first introduced me and my husband Roger Wiegand to the people in the Math & Stat. Department at Nebraska at a meeting in Las Vegas that year. Roger and I are both commutative algebraists; I earned my Ph.D. at Wisconsin under L.S. Levy while Roger was on the faculty there. We have two children, Andrea (15) and David (22). I'm crazy about long-distance running and have probably lost many brain cells pursuing that activity.

3. The **Association for Women in Mathematics** (AWM) was established in 1971 to encourage women to study and have active

careers in the mathematical sciences. Equal opportunity and equal treatment of women in the mathematical sciences are promoted.

AWM has more than 4,500 members, both women and men, from the United States and around the world, representing a broad spectrum of the mathematical community. As an organization promoting women in the mathematics arena, its efforts have led to greater participation of women in the mathematical community, especially as speakers at mathematical meetings and as members of committees of the mathematical organizations.

AWM currently offers the following: workshops for women graduate students and postdoctoral mathematicians supported by ONR; travel grants for women researchers, supported by NSF; Sonia Kovalevsky High School Mathematics Days, supported by NSF and the Sloan Foundation; publication of this bi-monthly *Newsletter*; the Alice T. Schafer Prize to an Undergraduate Woman for Excellence in Mathematics; the Louise Hay Award for Contributions to Mathematics Education; the Noether Lecture series, panel discussions, and receptions held at the January Meetings; and the booklet *Careers that Count*, describing women in math-related careers.

The San Diego Meetings

The AWM program at San Diego was probably the most ambitious, inspiring and successful we have ever produced. Thanks to Dawn Wheeler, AWM Director of Meetings, to volunteers Bettye Anne Case, Ruth Charney, Carolyn Gordon and Catherine Roberts, and also to the AMS for its help in scheduling. Linda Rothschild gave the Noether lecture, "How do real manifolds live in complex space?" The Louise Hay Award for Contributions to Mathematics Education was presented to Marilyn Burns. In a later issue we will report on the two panel discussions "What It Takes to Have a Successful Career in the Mathematical Sciences" and "Launching a Career in Mathematics." The crowning achievement was the workshop session held on Saturday with twelve poster presentations, a luncheon and eight postdoctoral speakers. See the article on pages 5–8 for more information.

Farewell to Cathleen

Cathleen Morawetz, the second woman president of the American Mathematical Society, has just

MEMBERSHIP AND NEWSLETTER INFORMATION

Membership dues

Individual: $40
Family (no newsletter): $30
Retired, part-time: $20
Student, unemployed, developing nations: $10
Contributing: $100
All foreign memberships: $8 additional for postage
Dues in excess of $10 and all contributions are deductible from federal taxable income.

Institutional:
- Level 1 (one free basic job ad 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 (one free basic job ad and up to three student memberships): $80 ($105 foreign)

Corporate: $150 Affiliate: $250
Friend: $1000 Benefactor: $2500

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).

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 Director of Marketing, 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.* A basic ad is four lines of type. Institutional members receive one free basic job ad as a privilege of membership. For non-members, the rate is $60 for a basic ad. 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 material for book review and education columns** to Anne Leggett, Department of Mathematical and Computer 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@calvin.math.vt.edu and for the **education column** to Sally I. Lipsey, 70 E. 10th Street, #3A, New York, NY 10003-5106. 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.

completed her term and is now the AMS Past-President. Those of us who worked with her in the Council and on the AMS Policy Committees have appreciated her efficiency, her wisdom and her assistance. Her retiring address in San Diego, "Mathematics to the rescue: Some personal recollections," was full of delightful stories and interesting mathematics. Here are a few of her remarks at the AMS banquet in San Diego:

> I'm old enough to be a grandmother to some of you!... I'm grateful to be a mathematician.... Every mathematician should belong to one of the professional societies of mathematicians. It's your profession — take care of it!

Reception at the AWM Office

An informal reception was held December 9, 1996, in the AWM offices at the University of Maryland to introduce the soon-to-be AWM President and the new AWM Executive Director, Lesley Francis, to AWM supporters and friends in the area. Representatives from the American Mathematical Society, the Mathematical Association of America, the National Security Agency, and the National Science Foundation attended, as well as several faculty members and graduate students from the University of Maryland and neighboring institutions. See pages 26–27 for photos from this event.

Conference Board of Mathematical Sciences Council and Education Partnership Meeting

The CBMS is an umbrella organization which represents thirteen professional organizations of mathematical scientists and educators, including, for example, the American Mathematical Society and the National Council of Supervisors of Mathematics. In fact about half of the presidents and executive directors of these organizations are women right now, and so about half of the people at the meeting, held December 8–9, 1996 in Washington DC, were women. Lesley Francis and Sylvia Wiegand attended on behalf of AWM. Judy Green was AWM's representative to the meeting of the CBMS Educational Partnership held December 7–8.

The aim of the meeting of the Educational Partnership was to implement recommendations and ideas for action formulated at its last meeting in May 1996. By the end of the meeting working groups had planned grant proposals relating to three topics: holding mathematical competitions, providing career information, and providing a forum in all sectors of the mathematical community where controversial issues could be discussed. In addition, it was noted that each of these projects would somehow incorporate outreach to the general public. It was recommended that a fourth issue discussed in a working group, teacher enhancement, become the focus of a later CBMS meeting concerning the encouragement of dialogue across the various segments of the mathematical community.

William Schmidt of Michigan State University reported on the Third International Mathematics and Science Study, an international mathematics test given to 13- and 14-year-olds. His explanation for the poor U.S. performance was that the content of the test was geared more to what is taught in some of the other countries (algebra and geometry) than what is typically taught to that age group in the U.S. (beginning algebra). He also suggested that U.S. teachers may spread themselves and the material too thin; U.S. textbooks are far thicker than those used in other countries and teachers are typically expected to cover everything.

Donald Rung reported on the 1995 CBMS survey on faculty, students, and employment in colleges and mathematics. One of the interesting statistics was that students at four-year schools are now 55 percent female; as a result calculus classes have lower attendance, because women are less likely to take it. The percentage of minority students has increased also, and they appear to take less mathematics than other students.

Don Lewis, the director of the mathematics program at the National Science Foundation, spoke on the trends for funding there. At present interdisciplinary proposals, mathematical biology and computer science proposals are being encouraged. In particular, three new initiatives were described: 1) learning and intelligence systems (how the human mind works, artificial systems); 2) knowledge and networking; and 3) new challenges for computation.

AWM/ONR Workshop at SIAM

Suzanne Lenhart, University of Tennessee, is the organizer of the AWM/ONR Workshop to be held at the SIAM annual meetings at Stanford in July. Three mini-symposia organized by Lenhart, Joyce McLaughlin (RPI), and Margaret Wright (Bell Labs) will be held on modeling, PDE's and their applications, and optimization, respectively.

AWM Plans for Atlanta 1997 Mathfest

The Mathematical Association of America (MAA) is sponsoring a Mathfest in Atlanta, August 1–4, 1997, and AWM has been invited to participate. Teresa Edwards of Spelman College will be coordinating the AWM presence in Atlanta. Suzanne Lenhart of the University of Tennessee at Knoxville will give a joint AWM/MAA invited address. Teresa hopes to arrange an AWM breakfast or lunch at the meeting.

AWM Schedule of Activities

July 1997: AWM workshop at the SIAM meeting

August 1997: Atlanta Mathfest (AWM lecture and meeting)

January 1998: Baltimore, MD joint meetings; AWM features: Noether Lecture and dinner, Workshop, panel/roundtable discussions, Schafer Prize, Hay Prize

July 1998: AWM workshop at the SIAM meeting

August 1998: International Congress in Berlin (possible Noether lecture)

January 1999: San Antonio, TX joint meetings

July 1999: AWM workshop at the SIAM meeting

July 1999: AWM workshop and celebration of women in mathematics proposed

January 2000: Washington, DC joint meetings

Websites of Interest

AWM: http://www.math.neu.edu/awm_folder/awm.html; the inverse symbolic calculator: http://www.cecm.sfu.ca/projects/ISC/ISC.html; integrals on the Web: http://www.integrals.com; mapquest: http://www.mapquest.com; International Mathematical Union: http://elib.zib-berlin.de/IMU; "WHO's online (mathematicians)," a directory of home pages for mathematicians: http://www.math.psu.edu/WHO/math.html; the Women in math project of Marie Vitulli: http://darkwing.uoregon.edu/~vitulli; Women of Achievement and HerStory Index: http://www.imageworld.com:80/vsp/istuber, then click on the day you want to view to see a short bio on a woman of achievement who was born that day; the American Mathematical Society: http://www.ams.org; the Mathematical Association of America: http://www.maa.org; the Canadian Mathematical Society: http://camel.math.ca or http://www.math.ca; the Canadian Mathematical Society page on women: http://camel.math.ca/Women.

Please send in others! I know there are many more.

Sylvia

Sylvia Wiegand
January 24, 1997
Lincoln, NE

AWM IN SAN DIEGO

1997 Noether Lecturer

"How do real manifolds live in complex space?" was presented by Linda Preiss Rothschild, University of California, San Diego. The subject of the talk was the local classification of real submanifolds of C^n, $n > 1$, under local biholomorphic mappings. Recent results on the description of the set of holomorphic mappings between such manifolds were given.

Linda Preiss Rothschild was born in 1945 and grew up in the apartment above her parents' fur store in Philadelphia, PA. She received her B.A. from the University of Pennsylvania in 1966 and left Philadelphia for Cambridge, MA to attend graduate school at the Massachusetts Institute of Technology, where she received her Ph.D. in 1970. After finishing her Ph.D. she was an assistant professor at Tufts University and a member of the research staff of the Laboratory for Artificial Intelligence at MIT. Subsequently, she held visiting positions at Columbia University, Princeton University, and the Institute for Advanced Studies, before joining the faculty of the University of Wisconsin, Madison as associate professor in 1976. She was promoted there to full professor in 1979 and has been Professor of Mathematics at the University of California, San Diego since 1983.

After her thesis work on Lie groups, Rothschild explored new directions, including writing algorithms for factoring polynomials over the integers. Subsequently, she returned to the study of analysis on Lie groups, which led to solutions of problems in partial differential equations and harmonic analysis. Her main research interest in the last ten years has been in the analytic and geometric aspects of several complex variables.

Rothschild was awarded an Alfred P. Sloan Fellowship in 1976. She served as President of the Association for Women in Mathematics during 1983–1985 and as Vice-President of the American Mathematical Society during 1985–1987. She presented AMS Invited Addresses at the Joint Mathematics Meetings in Pittsburgh (August 1981) and in Orlando (January 1996). She served on the editorial committees of the *Transactions of the AMS* and *Contemporary Mathematics*. She is also an editorial board member of *Communications in Partial Differential Equations* and co-founder and managing editor of *Mathematical Research Letters*. She has served on many professional committees, including several AMS committees, National Science Foundation panels, and an organizing committee for the Special Year in Several Complex Variables at the Mathematical Sciences Research Institute.

In her Noether Lecture, Rothschild discusses the problem of holomorphic equivalence of real submanifolds in complex space. This problem has a long history beginning with the work of Poincaré early in this century and has led to a number of fundamental discoveries using analytic and geometric tools. Her lecture reviews recent progress on this problem, including her recent work.

Rothschild has a keen interest in encouraging young women who want to study mathematics. A few years ago she helped establish a scholarship for unusually talented junior high school girls to accelerate their mathematical training by participating in a summer program. She says: "When I was growing up, the best public high school in Philadelphia accepted only boys. When I applied to graduate school, I received a rejection from Princeton on the grounds that the university accepted only men. Times have changed, and I am always delighted to see brilliant, confident young women mathematicians such as those I met at the Julia Robinson Celebration of Women in Mathematics Conference (July 1996) that was organized by the AWM."

Outside of mathematics, Rothschild has raised two sons. She enjoys long walks with her husband, Salah Baouendi, on the beaches of La Jolla, but they often cannot resist talking about mathematics.

1997 Hay Award

In 1990, the Executive Committee of the Association for Women in Mathematics established the annual Louise Hay Award for Contributions to Mathematics Education. The purpose of this award is to recognize outstanding achievements in any area of mathematics education, to be interpreted in the broadest possible sense. 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.

Citation: Marilyn Burns

AWM is pleased to present the Seventh Annual Louise Hay Award to Marilyn Burns, Marilyn Burns Education Associates.

Marilyn Burns has been a seminal figure in the professional lives of elementary teachers for many years. As a classroom teacher, she developed a humane, child-centered, practical approach to teaching mathematics that honored children's native intelligence and also was rooted in a deep understanding of what mathematics is about. Her books, workshops, videos, and newsletter have reached many thousands of teachers across the country and are valuable introductions to teaching mathematics to children. She created the MATH SOLUTIONS inservice courses attended by more than 45,000 teachers and administrators; produced a series of replacement units, offering an alternative to traditional textbook instruction; brought her message directly to children as the author of 12 books for children, including the best-selling *The I Hate Mathematics! Book* (translated into German, Japanese and Hebrew); and has reached out to parents with her message.

Her work for children is based on her deep respect for their intelligence, with seriousness of

purpose blending seamlessly into fun. Additionally, her work for teachers sets high standards for mathematical integrity, classroom friendliness, and teacher support. The narrative style she uses for much of her work for teachers, rich with anecdotes from actual classrooms, encourages teachers to identify with the responsive teaching style she champions, dramatizes that telling does not always impart ideas, and allows teachers to question their own effectiveness without feeling ideologically threatened. She has made teachers and other mathematics educators aware of the difference between "teaching mathematics" and "teaching children," and has been a major inspiration for change in the professional lives of individual teachers.

A mathematics educator of enormous scope and influence, Marilyn Burns is the worthy recipient of the 1997 Louise Hay Award for Contributions to Mathematics Education.

Response from Marilyn Burns

It is an extraordinary honor for me to receive the Louise Hay Award for Contributions to Mathematics Education from the Association for Women in Mathematics. My career path has kept me attached primarily to the K–8 educational community, and I am especially touched to be recognized by an organization within the university community that is committed to improving mathematics education at all levels.

After receiving my undergraduate degree, my first teaching assignment was in a junior high school teaching algebra to ninth-graders. I thought I was truly branching out in my second year when I also taught several eighth-grade classes. After six years, however, I became curious about how younger students thought about mathematics. I visited a friend's third-grade class and was hooked. The social turbulence of my junior high classes was missing, the eagerness of the children was wonderful, and their ideas about mathematics fascinated me.

I continued to teach occasional lessons, and was pushed by the students' responses to change much of my thinking. Dr. Robert B. Davis, my undergraduate advisor at Syracuse University to whom I'm deeply grateful for shaping the direction of my career, had opened my eyes to focus on students' thinking, not only on my teaching. Putting this into practice with elementary students grabbed my attention and has kept it for the past 30 years.

I broadened my focus and became interested in how elementary teachers think about mathematics and how to teach it. I then became convinced that we cannot teach what we don't understand, and that we cannot teach well what we don't love. Most elementary teachers, especially those at the younger grades, are women. A large part of them have not yet had the opportunity to develop an interest in or an appreciation of mathematics. However, they share the bulk of the responsibility for shaping children's formative understandings about and attitudes toward mathematics.

It's a challenge for the K–12 and university communities to work together to inspire all teachers responsible for teaching mathematics to understand it more deeply, recognize its beauty, and be inspired to engage their students' interest in learning mathematics. Receiving this award has renewed for me the importance of this challenge.

Thank you to AWM for presenting me with this award, and thank you to Judith Roitman (University of Kansas) and Diane Resek (San Francisco State University) for nominating me. I am very grateful.

AWM-ONR Workshop

The AWM Workshop sponsored by ONR was a full-day event on Saturday, January 11 in San Diego. The workshop provides the participants with the opportunity to present and discuss research and to meet with other women mathematicians at all stages of their careers. A panel on "Launching a Career in Mathematics" was held. A Workshop dinner and discussion group for participants were held on Thursday, January 9.

The postdocs and their talks were:

Beth L. Chance, University of the Pacific
"General Theory of Hierarchical Model Behavior"

Weiqing Gu, Harvey Mudd College
"The Stable 4-dimensional Geometry of the Real Grassmann Manifolds"

Elizabeth G. Jurisich, University of Chicago
"A Decomposition Theorem for the Monster Lie Algebra"

Chikako Mese, University of Southern California
"Minimal Surfaces and Conformal Mappings in Singular Spaces"

Dorina I. Mitrea, University of Missouri, Columbia
"Boundary Value Problems for Differential Forms on Domains with Rough Boundaries"

Perla L. Myers, University of California, Santa Cruz
"Random Walks on the Finite Torus"

Gretchen Ostheimer, Tufts University
"Algorithms for Polycyclic Groups"

Tracy Lin Payne, Washington University, St. Louis
"Invariant Submanifolds for Geodesic Flows for Manifolds with Nonpositive Curvature"

The graduate students and their poster presentations were:

Sarah-Marie Belcastro, University of Michigan
"Mirroring Families of K3 Surfaces"

Carol E. Fan, University of Michigan
"Injectivity Radius Bounds in Hyperbolic Convex Cores"

Stephanie A. Fitchett, University of Nebraska, Lincoln
"Fat Points Ideals and Blow-Ups of the Projective Plane"

Sabrina A. Hessinger, North Carolina State University
"Computing the Galois Group of an Order Four Linear Differential Equation"

Michelle Diann Homp, University of Nebraska, Lincoln
"A Degenerate Parabolic Equation with Evolutionary Boundary Conditions"

Annela Rammer Kelly, University of Missouri, Columbia
"Vector-Valued Measures"

Jean Beth Mastrangeli, Bryn Mawr College
"Symplectic Packings of the Cotangent Bundle of the Torus"

Jennifer L. Mueller, University of Nebraska, Lincoln
"A Parameter Recovery Problem on the Real Line"

Mary R. Sandoval, University of Michigan
"Spectral Asymptotics and Spectral Asymmetry for Systems of Differential Operators"

Zsuzsanna Szaniszlo, University of Nebraska, University of South Dakota
"A Generalization of Bolloba's Inequality"

Tamara B. Veenstra, Dartmouth College
"Siegel Modular Forms: Results on Satake Parameters"

Rebecca G. Wahl, Purdue University
"Composition Operators with Multivalent Symbol"

Executive Committee Actions

At the Joint Meetings in San Diego, members of the Executive Committee took several actions of interest to AWM members.

Rather than sending letters to departments advertising one-year positions as we have done the past few years, we will send a letter to all mathematics departments explaining our opposition to the overuse and abuse of temporary or non-tenure-track positions.

We discussed various ways to increase membership in AWM. Two new categories of membership were created: Benefactor ($2500; name to be listed in each issue of the AWM *Newsletter* for one year) and Friend ($1000; one free quarter-page ad and one listing in the AWM *Newsletter*).

The committee endorsed on AWM's behalf the joint 1940 "Statement of Principles on Academic Freedom and Tenure" of the American Association of University Professors (AAUP). As a consequence AWM will be added to the list of 155 official endorsers that already includes the MAA, the AMS, the New York State Mathematics Association of Two-Year Colleges, and the ASA.

The need for increased fundraising for AWM was of paramount concern to the Executive Committee, which invites AWM members to suggest ways to obtain greater financial support from the larger community of persons interested in the advancement of women in the mathematical sciences.

Lesley Lee Francis, Ph.D., AWM Executive Director

AWARDS AND HONORS

CONGRATULATIONS to the women listed below for their meritorious achievements.

OL'GA GEORGIEVNA KHARLAMPOVICH delivered the Kriger-Nelson Prize Lecture on "Equations in nearly free groups" at the Summer Meeting of the Canadian Mathematical Society at the University of Calgary, June 9, 1996.

DEBORAH TEPPER HAIMO, University of California at San Diego, received the Yueh-Gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics at the Joint Meetings in San Diego. First awarded in 1990, the Gung-Hu Award is the Mathematical Association of America's most prestigious award, given in recognition of distinguished service to the mathematics community. The citation notes:

> From her early days at Radcliffe Deborah Tepper Haimo has had a love affair with mathematics. Her dedication to the Mathematical Association of America (MAA) began soon after Frank and Deborah Haimo's marriage when they both joined the Association. It culminated in her becoming president of the MAA in 1992. All presidents of the MAA are called upon to provide a heavy service effort. But Professor Haimo has gone beyond the normal presidential service by her reorganization of the cumbersome MAA committee structure, by her personal devotion to obtaining the recognition of outstanding teaching in each MAA Section of the country, by creating the national awards bearing the name of her late husband and herself, and by encouraging the participation of women in mathematics at every level and in the Association.
>
> As a woman mathematician, Professor Haimo has not only been a role model for female students, but has written and spoken energetically about the need to give young women the opportunity to study mathematics to the limit of their abilities. Professor Haimo's dedication to excellence in teaching is clear in her own well-honed lessons and in her innovative, applications-oriented teacher enhancement for high school teachers of mathematics. At the same time, she has never abandoned her role as a research mathematician, having published over 45 papers. [Deborah Tepper Haimo] served as a trustee of Radcliffe College between 1975 and 1981 and has just completed her tenure as a member of the Board of Overseers of Harvard University. She currently holds an appointment at the University of California, San Diego, where she lives right near the ocean that she dearly loves. For her past contributions and in anticipation of further achievements in the future, the MAA is proud to award Deborah Tepper Haimo its Gung-Hu Award for Distinguished Service to Mathematics.

JUDITH SUSAN DOWNES received a Bernhard H. Neumann Award for Excellence in Mathematics Enrichment at a special dinner in Melbourne on December 8, 1996.

T. CHRISTINE STEVENS, Saint Louis University, received one of three Deborah and Franklin Tepper Haimo Awards for Distinguished College or University Teaching of Mathematics given by the MAA at the Joint Meetings in San Diego. Her citation notes:

> Professor Stevens' tireless devotion to excellence in teaching has not only been a profound catalyst for many teaching improvements in her department, but has positively influenced mathematics teaching at the regional and national levels. Perhaps the greatest impact on our profession will be felt because of her work as co-director of MAA's Project NExT (New Experiences in Teaching), a series of workshops and related events for new and recent mathematics Ph.D.'s that address issues in undergraduate mathematics education and assist them in their new professional roles as teachers. T. Christine is Associate Professor and Chair of the Department of Mathematics and Computer Science at Saint Louis University.

LAURA L. KELLEHER, along with her colleague Frank P. Battles at the Massachusetts Maritime Academy, received Certificates of Meritorious Service from the MAA at the Joint Meetings in San Diego for their work in the Northeastern Section of the MAA.

NSF Graduate Fellowships have been awarded to the following (name, undergraduate institution in parentheses, intended graduate institution): ELIZABETH CAROL AYER (Duke University), Cornell University; RUTH ALEXANDRA BRITTO-PACUMIO (MIT), Harvard University; MARY PATRICIA CAMPBELL (North Carolina State University), MIT; DAWN MARIE CHAMBERLAIN (MIT), Cornell University; AMY KRISTINE DARKE (University of Washington), University of Washington; MARINA A. EPELMAN (Cornell University), MIT; WUNG-KUM FONG (UC Berkeley), MIT; JESSICA LYNN MILLAR (University of Illinois at Chicago), Harvard University; JENNIFER SUN (Harvard University), MIT; and JESSICA A. WACHTER (Harvard University), MIT.

MONICA MARIA ROMEO, an undergraduate from Tulane University, plans to attend Brown University with her NSF Minority Graduate Fellowship.

DORIS SCHATTSCHNEIDER, Moravian College, delivered the USAMO Address "Some geometric challenges" at a U.S. Department of State reception held June 3, 1996 for winners of the twenty-fifth USA Mathematical Olympiad.

In December 1996, sixty young scientists were invited to the White House to receive Presidential Early Career Awards for Scientists and Engineers (PECASE). ANDREA BERTOZZI (Navy), Duke University, was one of them.

The new awards recognize demonstrated excellence and promise of future success in scientific or engineering research, and the potential for eventual leadership in their respective fields. The candidates are nominated by agencies across the federal government that make young investigator awards, and recipients receive up to $500,000 over a five-year period to further their research.

"From the ranks of these outstanding young researchers will come tomorrow's leaders in science and technology, our university faculties and our Nobel laureates," said John H. Gibbons, Assistant to the President for Science and Technology. "The talents of these young professionals will create the world of the 21st century."

Bertozzi received her Ph.D. from Princeton in 1991. She then went to the University of Chicago as a Dickson Instructor and an NSF post-doctoral fellow. Early in 1995, she was offered a tenured position at Duke. Bertozzi has won an Office of Naval Research (ONR) Young Investigator Award ($100,000 a year for three years), which qualified her for the PECASE award.

Bertozzi's research interests include nonlinear partial differential equations, fluid dynamics and interface motion. Part of her research deals with "fingering instabilities" in thin films (which explain the drips that can occur while painting a wall). She describes her work as follows:

> When the interface between two immiscible liquids, or liquid and a gas meet at a solid boundary, the triple juncture, or contact line, plays a strong role in the evolution of the entire liquid/solid interface. When the system is at rest, as in the case of a nonwetting or partial wetting fluid in equilibrium, the local interfacial energies of the three interfaces determine the preferred state of the system via Young's law. However, when the system is not at rest, as in the case of a wetting fluid, energy from the bulk of the fluid dissipates at the contact line, in a fashion that is not very well understood. We study both continuum and particle models for moving contact lines in situations far from equilibrium. By examining the robustness of various models, using rigorous analysis, asymptotic and scaling methods, and high resolution numerical simulations, we can learn more about their validity.

NANCY KOPELL, Boston University, has been elected a Fellow in the Mathematics Section of the American Academy of Arts and Sciences.

Several women were honored by the American Statistical Association at the Joint Statistical Meetings in Chicago on August 6, 1996. PAMELA ABBIT was awarded the 1996 Gertrude M. Cox Scholarship in Statistics. SUSAN SMITH ELLENBERG received a Founders Award. BETTY J. FLEHINGER and KATHRYN M. ROEDER were elected Fellows of the American Statistical Association. ELAINE ZANUTTO was awarded the 1996 E.C. Bryant Scholarship.

LAUREN L. ROSE, an independent mathematician, has been selected as a Fellow for 1996–97 at the Mary Ingraham Bunting Institute of Radcliffe College. Her area of research is algebraic combinatorics of multivariate splines.

JOSEPHINE DIANNE EDWARDS was awarded posthumously a Bernhard H. Neumann Award for Excellence in Mathematics Enrichment by the Australian Mathematics Trust. The award was presented to her family at a Trust dinner in Canberra, April 24, 1996.

Three young women received Karl Menger Memorial Awards from the AMS at the International Science and Engineering Fair, held May 5–11, 1996 in Tucson, AZ. Vanesa Miranda-Diaz, junior, Carmen Belen Veiga High School, Juana Diaz, Puerto Rico, "Sequences of Continued Fractions and Its Relation with Egyptian Fractions" and Lauren Kiyomi Williams, senior, Palos Verdes Peninsula High School, Rolling Hills Estates, CA, "Enumerating N-Step Up-Side Self-Avoiding Walks" received third-place awards. Yvette Karen Wood, senior, Oxon Hill Science and Technology Center, Oxon Hill, MD, received an honorable mention for "Do Cardiac Arrythmias Have Chaotic Tendencies?"

ANNE PENFOLD STREET was awarded the degree of DMath *honoris causa* by the University of Waterloo, Ontario, May 25, 1996.

ELIZABETH ALISON THOMPSON delivered the Jerzy Neyman Lecture of the Institute of Mathematical Statistics at the Joint Statistical Meetings in Chicago, IL, August 7, 1996.

ANNETTE HUBER received a prize for outstanding contributions to mathematics from the European Mathematical Society at the European Mathematical Congress held in Bucharest in July 1996. From the February 1997 AMS *Notices*:

> Huber developed a difficult and important theory, the theory of the derived category of mixed motivic realizations. The theory of motives was discovered by Alexandre Grothendieck in the 1960's. This important topic is still largely conjectural. The definition of mixed motives is one of the central problems of this theory. Annette Huber defines a derived category of the category of mixed realizations defined by Jannsen. She constructs a functor from the category of simplicial varieties to this derived category, whose cohomology objects are precisely the mixed realizations of the variety. She then defines an absolute cohomology theory, over which the usual absolute theories — absolute Hodge-Deligne and continuous étale cohomology — naturally factorize.

KAREN HUNGER PARSHALL, University of Virginia, received a 1996 Guggenheim Fellowship for her work on mathematical culture in the time of J.J. Sylvester. The awards are granted on the basis of unusually distinguished achievement in the past and exceptional promise for the future.

BONNIE RAY, New Jersey Institute of Technology, nonparametric methods for time series analysis with environmental and economic applications, and KAREN SMITH, University of Michigan, interactions of commutative algebra with analysis, geometry and computer science, received Faculty Early Career Development (CAREER) grants form the NSF. Intended to encourage scientists and engineers to integrate their research and education efforts earlier in their careers, the 3–5 year grants range from $70,000 to $300,000.

MAA Section Awards for Distinguished Teaching were given to NANCY BASTER HASTINGS (Eastern Pennsylvania-Delaware Section), PATRICIA LANUSSE JONES (Louisiana-Mississippi Section), T. CHRISTINE STEVENS (Missouri Section), JANET PERRY RAY (Pacific Northwest Section), and KATHERINE ANNE YOSHIWARA (Southern California Section).

THOMASIN SMITH received an A.C. Aitken Prize for the best student paper presented at the New Zealand Mathematics Colloquium held at Massey University, July 3, 1996.

The National Science Foundation has awarded Visiting Professorships for Women (VPW) for fiscal year 1997 to six women working in the mathematical sciences. The following lists their names, home institutions (in parentheses), host institutions, and the titles of their research projects: LYNNE M. BUTLER (Haverford College), Mathematical Sciences Research Institute, Topological insights in combinatorics; ANNE CONDON (University of Wisconsin, Madison), University of Washington, DNA algorithms and approximation algorithms for NP-hard problems; DIANE M. MEUSER (Boston University), Harvard University, Generalized p-adic local zeta functions; KAREN V. PARSHALL (University of Virginia), University of Chicago, Mathematics and its culture through the optic of J.J. Sylvester; LYNNE H. WALLING (University of Colorado), University of California, Berkeley, Theta series and automorphic forms; and CARLA WOFSY (University of New Mexico), University of California, Davis, Mathematical analysis of the early events in cell signaling.

JUDITH V. GRABINER, the Flora Sanburn Pitzer Professor of Mathematics and Professor of Science, Technology & Science at Pitzer College, Claremont, CA, received a Carl B. Allendoerfer Award from the MAA at the Summer Mathfest in Seattle. The Awards are given for articles of expository excellence published in *Mathematics Magazine*. Grabiner's award-winning article was "Descartes and Problem-Solving" [*Mathematics Magazine* 68, 1995, 83–97].

FREDA PORTER-LOCKLEAR received a Speaking Out award from NC Equity for her significant contributions to advance the status of women in North Carolina. Dr. Locklear has worked for more than ten years to build opportunities for women, especially Native American women, in the fields of mathematics, engineering, and other sciences. She has been a role model and highly visible advocate for women and Native Americans within the university community and was instrumental in creating mentoring programs and workshops for girls to encourage and support women entering these fields.

ANNE HUDSON, Armstrong Atlantic State University, was one of four scholars named 1996–97 U.S. Professor of the Year by the Carnegie Foundation for the Advancement of Teaching. The annual awards of $5000 are made on the basis of the overall record of teaching and related service activities.

The AMS has made awards to four undergraduate mathematics majors through the Waldemar J. Trjitzinsky Memorial Fund, which assists needy students in mathematics. Each year the AMS selects by random drawing from institutional members four geographically distributed schools to receive the awards of about $3,750; the mathematics departments at these schools select the students who receive the awards.

This year four talented young women have received the awards. CHRISTINE M. SAFIN, a junior at Murray State University, is majoring in math and is also pursuing certification for secondary-school teaching. ANDREEA NICOARA is one of Stanford University's best undergraduate majors. ALISON PACELLI, a senior at Union College, plans to attend graduate school in mathematics. LORNA RENEE SANDERS, a senior with a 4.00 grade point average at Western Illinois University, expects to graduate in May and to work on a master's degree in mathematics while teaching high school.

CHERYL ELISABETH PRAEGER was elected a Fellow of the Australian Academy of Science, May 2, 1996.

BARBARA BURKE HUBBARD was awarded the 1996 d'Alembert Prize by the Société mathématique de France for her book *Ondes et ondelettes*.

GRACE CHAN was awarded the 1996 P.A.P. Moran Prize by the Australian National University, November 26, 1996.

NICOLE TOMCZAK-JAEGERMANN was elected a Fellow of the Royal Society of Canada in 1996.

MARGI LAU CALDER has received a Ford Foundation Minority Scholarship for graduate study in applied math at UCLA.

JULIA

The top story in the San Diego Section B of the San Diego *Union-Tribune* on Wednesday, January 8, 1997 was "Mathematician + biographer equals sisterhood" by Daniel de Vise. The sisters are Julia Bowman Robinson, the first woman mathematician elected to the National Academy of Sciences, and Constance Bowman Reid, the noted biographer of mathematicians. The Bowman family moved to San Diego when the girls were in their youth; both women attended San Diego High.

Reid's latest book, *Julia: A Life in Mathematics*, tells the story of Robinson's life in the form of an "autobiography" based on an interview conducted just a month before Julia's death. It also contains articles by mathematical colleagues about her work and their personal relationship with her which not only provide a glimpse of her mathematical personality but also illustrate how mathematics is done and how it grows. Royalties from the book will support an annual $500 prize for San Diego High's best math student, male or female.

Your editor was one of many who bought a copy of *Julia* at the reception held at the Joint Meetings in San Diego to celebrate the publication of the book by the MAA; there was quite a crowd of us at the signing table. A highlight of the reception was the appearance of several of Reid's former students from San Diego High, who presented her with, among other things, a copy of the high school newspaper from the time when she was their journalism teacher.

AWM WORKSHOP AT SIAM

AWM plans a workshop from Sunday evening through Tuesday morning of the 1997 Annual Meeting of the Society for Industrial and Applied Mathematics (SIAM). The first event is a dinner banquet on Sunday. The sessions focus on the reporting of research results and the mentoring of graduate students and postdoctoral mathematicians. Our first session is a minisymposium which focuses on skills in written communication involving research papers and grant proposals. Our workshop also has three research minisymposia, a panel discussion on research and funding opportunities, and a poster session. Graduate students and postdoctoral mathematicians have been invited to apply for the workshop. For more information, see the January–February issue of this newsletter, or contact the AWM office at awm@math.umd.edu. The application deadline is **March 1, 1997**.

BOOK REVIEW

Helena M. Pycior, Nancy G. Slack, and Pnina G. Abir-Am, editors, **Creative Couples in the Sciences**, Rutgers University Press, New Brunswick, 1996. xi+369. ISBN 0-8135-2188-2 (paper). $18.95.

Reviewed by: Marge Murray, Book Review Editor, Department of Mathematics, Virginia Tech, Blacksburg, VA 24061-0123; email: murray@calvin.math.vt.edu

It has long been observed that women scientists and mathematicians who marry tend to marry other scientists and mathematicians. In an attempt to reconcile the personal and the professional, women's careers have often been subordinated to their husbands' or to the needs of a household and children. But the historian Margaret Rossiter has observed that in earlier times — particularly in the late nineteenth and early twentieth centuries when women's opportunities in science and mathematics were far more restricted than today — a woman scientist's marriage to a colleague occasionally enhanced her career and enabled her to make more creative contributions than she might otherwise. In fact, the most distinguished American women scientists in the first half of the twentieth century were disproportionately those married to other scientists.

In some cases the woman gained greater access to facilities and communities in science through her connection to her husband. In some cases the wife was able to make contributions because she was accepted as her husband's assistant in research. And in some rare but notable cases, the woman formed a truly collaborative partnership with her husband and together they made major contributions to science for which both were recognized and rewarded.

Creative Couples in the Sciences collects seventeen essays which describe the lives and work of couples who succeeded — along with a few notables who failed — in creating a marital and scientific collaboration that was reasonably satisfying to both partners. Among the editors' criteria for selection of subjects was the requirement that the women and men represented should no longer be living. So it is not surprising that most of the scientists profiled saw their period of greatest scholarly activity in a period spanning the late nineteenth through the middle twentieth century. It is interesting to observe that in spite of this chronological limitation, the struggles and the successes of many of these women seem surprisingly modern. The experiences of these women and men speak very effectively to the current condition of couples in the sciences.

The essays are grouped into five "clusters." The book opens with three couples who stand as "peaks of collaborative success": pairs of married scientists whose collaboration produced Nobel prizes. The first two pairs — Pierre and Marie Curie and Irene and Frederic Joliot-Curie — are clearly linked in a tradition of familial science that can be traced back to Pierre Curie's upbringing. For Pierre Curie's family, science was a collective activity interwoven into daily life. The seamless scientific and domestic collaboration which he achieved with Marie Sklodowska was in some ways a natural extension of the milieu in which he grew up. This seamless web of domestic and scientific endeavor continued into the next generation (the Joliot-Curies) and beyond.

Many other couples discussed in this volume aspired to the sort of marital collaboration that the Curies achieved. But their remarkable complementarity and equality eluded many other couples, particularly when the husband had himself been raised in a family where the gender roles were delineated along more traditional lines. In fact, this book is replete with stories of well-intentioned couples who ultimately could not fully transcend the gender patterns they saw in childhood, and who, despite idealistic ambitions to the contrary, found themselves trapped in patriarchal traditions.

There are success stories, however. The story of Carl and Gerty Cori, the third Nobel-prizewinning couple, though filled with institutional setbacks for Gerty, is that of a partnership of mutual respect and affection and ultimate triumph over social barriers to equality. Their collaboration, which included mutual mentoring of students and the creation of a warm and welcoming community of biological chemists at Washington University in St. Louis, was marked by a strong synergy in which what they were able to accomplish together was clearly greater and more lasting than what either of them would have done separately. Yet at the same time, both Carl and Gerty Cori received credit and recognition for their separate accomplishments and for their contributions to joint work.

The couples described in the second and third clusters in the book exhibit a variety of collaborative strategies and a range of experiences and outcomes. The second cluster consists of those couples in which one partner, usually the husband, was in a

dominant role — perhaps as tutor or teacher — in relation to the wife at the time of their meeting. In some cases the wife came to surpass the husband in her attainments over the course of the marriage; but often the wife remained subordinate, often becoming an indispensible research assistant. In a few cases the wife would never have pursued an interest in science had it not been for the encouragement of the husband.

The most interesting story in the second cluster, especially for historians of mathematics, is the tale of Grace Chisholm and William Henry Young, told by AWM president Sylvia Wiegand (their granddaughter). In this unusual collaboration, Will Young began as tutor to Grace Chisholm at Girton College, but over the years it was Grace and not Will who eventually completed the Ph.D. in mathematics. Despite her greater educational attainments, the Youngs decided as a couple that Will's career would have primacy; and Will spent much of his life as an itinerant academic, never landing a fully satisfactory teaching post.

Together and separately they pursued mathematical research, but in the early years of their collaboration, any work that was done jointly was signed (by mutual agreement) by Will only. The rationale behind this decision was that giving Will full credit for their early mathematical work would improve his chances of attaining the permanent university position he desired. All the evidence from both the Youngs' correspondence and contemporary accounts of their arrangement seems to suggest that this strategy was acceptable to both Grace and Will — difficult as this might be for a late twentieth-century mathematician, accustomed to an ethic of proper attribution, to believe. And as time went by, Grace did resume the habit of publishing joint as well as separate work in her own name. It has been a puzzle for historians to determine, however, which of the many results which bear the name "Young" should be attributed to Will, which to Grace, and which to both of them. Among many of the other couples detailed in this volume, decisions about attribution were not nearly so gracious, and the inadequately-credited wife suffered in silence, whether by choice or by circumstances.

The couples in the third cluster are described as spanning "a spectrum of mutually-supportive couples," and it is here that some of the most heartening tales of marital collaboration, cooperation, support and encouragement can be found. While none of the couples described here made Nobel-prizewinning contributions, there are inspiring tales of husband-wife pairings in which the partners took turns having the dominant career in the family.

The couples of the fourth cluster are the most disheartening: these are "couples devolving from creative potential to dissonance." Partnerships which began with the ideal of equality and professional collaboration gave way to bitterness, resentment, and in some cases hideous inequality and divorce. Here there are stories of ideals and ambitions gone frighteningly awry: cautionary tales for any couple embarking on a dream of shared creative work.

The fifth and final cluster of essays is devoted to marital collaborations grouped by discipline. These densely-packed essays, devoted to couples in botany/ecology, astronomy, and social science, present stories of marital partnerships that run the gamut from the idyllic to the ruinous.

Taken together, the accounts of marital creativity and discord assembled here illustrate the wide variety of ways in which married couples over the past century or so have tried and failed to realize an ideal of emotional, intellectual, domestic, and sexual partnership. Their successes and failures illustrate the complex roles played by social pressure, institutional prejudice, human frailty, human courage, and sheer luck and pluck in the achievement of creative communion. I highly recommend this book to anyone, male or female, who is building or contemplating a life-partnership of body, mind, and spirit.

QUERY

An AWM member would like to hear from other women who have fought tenure battles at liberal arts colleges, or to learn of any statistics on the number of women that come up for tenure and are then denied either at liberal arts schools or other institutions over the past ten years or so.

Please send replies to me (your editor, Anne Leggett) at leggett@math.luc.edu or Department of Mathematical and Computer Sciences, Loyola University, 6525 N. Sheridan Rd., Chicago, IL 60626. I will forward them to her.

NCTM STANDARDS REVISITED

In 1989, the National Council of Teachers of Mathematics came out with the first volume of its *Standards*, the *Curriculum and Evaluation Standards*. The *Professional Standards* came out in 1991, and the *Assessment Standards* came out in 1995.

The NCTM *Standards* were the first wave of a movement (standards-based education) to try to delineate nationally what American K–12 education should be. There was great political momentum behind standards-based education, so much so that Congress and the presidency were officially behind it. In other fields standards were developed by official quasi-governmental agencies (for example, one of the three competing sets of science standards comes from the National Science Board). Mathematics is the only field where the only national set of standards comes from a professional organization most of whose members are teachers.

Because of the national context of standards-based education in which they appeared, the NCTM *Standards* were taken very seriously. Nearly every new textbook series claims that it has been revised in accordance with the NCTM *Standards*. Many state frameworks either refer explicitly to the NCTM *Standards* or are consciously based on one or another interpretation of them. Many practical articles for teachers begin by quoting one or another phrase in the *Standards*, as if performing biblical exegesis. And arguments about what mathematics education should be often present themselves as arguments for or against the *Standards*.

Nothing is perfect, and the NCTM is currently revising its *Standards*. This will be quite a long process — the timetable is about three years. The first time around the NCTM requested (and received) endorsements of its *Standards* from a long list of professional organizations in mathematics and in education. This time it is actively involving those organizations in the rewriting process through affiliated resource groups (known as ARGs), which are committees appointed by the presidents of those organizations. ARGs are to be involved as advisors throughout the process, responding to formative questions and to successive drafts. AWM's ARG consists of Susan Addington, Doris Fischer-Colbrie, Deborah Tepper Haimo, Genevieve Knight, and Judy Roitman (chair). The committee was deliberately chosen to include people perceived as being on both sides of the pro-reform/anti-reform mathematics education debate. What has been quite interesting is how much, in fact, we agree on what should be done in the schools.

Our first report to the NCTM was sent in mid-January. Anyone interested in our work is invited to contact me. I prefer email: roitman@math.ukans.edu. If you would like to contact the NCTM revision team directly, the chair of the NCTM Commission on the Future of the Standards is Mary Lindquist; the writing teams are being coordinated by Joan Ferrini-Mundy and Danny Goroff. NCTM's email address is nctm@nctm.org.

Judy Roitman, University of Kansas

AWM MATHEMATICS EDUCATION COMMITTEE

At the Orlando Joint Mathematics Meetings in January, 1996, then-President Chuu-Lian Terng appointed the AWM Mathematics Education Committee with members Joan Ferrini-Mundy, Naomi Fisher, Judy Green, Pao-sheng Hsu (chair), Judy Roitman, Kay Smith, Sylvia Wiegand and Carol Tascione. The committee has written a charge statement which has been approved by the Executive Committee.

The Committee shall:

- provide a forum for an informed discussion of topics on women in mathematics education;
- inform and make recommendations to the President and the Executive Committee on matters relating to the cultivation, advancement and support of participation of women in mathematics education;
- promote the mathematical education of girls and women;
- identify areas in which the Association may develop activities to serve the needs of women in mathematics education;
- articulate concerns from the perspectives of women on issues related to mathematics

education and disseminate information on gender issues in the mathematics classroom;

- encourage cross-professional communications and cooperation in working towards the improvement of education in mathematics at all levels;
- establish contact with committees with a specific interest in women in mathematics education of other organizations.

One of the activities of the committee will be to propose projects in mathematics education.

Sylvia Wiegand is now off the committee and will appoint a new chair; the new executive director Lesley Francis will replace Carol Tascione.

The committee would be grateful if members of the Association with issues related to the charge of the committee which she/he would like to bring to its attention were to contact one of its members.

EMAIL EYH CONFERENCES

The Math/Science Network announces an expansion of their successful Expanding Your Horizons conferences designed to encourage young women to beat the critical career filter by enrolling in more high school math and science courses.

Under the new program, participating workshop leaders may extend their single-day contact with conference attendees by using electronic mail [email] at schools or homes to address girls' questions and concerns on an ongoing basis.

The email interaction builds on the success of the annual Expanding Your Horizons (EYH) conferences sponsored by the Math/Science Network. Working with dozens of community groups throughout the nation, the Math/Science Network, located on the campus of Mills College in Oakland, CA, brings EYH activities to approximately 130 sites and 40,000 girls between fifth and twelfth grades each year.

As a result of the Network's outreach to minority communities, today 32% of all participating students are from diverse ethnic groups.

These conferences, ongoing for the past twenty-one years in over forty states, include hands-on workshops where women actively engaged in science, engineering or math-based careers engage participants in science or math-related projects. Many conferences include career fairs and special sessions for parents and teachers as well as students.

Over the years, several pre-eminent U.S. women of science have spoken at EYH conferences, including Sally Ride and other female astronauts, and Arlene Blum who led the all-woman expedition to climb Annapurna.

EYH conferences are locally coordinated by volunteers on a shoestring budget. They are designed to take advantage of each community's own resources and to meet each community's own needs. Examples of local groups helping to organize individual conferences include New Jersey Girl Scouts Council, New Mexico Network for Women in Science and Engineering, Colorado School of Mines, Lawrence Livermore National Laboratory and the Idaho State Department of Education.

A typical conference is held on a Saturday at a college campus. Attendance varies from fifty to over twelve hundred, with many sites turning away girls due to lack of space. The day's agenda may start with a keynote speaker who encourages the young women to explore new career ideas, to understand the importance of math and science education, and to keep their options open.

The Math/Science Network is a non-profit organization supported primarily by membership dues. For more information contact the Math/Science Network, Mills College, 5000 MacArthur Blvd., Oakland, CA 94613; (510) 430-2222.

PROJECT NEXT: NEW EXPERIENCES IN TEACHING

Current efforts to enhance the teaching of undergraduate mathematics present unique opportunities, as well as special challenges, to those just entering the profession. Project NExT (New Experiences in Teaching) seeks to provide not only an overview of current issues in the teaching and learning of undergraduate mathematics, but also to build a network of peers and more experienced mathematicians to provide advice and on-going professional support. Sponsored by the Mathematical Association of America (MAA), with support from the Exxon

Education Foundation, Project NExT is now in the middle of its third year. So far, a total of 214 new Ph.D.'s have been chosen as Project NExT Fellows.

Participation in Project NExT is a full-year commitment on the part of the individual Fellows and their home institutions. The institution employing the Fellow must agree to provide support for the Fellow to attend three national meetings. The current (third) group of Fellows began their year in the program with a workshop in Seattle on August 7–9, 1996. They are attending the Joint Mathematics Meetings in San Diego in January, 1997 and will attend the MAA summer Mathfest in Atlanta, Georgia, in August, 1997. Although institutions seem to be quite willing to provide both the financial and professional support that the Fellows require, limited funds are available for Fellows whose institutions are unable to offer full support.

In addition to addressing many issues in undergraduate mathematics education, the program of the summer workshop for Fellows (and the activities during the summer meetings) are designed to bring the Fellows together as a community. Building on that summer experience, the MAA has established a special electronic network for the Fellows and selected "consultants" from the mathematics profession. That network is quite active in discussing issues of teaching and learning and provides an ongoing resource for support. Topics discussed on the list formed the basis for sessions organized by the Fellows in San Diego. The variety of the Fellows' institutions and teaching assignments is reflected in these discussions. The comments of the more experienced mathematicians who have joined the network provide a resource for these new Fellows that reaches beyond their home schools.

The deadline for applications to participate in Project NExT in 1997–98 is **April 25, 1997**. Application forms are available on the Project NExT home page (http://archives.math.utk.edu/projnext/) or from James R.C. Leitzel at the address given below.

For further information contact either of the project co-directors: James R.C. Leitzel, Department of Mathematics, University of New Hampshire, Kingsbury Hall, 33 College Road, Durham, NH 03824; phone: 603-862-4546; email: jrcl@christa.unh.edu or T. Christine Stevens, Department of Mathematics and Computer Science, Saint Louis University, 221 North Grand Boulevard, Saint Louis, MO 63103; phone: 314-977-2444; email: stevensc@slu.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.

EDUCATION COLUMN

Computer Applications for the Classroom

On October 25–26, 1996, I attended the 12th annual Eastern Small College Computing Conference (ESCCC) at Marywood College, Scranton, PA. The focus of these annual conferences is on promoting an exchange of information among college personnel concerned with the use of computers and on increasing the implementation and effective use of technology in the academic environment. The conferences provide opportunities for educators to view new technologies, increase their knowledge about existing technologies, and share their successes. I would like to share with you some of the strategies and innovative ideas I obtained from several mathematics and computer science sessions at the last conference.

In his paper "Teaching Simulation in the Setting of a Mathematics Modeling Course," David Nelson described several real-world simulation projects assigned to students in his course "Applied Mathematics and Modeling" at Muhlenberg College. An example I found both practical and interesting, the "salmon population project," studies the long-range effect of the interaction between the glowfish and the salmon populations in a certain lake. The students work in groups of three designing and implementing a computer program to determine the optimal initial stock of salmon for a steady supply of fish over the next twenty years based on several assumptions, including the initial number of glowfish in the lake, the growing or declining rate of glowfish population with or without salmon in the lake, the growth rate of salmon when the supply of glowfish is abundant and when the supply is reduced, etc. For me, this will be a very nice project for my "Computational Mathematics" course where we use MAPLE software to explore some real-world applications.

"Quantifying Ethical Decisions Using Bayes' Rule and Sensitivity Analysis," a paper given by Robin Snyder of Shenandoah University, provided an excellent introduction to probability; and, from a spreadsheet perspective, the idea of using charts to display a function for analysis purposes; and, from an ethical perspective, an answer to the question "Why should a business keep confidential the results of tests that may have stigmas attached to them?" Using Bayes' theorem and a spreadsheet, Snyder studied how the probability that a person has cancer (given that the person tests positive) varies in relation to the accuracy of the test. His result showed that the probability diminishes much faster than the declining rate of the accuracy of the test. Snyder concluded that the results of positive tests should be kept confidential for both legal and ethical reasons, since many people who might have access to them are not able to evaluate the results professionally.

Having always been interested in fractals and fractal images, I found the paper "Using Parallel String Rewriting Systems to Generate Fractal Images" by Jack Ryder of Kean College very fascinating. Parallel string rewriting systems consist of a finite set of symbols (called the alphabet), a system of rewriting rules (called the grammar), and an axiom (a string of alphabetic symbols, or word). The repetitive nature of fractal images is typically captured with an iterated function system. Parallel string rewriting provides an alternative approach to fractal image creation if we tie each symbol of the grammar to a specific "turtle" graphic movement. For example, "F" can be used to instruct the turtle to go forward and "+" to turn right. Ryder's paper presented several fractal images generated by L-system software written by Professor Narendra Goel of Wayne State University and Ivan Rosehnal, a former graduate student at Binghamton University.

I also enjoyed presenting "Explorations in Discrete Mathematics with MAPLE," which showed how to solve the "Instant Insanity" problem with the aid of a MAPLE package on graph theory and combinatorics. I hope to use ideas obtained at the conference to convince my students that there are many exciting places on the mathematical frontier where mathematicians can experiment and play with creative and imaginative ideas.

The thirteenth annual ESCCC will be held October 24–25, 1997, at the Richard Stockton College of New Jersey. For information, contact Dr. Elizabeth S. Adams, adamse@pollux.stockton.edu.

by Suda Kunyosying, Shepherd College
Column Editor: Sally I. Lipsey, 70 E. 10th Street, #3A, New York, NY 10003-5106

NSF WORKSHOP

"Teaching Undergraduate Geometry" is an NSF Undergraduate Faculty Enhancement Workshop to be held June 9–14, 1997 at the Department of Mathematics, Cornell University. Enrollment is limited. We will begin reviewing applications on **April 1, 1997**.

This workshop is intended for college and university faculty who teach (or soon will teach) an undergraduate geometry course such as the courses typically attended by future or inservice teachers. The leaders of the workshop will be Kelly Gaddis (Buffalo State College), David Henderson (Cornell University), Jane-Jane Lo (Cornell University), and Avery Solomon (Cornell University).

In the mornings the participants will experience a learning and teaching environment that is innovative both in terms of content and in terms of teaching methods. The content will be the integration of geometries on plane, sphere and other surfaces, presented through problems which emphasize experiencing the meanings in the geometry. Student investigations, small group learning, and writing assignments will be explored.

In the afternoons there will be seminars and presentations on topics related to the workshop theme, including: "How to Write Good Exploratory Problems," "Using Writing in Mathematics," "Curriculum Developments in School Geometry," "Using Computer Technology in Geometry," "Formal versus Intuitive Knowing in Geometry," "What is in the Eight Undergraduate Geometry Courses at Cornell," "Non-test-based Assessments," "Student Affects and Beliefs toward Innovative Programs," and "Including All Students by Encouraging Diverse Ideas." In addition, there will be ample free time for informal discussions and enjoyment of the geometry of nature in and around Ithaca.

Much of the housing and food expenses will be covered by the NSF for all participants. There may also be very limited NSF funds available to support travel costs for participating faculty from institutions with limited resources. The NSF will also support follow-up activities by the participants after the workshop including local workshops, exchange of related classroom materials, and communication of experiences and ideas.

More information and application procedures may be found on the WWW: http://math.cornell.edu/~dwh. If you do not have Web access, email: dwh@math.cornell.edu or write: UFE Geometry Workshop, Department of Mathematics, Cornell University, Ithaca, NY 14853-7901; fax: 607-255-7149.

HUDSON RIVER CONFERENCE

The annual Hudson River Undergraduate Mathematics Conference (HRUMC) will be held at Williams College in Williamstown, MA on Saturday, April 12, 1997. The invited speaker is Benoit Mandelbrot, "father of fractals." Faculty and undergraduates will participate as equals in presenting and enjoying 15-minute talks, each targeted either for general undergraduate students or for mathematics majors. All interested undergraduates are welcome. The program begins with registration and coffee from 8:45–9:45 A.M. and ends about 4:30 P.M. Lunch is provided free of charge to registered participants.

The conference is funded this year by the New England Consortium for Undergraduate Science Education (NECUSE) and a Howard Hughes Medical Institute grant to Williams College, and has previously enjoyed support from the following organizations: the Alfred P. Sloan Foundation, the National Science Foundation, the General Electric Fund, the AMS, ASA, AWM, INFORMS, MAA, SIAM, and the Peace Corps. Next year the conference will rotate to Union College in Schenectady, NY.

For more information about the conference, contact any of the members of the steering committee: Ed Burger, Williams College (Edward.Burger@williams.edu); Joan Hart, Union College (hartj2@union.edu); Emelie Kenney, Siena College (kenney@siena.edu); Frank Morgan, Chair, Williams College (Frank.Morgan@williams.edu); Scott Vandenberg, Siena College (vandenberg@siena.edu); David Vella, Skidmore College (dvella@skidmore.edu); Eric Watson '97, Williams College (Eric.Watson@williams.edu); or William Zwicker, Union College (zwickerw@gar.union.edu). More information about the HRUMC can also be found on our web page at: http://www.skidmore.edu/ academics/mcs/hrumc.htm.

SADOSKY PRIZE ESTABLISHED

Prize Institute to Encourage Girls' Participation in Vietnam's Math Olympiads

Starting this year, the girls who perform best in Vietnam's national mathematics olympiads will be awarded the Cora Ratto de Sadosky Prize. Named in memory of an Argentinean mathematician and political activist, the prize is sponsored by Vietnam's Ministry of Education and Training, the Vietnam Women's Union, the Kovalevskaia Fund, and the Sadosky family.

In Vietnam, the national olympiad is held in March. The Sadosky prizes will be awarded in April or May, when the best-performing students from all over the country gather in Hanoi to take the final qualifying test used to select Vietnam's team for the International Olympiad (which, coincidentally, will be held in Argentina in 1997).

In the past, of the approximately 400 students who have taken the national olympiad each year, only about 10% have been girls. We hope and expect that this proportion will increase substantially as a result of publicity about the Sadosky Prize. There are many thousands of top-notch female math students in the secondary schools throughout Vietnam. With more encouragement from their teachers and parents, many more of them would take part in the competition.

In 1997 four Sadosky Prizes will be given, one for $150 and three for $100. Each winner will also receive a certificate signed by representatives of the three sponsoring organizations and the Sadosky family. One of the four winners will be chosen from the mountainous regions. The educational system in those areas is at a lower level than in the cities and lowlands, and so a separate, somewhat easier version of the national olympiad is organized for the highlands.

Vietnam is not, of course, the only country with inexcusably low levels of female participation in the math olympiads. In most countries, in fact, there is a need for concrete steps to encourage more girls to enter the competition. If the overall level of female participation increases, then in the future there will be many more young women like Maryam Mirzakhani of Iran, who obtained a perfect score of 42 at the International Olympiad in Toronto.

Cora Ratto de Sadosky (1912–1981)

Cora Ratto de Sadosky was an Argentinean mathematician, an inspiring teacher who devoted her life to fighting oppression, discrimination, and racism, and to defending the right of all peoples to self-determination.

Born in 1912 in a middle class family, Cora Ratto graduated from the University of Buenos Aires, where she was a leader of the Argentinean University Student Union (FUA). Actively opposed to Nazism and Fascism, she was prominent in the Argentinean solidarity effort in favor of the Spanish Republic, and in the denunciation of the imperialist Chaco War, which was forced on Bolivia and Paraguay by the U.S. and Great Britain in the early 1930's.

In 1937 Cora Ratto married her life-long comrade, both in mathematics and in political activities, Manuel Sadosky. Cora and Manuel had one daughter, who is also a mathematician and bears her name.

During the Second World War, immediately after the Nazi invasion of the Soviet Union, Cora Ratto de Sadosky created "La Junta de la Victoria" (The Victory Union), a women's organization devoted to helping the anti-Nazi war effort. In 1945 La Junta de la Victoria, of which Cora was Secretary General, had 50,000 adherents (in a country with fewer than 12 million people) and had contributed hundreds of thousands of dollars to the U.S.S.R., Great Britain, China and the United States in clothing, food and strategic materials for the fighting troops. Not only was the Junta de la Victoria significant for its solidarity against the Nazis, but it was the first women's mass organization of its size in Latin American history. In 1945, as representative of her organization, Cora was a founding

Reprinted from the Kovalevskaia Fund Newsletter, *Vol. XII, No. 1, January 1997, pp. 5–6. The Kovalevskaia Fund is a small foundation which aims to encourage women in science and technology in developing through appropriate forms of support. Address for correspondence: Dr. Ann Hibner Koblitz, Director, Kovalevskaia Fund, 6547 17th Ave. N.E., Seattle, WA 98115; email: koblitz@math.washington.edu.*

member of the International Women's Union at its first meeting in Paris, presided over by Pasionaria.

In 1946 Cora and Manuel, with their then little daughter, went to Europe to continue their mathematical studies. In Paris, Cora worked under the direction of the famous Professor M. Frechet, but did not complete a doctoral dissertation at this time, because the family left for Italy, where her husband received his training; he later became the first Latin American specialist in computer science. They returned to Argentina in a period of turmoil and political repression in the universities, and Cora worked at a commercial enterprise to sustain the family.

When the Argentinean universities regained their autonomy in 1956, Cora and Manuel were part of the team that built a modern School of Sciences at the University of Buenos Aires. In 1958, at the age of 46, Cora received her doctorate at the University with a thesis on hyperbolic singular integrals. From 1958 to 1966 she was an Associate Professor of Mathematics. She initiated a celebrated series of research publications (the first volume, *Mathematics and Quantum Physics*, was written by Laurent Schwartz) and helped organize advanced courses for several generations of mathematicians and scientists, many of whom later became leaders of research communities in various parts of Latin American, North America, and Europe.

Cora was the co-author, with Mischa Cotlar, her doctoral thesis advisor, of an *Introduction to Linear Algebra*, a remarkably modern and rigorous text, the first of its kind in Spanish. She also developed texts for preparing high school teachers.

One of her most important contributions while at the University was to create the Albert Einstein Foundation, aimed at supporting talented mathematics and science students in need of financial help. Her fellowship and mentoring program helped hundreds of young Argentineans and was the first stage in establishing a university-wide scholarship system.

In 1966 the first of a string of increasingly repressive military dictatorships took control of Argentina. Following a violent assault on the School of Sciences by military and police, 400 faculty members resigned their positions at the University of Buenos Aires. After leaving the University, Cora retired from mathematics research and teaching and concentrated her efforts on denouncing the human rights abuses perpetrated by the military.

In 1965 Cora created and co-directed the monthly magazine *Columna 10*, with the primary aim of raising the awareness of the Argentinean public about the Vietnam War, which at the time barely reached the pages of the local newspapers. *Columna 10* was a landmark publication, exposing the secret war waged by the U.S. Green Berets, the effects of defoliation, and the human rights atrocities committed by the Saigon regime and the American Expeditionary Forces in Vietnam.

Under threats on their lives, Cora and her husband left Argentina at the end of 1974 and lived in exile, first in Caracas, Venezuela and then in Barcelona, Spain. Her dream of returning to her country was never realized. She died in exile on January 2, 1981, a day before her 69th birthday.

Her legacy resides in the many students she inspired and helped and in the many friends around the world who saw in her an example of integrity, farsightedness and commitment to change.

Her enthusiasm for knowledge, her passion for justice, her human warmth, and her love for mathematics justify our naming for her a mathematics award for young women, in a country whose struggles she fervently supported and whose determination she deeply admired.

Cora Ratto de Sadosky

MINORITY WOMEN IN ENGINEERING

In virtually all science-based disciplines except physics and engineering, the participation of women has grown steadily since the early 1970's and is now approaching parity. In physics and engineering, the number of women reached a plateau at about 15 percent where it has remained for over a decade. This suggests the presence of attributes in the social construction of these male-dominated fields that inhibits further progress of women.

Among all population groups, minority women have the lowest participation rates in engineering. Constituting about 15 percent of the college-age population in 1994, they comprised only 2.2 percent of the annual B.S. graduates, 1.1 percent of the M.S. graduates and 0.3 percent of the Ph.D. graduates.

A majority of American children (about 60 percent) and the bulk of minority children (about 85 percent) are channeled out of academic mathematics and science when they are only 13 years old.

Differences between high school boys and girls in expressed interest in mathematics and science, in mathematics and science enrollment, and in academic performance are insufficient to account for the gender gap at the university level, where men are 4.5 times more likely to choose engineering as a major. Other socialization processes are at work both inside and outside the classroom.

Seventy-five percent of minority women graduates are produced by just 20 percent of the nation's engineering colleges. Half of the colleges produce no more than one minority woman graduate per year on average.

There are significant differences among women from different ethnic groups with respect to subdiscipline preferences in engineering.

In the context of the social struggle for equity, minority women exhibit a stronger identification with issues of race and ethnicity than with gender issues, and they appear to be better supported by minority programs than by women's programs.

The retention of minority women in engineering is about half that of nonminorities and eight percent less than that of minority men.

The current withdrawal from affirmative action programs, including minority scholarships, has been accompanied by what amounts to an affirmative action program for the wealthy. Universities can improve their net tuition revenues by giving scholarships to wealthy students who may have lower qualifications, but who can pay the bulk of their expenses in cash. Students with greater financial need are left to draw on loan programs, often with devastating consequences. Statistics show that a shift of $1000 from scholarship to loan support yields a 17 percent decline in retention.

Failure to solve the attrition problem stems, in part, from an overemphasis on the student deficit model and underemphasis on institutional deficiencies.

highlights from the National Action Council for Minorities in Engineering, Inc. Research Letter, May 1996, by George Campbell Jr., NACME, 3 West 35th St., New York, NY 10001

TECHNOLOGY CONFERENCE

The Second Asian Technology Conference in Mathematics, "Computer Technology in Mathematical Research and Teaching," will be held at the School of Mathematical Sciences, Universiti Sains Malaysia, in Penang, Malaysia on June 16–27, 1997. The conference will bring together teachers and researchers in mathematics, education, computers, and technology and will cover a broad range of topics, including, for example, distance learning, multimedia, numerical integration and differentiation, computer algebra, proofs, applications of computer algebra systems, and graphing calculators. The chair of the organizing committee is Yahya Abu Hasan (Universiti Sains Malaysia); the chair of the International Program Committee is Wei-Chi Yang (Radford University).

FULBRIGHT AWARDS

The competition for 1998–99 Fulbright Awards for U.S. faculty and professionals opens March 1, 1997. Opportunities for lecturing or advanced research in over 135 countries are available to college and university faculty and professionals outside academe. U.S. citizenship and the Ph.D.

or comparable professionals qualifications are required. For lecturing awards, university or college teaching experience is expected. Foreign language skills are needed for some countries, but most lecturing assignments are in English.

The deadline for lecturing or research grants for 1998–99 is **August 1, 1997**. Other deadlines are in place for special programs: distinguished Fulbright chairs in Western Europe and Canada (**May 1**) and Fulbright seminars for international education and academic administrators (**November 1**).

Contact the USIA Fulbright Senior Scholar Program, Council for International Exchange of Scholars, 3007 Tilden Street, NW, Suite 5M, Box GNEWS, Washington, DC 20008-3009; phone: 202-686-7877; web page (on line materials): http://www.cies.org; email (requests for mailing of application materials only): cies1@ciesnet.cies.org.

PUBLICATIONS OF INTEREST

"Presidential Views: Unity in the Mathematical Sciences Community" appeared in the December 1996 AMS *Notices*. Five questions were presented: how has the increasing breadth of research in the mathematical sciences affected relations among researchers in different areas? what are the major issues in graduate education? has the difficult job market produced strains? how do the pure and applied mathematical communities relate to each other? what signs do you see that the mathematical sciences community is coming together to try to tackle some of these difficult problems?

The questions were answered by James Berger and Nancy Reid, past-president and president of the Institute of Mathematical Statistics; Cathleen Morawetz, president, American Mathematical Society; and Margaret Wright, president, Society for Industrial and Applied Mathematics. Although the concerns are real, the presidents are optimistic about the community's ability to work together to solve our problems.

"How Negative Expectancies and Attitudes Undermine Females' Math Confidence and Performance: A Review of the Literature" by Jennifer Gutbezahl (jennyg@oitunix.oit.umass.edu) appears in the January 30, 1995 issue of AWM-Net Digest. The literature is discussed, and there is an extensive bibliography. Here is the summary and conclusion:

> What we have, then, is a circle of expectancies and fulfillment of these expectancies. Society as a whole believes that females are less mathematically capable than men. This belief is communicated to parents and teachers, who pass it along to students. Girls come to view their failures in math as evidence that they are indeed inferior and to view their successes as flukes. This reinforces the belief that they are not capable of doing well in math. Females stop taking advanced math courses in high school or college, believing them too difficult. Girls fail to acquire the knowledge necessary to achieve in mathematics. In the end, the expectancies of their parents and teachers are fulfilled, and society has further "proof" of females' inferior math ability.
>
> What is most surprising about this whole cycle is that females perform as well as they do. Differences between males' and females' performance is quite small compared to the stereotypes that many people hold. And these differences are getting smaller over time. This bodes well for the future. As these differences decrease, parents and teachers will see more and more that females are capable of performing well in mathematics. This will lead to more parental and academic support, further enhancing females' ability. In this way, the cycle may be broken.

"Mississippi Learning: Algebra as Political Curriculum" by Bell Gale Chevigny [*The Nation*, March 4, 1996, pp. 16–21], highlights the work of the Algebra Project, the brainchild of educator and organizer Bob Moses. Math Games are an important feature of the program. The problem-based math curriculum puts students' experiences at the center; teachers are trained to learn the system (and the mathematics).

From the article:

> Moses and the Dennises are busy trying to raise funds, recruit college-age coaches, develop standards for teachers' competencies, educate stakeholders and consider new sites.
>
> Moses fears that "we have a window of five or ten years, and it's shrinking. Fewer people are sorted to the top and from a narrower base." Having taught math for eight years in Tanzania — "a society that felt it could not afford to let one student slip through the cracks" — he muses on the contrast with the United States, which diverts funds from schools to prisons. "Yet math opens

up a wonderful opportunity," Moses continues, "because people agree it indicates capacity to do analytical thinking. If we make a solid demonstration that these kids can do it, education's role as a leveler is reopened."

"And the Two Shall Be as One: Job Sharing in an Academic Department" by Mark Montgomery and Irene Powell, Department of Economics, Grinnell was reprinted in the December 6, 1995 issue of *Concerns of Young Mathematicians*, the electronic newsletter of the Young Mathematicians Network, from the newsletter of the Committee on the Status of Women in the Economics Profession. It is a light-hearted, informative discussion of the title subject. For example:

> One position-sharing couple we know was told by their chair that he expected twice as much research from each of them because each would be doing only half as much teaching. *Wrong!* [Loud buzzer] The point of a shared contract is not for the college to get four times as much research for the same salary. Technically, for a single paycheck, the college should expect that you'll each do half as much teaching, half as much research, and spend a lot more time watching "Days of Our Lives." In fact, of course, you'll do more than that. The school will get more research and service than they would from a full-time professor, and that redounds to the greater glory of both the college and the couple. All well and good. But don't give them the right to demand it of you.

"Grad Students Find 'Womentors' at Late Winter IMA Workshop" by Barry Cipra appears in the May 1996 *SIAM News*. The workshop brought together 40 female graduate students with 20 women mathematicians with experience working in industry. There were technical talks on industrial mathematics and discussion sessions on how to encourage more women to enter the field.

"Patterns of prejudice" by Deborah Merritt of the Ohio State University Law School appeared in *The Women's Review of Books*, February 1996, p. 34. The article discussed the findings of research on employment in law school hirings done by Merritt and Barbara Reskin of the OSU Sociology Department. They concentrated on the "double minority," minority women.

> We put all the data through a regression analysis, putting into the regression equation not just credentials but also factors like whether they had family ties, whether or not they had imposed geographic constraints on their job search, and we still found overwhelming differences between the men and the women within that minority group.
>
> In fact, we found sex is actually the largest factor in determining the prestige of the school where one teaches. All the way down the line, you find that, on average, with the same credentials, the man will teach at a significantly more prestigious school; he is going to be more likely than the woman to be hired as an associate professor or at a higher rank, and he is going to be less likely to teach a course like legal writing or trial advocacy, which are the low-status courses.

After further discussion, Merritt reaches the same conclusion many of us have:

> To me this suggests that the affirmative action stance was necessary to overcome what are some very deeply-held and unconscious biases that the people who are the decision-makers don't even know that they have. You need to push people to overcome those biases by telling them to be aggressive in recruiting women and minorities, telling them to look very carefully at those credentials and maybe even to show a preference for the woman or minority. It may be that that so-called preference is only overcoming an unconscious bias. What our study and others I've seen with similar sorts of results suggest to me is that we need to be very careful before we dismantle affirmative action programs. We have to think about revising the whole notion of preference and doing some public agitation about what that word really means.

Making Points for Mathematics Education Reform: A Presenter's Guide is a publication of the Math Connection, which is coordinated by the Mathematical Sciences Education Board (2101 Constitution Ave., NW, HA 476, Washington, DC 20418). It gives suggestions on presentations of varying lengths (I particularly like the "more than thirty minutes" version: Do the thirty minute version and sit down) for community and school groups on issues related to the Standards of the National Council of Teachers of Mathematics.

A *National Policy Statement* is published by the American Mathematical Society. The purposes are: to articulate public policy issues of significance for the mathematical sciences, to inform public policymakers and the public about these issues, and to

help formulate goals at the national level and set priorities for their accomplishment.

Career Information in the Mathematical Sciences: A Resource Guide is an aptly named booklet produced by the Conference Board of the Mathematical Sciences, 1529 Eighteenth St, NW, Washington, DC 20036; 202-293-1170.

"Making Math Meaningful" by Phil Patton was the PC Parent column in the August 1995 issue of *ComputerLife*. The subhead is "Thoughtful learning software relates math to the real world and may even bridge the gender gap." Needless to say, the software he discusses is not the shoot-em-up-type video-game variety that can be found even in much educational software. He concludes:

> Math has too often been taught in a vacuum: sums and problems on a blackboard or in a workbook, with no connection to the real world. The challenge for the creators of math software is to bridge this gap, not by drawing simple analogies between death rays or shooting galleries and addition problems, but by using the computer's abilities to manipulate images and sounds to assert math's profound link to the world around us.
>
> Bridging the gap between math and the real world also holds the promise of bridging the gap between the sexes.

"Groundbreaking Study Finds Child Care Does Not Affect Infant's Attachment to Mother" is the lead article in the Spring 1996 *Research Report* of the Center for Research on Women, Wellesley College. "Results of a comprehensive National Institute of Child Health and Human Development (NICHD) study designed to address the emotionally charged social issue of whether mothers put children at risk by working outside the home, found that child care in and of itself neither adversely affects, nor promotes, the security of children's attachment to their mothers at the 15-month-age point."

Advancing Women's Leadership in Science: An Action Plan to the Year 2000 is the product of a national Women in Science Summit held in October 1994 at the Mills College Women's Leadership Institute (Mills Hall, 5000 MacArthur Blvd., Oakland, CA 94613; 510-430-2019). The action plan provides strategies for specific constituencies: science department chairs and senior faculty members; presidents, provosts and deans of colleges and universities; chief executive officers of companies and heads of government laboratories; officers of professional science societies; and officers of foundations and granting institutions.

Key recommendations include: Initiate new recruitment and retention efforts. Assure comparable salaries. Promote effective mentoring systems. Improve work environments. Support career flexibility. Heighten visibility. Enhance funding. Increase accountability.

> Every institution has one compelling responsibility: to ensure that more women participate in the science and engineering challenges that lie ahead and contribute to America's longstanding leadership in the global scientific community. In order to continue the nation's scientific leadership into the 21st century, talented women must be given opportunities to advance to the highest scientific ranks and to become tomorrow's leaders.

From the *Caucus for Women in Statistics Newsletter*, Spring 1996:

> The *Wall Street Journal* reports that an informal survey of fourth-grade children in an Oak Park, IL school revealed that boys received larger allowances than girls. Boys received an average of $3.18 per week; girls received $2.63, or $.87 for every dollar the boys received. At the adult level, women receive 76.4 cents for every dollar received by men, with salary discrepancies typically much greater at upper salary levels. Like their adult peers, the girls worked harder too. Boys reported doing three chores at most, while girls reported doing up to twelve.

COX SCHOLARSHIP

The Gertrude Cox Scholarship for women in graduate statistic programs is intended to encourage more women to enter statistically oriented professions. Women who are citizens or permanent residents of the U.S. or Canada who are admitted to full-time study in a graduate statistical program by July 1, 1997 are eligible for the $1000 award. The application deadline is **April 30, 1997**. Contact: Gertrude Cox Scholarship Committee, American Statistical Association, 1429 Duke St., Alexandria, VA 22314; phone: 703-684-1221; fax: 703-684-2037; email: meetings@amstat.org.

AWM RECEPTION

John Garnett (NSA), Christina Ball (NSA), Sylvia Wiegand (AWM, University of Nebraska)

Mary Gray (AWM, American University), Margarita Mandry (AWM)

IN MARYLAND

Barbara Deuink (NSA), Lesley Lee Francis (AWM), Lloyd Douglas (NSF)

Cynthia Wong (AWM), Angie Beach (AWM), Judy Green (AWM, Marymount University)

AWM IN

Chuu-Lian Terng (AWM President),
Linda Rothschild (1997 Noether Lecturer)

The transfer of "the bowl":
Chuu-Lian welcomes Sylvia to the presidency

AWM Panel: Mary Gray (American University), Audrey Terras (UC San Diego), Leslie Sibner (Brooklyn Polytechnic), Nancy Kopell (Boston University), Lynne Butler (Haverford College)

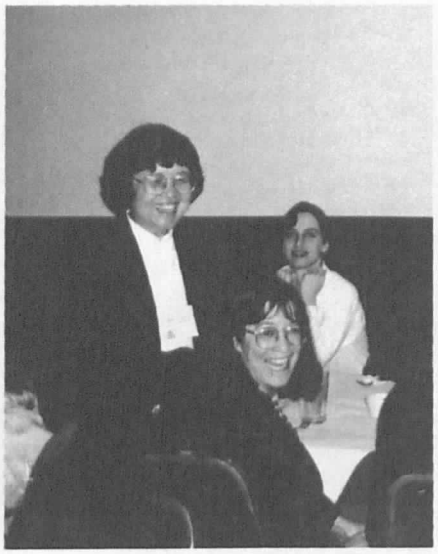
SAN DIEGO

Marilyn Burns (1997 Hay Award Winner),
Chuu-Lian Terng (AWM President)

Mary Gray (American University),
Bettye Anne Case (Florida State University)

Lee Lorch (York University), Rebekka Struik (University of Colorado), Jack Todd (Caltech)

NOETHER DINNER



Linda Rothschild (Noether Lecturer), Chuu-Lian Terng (AWM President)

Three Past Presidents: Cora Sadosky (Howard University), Carol Wood (MSRI), Jill Mesirov (Boston University)

Beth Ruskai (U. Mass, Lowell), Salah Baouendi (UC San Diego)

Ann Moskol (Rhode Island College), Jean Taylor (Rutgers University)

ADVERTISEMENTS

CARNEGIE MELLON UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - Assistant Professorship - The Carnegie Mellon Department of Mathematical Sciences seeks to make one tenure-track appointment at the Assistant Professor level. This position will commence in the Fall of 1997. The Department's search will focus on someone working in Optimization and Mathematical Programming whose research has a strong computational component and we are also interested in candidates in Applied Analysis and Continuum Mechanics. Applicants should have an interdisciplinary scientific outlook. Applicants should send a vita, list of publications, and a statement describing current and planned research. Candidates should also arrange to have at least four letters of recommendation (with one describing your teaching experience) sent to: **Appointments Committee, Department of Mathematical Sciences, Carnegie Mellon University, Pittsburgh, PA 15213.** For more information about the Department, please consult our website at: http://www.cmu.edu/mcs/math/. Carnegie Mellon University is an Affirmative Action/Equal Opportunity Employer.

CASE WESTERN RESERVE UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics expects several visiting positions and also a possibility of one or two tenure track positions beginning August 1997. Candidates must posses a Ph.D. in mathematics and show exceptional promise in research and teaching. To apply, please submit the following materials in a single package: letter of application (including your e-mail address and fax number), curriculum vitae, and relevant reprints or preprints. Candidates should also arrange for three letters of recommendation to be sent. Mail all materials to: **Appointments Committee, Department of Mathematics, Case Western Reserve University, Cleveland, OH 44106-7058.** No e-mail or fax applications will be accepted. Applications will be reviewed as they are received, and continue until the positions are filled. CWRU is an Affirmative Action/Equal Opportunity employer.

CLEVELAND STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - Assistant Professor in Mathematics - The Mathematics Department invites applications for a tenure-track position at the Assistant Professor level starting in September 1997. Candidates must have a Ph.D. in the Mathematical Sciences or Mathematical Education (completed by the starting date) and a demonstrated commitment to excellence in quality teaching and research. Participation in curriculum development and innovative teaching is a plus. This search is limited to the areas of Applied Statistics, Applied Probability, Operations Research, Differential Equations and Mathematical Education. Salary is competitive. Those interested in applying should send a curriculum vitae and arrange for three letters of recommendation to be sent to: **Professor Bhushan Wadhwa, Chair, Department of Mathematics, Cleveland State University, E. 24th & Euclid Avenue, Cleveland, OH 44115**, Fax (216) 687-9366. At least one letter must discuss the applicant's teaching qualifications. Applications must be received by April 4, 1997. Cleveland State University is an AA/EOE committed to nondiscrimination. M/F/D/V encouraged.

COTTEY COLLEGE OF MISSOURI - Assistant or Associate Professor - Full-time, tenure-track faculty starting Fall 1997; three person department. Curriculum now includes algebra, trigonometry, statistics, precalculus, calculus and differential equations; four sections per semester teaching load. Ph.D. and experience preferred. ABD considered for initial appointment, but continuation requires doctorate. Teaching oriented, small, private (not church-related), residential, two-year liberal arts college for women. 10:1 students per faculty ratio, students from 35-40 states and 18-20 countries. 80 miles from Kansas City metro area, 40-140 miles from Ozark recreation areas. Our purpose is the development of intellect and leadership in young women. To apply send curriculum vitae, names and phone numbers of three references, and cover letter expressing interest to: **Dr. Hal Ross, Academic Vice President, Cottey College, Nevada, Missouri, 64772.** E-mail: dkerbs@cottey.edu. Fax: 417-667-8103. Telephone: 417-667-8181.

IMMACULATA COLLEGE - DEPARTMENT OF MATHEMATICS, COMPUTER SCIENCE, AND PHYSICS - Tenure-Track Position beginning in September 1997. Seeking person with a doctorate in mathematics. Teaching experience is preferred; must demonstrate interest in teaching, use of technology in teaching and promise of teaching excellence. Supportive of the mission of a liberal arts Catholic college. Responsibilities include teaching, student advisement, and college and departmental activities. Review of applications begins March 10, 1997. Send letter of application addressing qualifications, resume, official transcripts, and at least three letters of recommendation to: **Sister Regina Mauricia, Chair, Mathematics, Computer Science, and Physics Department, Immaculata College, Immaculata, PA 19345-0648.** (EOE)

MOUNT SAINT MARY'S COLLEGE - MATH AND COMPUTER SCIENCE - Tenure-track, full-time Assistant Professor. Starting date: August 1997. Greatest needs: computer graphics, artificial intelligence, networks and communications. Duties: teaching undergraduate computer science courses; professional activity, advising, course development, and service to the campus community. Teaching load: seven courses/year. Teaching excellence required. Should have Ph.D. in Computer Science (preferred) or a Ph.D. in Mathematical Sciences. Send curriculum vitae, three letters of recommendation to: **Computer Science Search, Math and Computer Science, Mount Saint Mary's College, Emmitsburg, MD 21727.** Letter should address scholarship and teaching excellence.

NIST: HIGH PERFORMANCE SYSTEMS AND SERVICES DIVISION, INFORMATION TECHNOLOGY LIBRARY - JOB TITLES: Multiple Positions for **Computer Scientists, Electrical Engineers, Physicists, and Mathematicians** - JOB DESCRIPTIONS: Conduct R&D in High Performance Parallel Computing. Design and develop machine independent, MPI based, parallel, scalable data structure and graph algorithms targeted towards a wide variety of leading edge application areas. Design, develop, and validate lightweight performance models of scalable heterogeneous cluster computing. Parallelize super computing codes for scalable cluster environments. Design and develop efficient process migration capabilities into existing cluster environments. Computer Specialists for Network backup/migration and network queuing positions. Computer specialist for media storage position in advanced network technology. Network IO specialist. QUALIFICATIONS: B.S./M.S./Ph.D. in Computer Science, Electrical Engineering, Physics, or Mathematics, U.S. Citizenship and GPA of 3.0/4.0 required. Additional Information: See NIST's web site at http://www.itl.nist.gov/. Address to mail resumes: **Ms. Kamie Roberts, NIST, Bldg. 225, Room 231, Gaithersburg, MD 20899.** E-mail: kroberts@nist.gov, Fax: 301-840-1357, Phone: 301-975-2982.

Want to advertise a position? ADVERTISING RATES and INFORMATION on PAGE 3

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NORTH CAROLINA STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS - The Department of Mathematics invites applications for a tenure track appointment in Symbolic Computation, beginning in the Fall of 1997. Applicant at all levels will be considered. Candidates should have a strong ongoing research program and a demonstrated skill in teaching. Applicants should send a vita and letters of reference to: **Symbolic Computation Search Committee, Mathematics Department, Box 8205, North Carolina State University, Raleigh, NC 27695-8205.** All qualifies applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, veteran status, or disability.

NORTHERN MICHIGAN UNIVERSITY - DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE - Applied Statistics - The Department of Mathematics and Computer Science invites applications for a tenure-track position in Applied Statistics at the rank of Assistant Professor beginning with the 1997-98 academic year. The successful applicant must possess a Ph.D. in Applied Statistics prior to employment, be prepared to teach the range of courses in an undergraduate curriculum and demonstrate the potential to become an effective teacher and an active scholar. Applicants with specialized interests in any area of Applied Statistics are encouraged to apply; however, preference will be given to applicants whose level of preparation in mathematics is at least at the master's level. Additional desirable qualifications include a willingness to contribute to the development of our mathematics/statistics program and work with the business and industry to develop career opportunities for our graduates. **Mathematics Education** - The Department of Mathematics and Computer Science invites applications for a tenure-track position in Mathematics Education at the rank of Assistant Professor beginning with the 1997-98 academic year. The successful applicant must possess an Ed.D. or Ph.D. in Mathematics Education prior to employment, be prepared to teach the range of courses in an undergraduate curriculum including undergraduate mathematics courses, and demonstrate the potential to become an effective teacher and active scholar. Applicants with specialized interests in any area of Mathematics Education are encouraged to apply; however, preference will be given to applicants whose special interests are at the elementary, middle or secondary school level. In addition, applicants must have at least three (3) years of K-12 teaching experience. Applications should include a complete resume, letter of application, transcripts, and names, addresses, and telephone numbers of three references. Nominations are welcomed, and should be submitted as early as possible. Application materials should be sent to: **Terrance L. Seethoff, Head, Department of Mathematics and Computer Science, Northern Michigan University, 1401 Presque Isle, Marquette, Michigan 49855-5340,** (906) 227-2020. E-mail Address: tseethof@nmu.edu. Applicant review will begin March 15, 1997, and will continue until the position is filled. NMU is an AA/EOE.

OAKLAND UNIVERSITY - DEPARTMENT OF MATHEMATICAL SCIENCES - The Department of Mathematical Sciences at Oakland University invites applications for a tenure track position at the rank of Assistant Professor or Associate Professor (without tenure) in the area of applied discrete mathematics. Responsibilities of this position include teaching, research, and contribution to the department's collaborative efforts with industry. For appointment at the Assistant rank, candidates must have a Ph.D. in mathematics or a closely relates field (or its requirements completed) by August 15, 1997. For appointment at the Associate rank, candidates must also demonstrate the professional growth the department expects of its faculty during the Assistant rank. Preference will be given to applicants with strong research potential in applied discrete mathematics and evidence of experiences and/or ability in developing research links and student internships with industry. Areas for preferred consideration are discrete optimization, network algorithms, and queuing theory. Please send a vita and transcripts, and arrange for three letters of reference to be sent to: **J. Curtis Chipman, Chair, Applied Discrete Mathematics Search Committee, Department of Mathematical Sciences, Oakland University, Rochester, MI 48309-4401.** [Phone: (810) 370-3440, Fax: (810) 370-4184, Email: chipman@oakland.edu]. Applications should be received by March 1, 1997, to ensure full consideration. Oakland University is a vital, growing public institution with approximately 14,000 students, offering baccalaureate, masters, and doctoral programs. A Ph.D. in Applied Mathematical Sciences has recently been approved. The Department of Mathematical Sciences has 26 full-time faculty members who have research strengths in pure and applied mathematical sciences. The Department offers baccalaureate degrees in mathematics and statistics and masters' degrees in mathematics, industrial and applied mathematics, and applied statistics. Further information about the department can be obtained at its web site http://www.acs.oakland.edu/links/math. Oakland University is an Affirmative Action/Equal Opportunity Employer and especially encourages applications from women and minorities.

RUTGERS UNIVERSITY - ACADEMIC FOUNDATIONS DEPARTMENT - The department, an interdisciplinary department providing courses, academic mentors, and tutors for under prepared and non-traditional students, is seeking an Associate or Full Professor to teach, starting July 1, 1997. Doctorate required. Immediate or early tenure possible for appropriate candidate. Preference to those who have demonstrated excellence in teaching computation, algebra, pre-calculus and calculus, developing curricula, advising and serving on departmental and collegiate committees. Applicant review begins immediately. Salary is competitive, based on rank and experience. Send 4 letters of recommendation, at least one of which addresses the quality of your teaching, and send vita and a letter of application indicating pedagogical philosophy and teaching and research experience to: **Chair, Academic Foundations Department, Rutgers University, University Heights, Newark, NJ 07102.** Hiring is subject to final budgetary approval. AA/EEO. Women and minorities are especially encouraged to apply.

SOUTH DAKOTA STATE UNIVERSITY - DEPARTMENT OF MATHEMATICS AND STATISTICS - Two tenure-track, Assistant Professor positions starting in mid August 1997. Doctorate in mathematics required. All specialties considered but prefer algebraist, analyst, or applied mathematician. Skills in teaching, research, communication and interpersonal relations. Teach 12 hours per semester of primarily undergraduate mathematics, service, and scholarly activities. Closing date: April 1, 1997 or until filled. Send letter of application, curriculum vita, transcripts of graduate work, and arrange to have three letters of professional recommendation sent to: **Dr. Kenneth L. Yocom, Head, Department of Mathematics and Statistics, Box 2220, SDSU, Brookings, SD 57007.** AA/EEO Employer/ADA Reasonable Accommodations (605) 688-6361 (TT/Voice (605) 688-4394).

UNIVERSITY OF IDAHO - DEPARTMENT OF MATHEMATICS - The Department has an opening for a tenure-track faculty position at the rank of Assistant Professor of Mathematics beginning January 1, 1998. Applicants must have a Ph.D. degree in mathematics with a specialization in discrete mathematics and have strong research promise, excellent communication skills as well as a strong interest in teaching and curriculum development at all levels. To apply, please send CV, three letters of reference, and transcripts to: **Erol Barbut, Chair, Department of Mathematics, University of Idaho, Moscow, ID 83844-1103.** The closing date is April 4, 1997. May be extended until a suitable pool of applicants is obtained. EO/AA. For further details, please see http://www.uidaho.edu/LS/Math/pos.html.

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UNIVERSITY OF PITTSBURGH at BRADFORD - DEPARTMENT OF MATHEMATICS - Tenure-track, full-time assistant professor position to begin Fall 1997. Must be able to teach remedial, precalculus, and applied calculus level math courses. Ph.D. or Ed.D. required. Excellence in teaching and current classroom pedagogy in the area of remedial math, academic advising, and the ability to direct undergraduate research are essential. In order to ensure full consideration, send letter of application, vita, official transcripts, and three reference letters by May 1, 1997, to: **Dr. Richard Melka, Math Search Committee, University of Pittsburgh at Bradford, 300 Campus Drive, Bradford, PA 16701-2898.** Women and minorities are encouraged to apply. AA/EOE

UNIVERSITY OF SASKATCHEWAN - DEPARTMENT OF MATHEMATICS AND STATISTICS - The Department of Mathematics and Statistics invites applications from outstanding female candidates specializing in any area of mathematics or statistics for a tenure-track position at the Assistant Professor level beginning July 1, 1997. The successful candidate will have a doctoral degree in mathematics or statistics, have demonstrated excellence in teaching and have established a strong research programme or have shown exceptional research potential. Applicants should send their complete C.V. including a list of publications, a short statement describing their research programme, and all appropriate material about their teaching. They should also arrange to have at least three letters of reference, one of which is primarily concerned with the candidate's teaching, sent directly to: **J.R. Martin, Head, Department of Mathematics and Statistics, University of Saskatchewan, 106 Wiggins Road, Saskatoon, Saskatchewan, S7N 5E6 Canada.** To insure full consideration, this information should be received by April 15, 1997. The University is committed to Employment Equity. This position has been designated as an equity position and preference will be given to women applicants. In accordance with Canadian Immigration requirements, priority will be given to fully qualified Canadian citizens and permanent residents of Canada.

UNIVERSITY OF WISCONSIN - RIVER FALLS - Applications are invited for a tenure-track position in mathematics at the Assistant Professor level, specializing in mathematics education, beginning August 25, 1997. Qualifications are a doctorate in math education with the equivalent of a master's degree in mathematics, or a doctorate in mathematics with strong interest and training in K-12 math education. Responsibilities will include teaching content courses for prospective teachers as well as other undergraduate math courses and working collaboratively with area schools. Other responsibilities include advising students, department and university committee work, and continued scholarly activity. Applicants should send a curriculum vitae and letter of interest specifying: **1)** qualifications to meet the position responsibilities, **2)** teaching philosophy and area(s) of interest, **3)** background in the use of educational technology, and **4)** ability to enhance student appreciation of diverse ethnic and cultural heritages. Applicants must also submit undergraduate and graduate transcripts (unofficial copies accepted - official copies will be required if hired) and three letters of recommendation, at least one of which addresses teaching effectiveness. Inquiries and applications should be sent to: **Dr. Pamela Katzman, Chair, Search and Screen Committee, Dept. of Mathematics/Computer Systems, University of Wisconsin-River Falls, River Falls, WI 54022.** Review of applications will begin April 1, 1997 and continue until the position is filled. UW-River Falls in as Affirmative Action/Equal Opportunity employer.

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MATHEMATICAL SCIENCES RESEARCH INSTITUTE

1000 Centennial Drive, Berkeley, CA 94720-5070

The Institute solicits applications for membership during the 1998-99 year.

MSRI features three programs in 1998-99. You may apply for Postdoctoral Fellowships, Research Professorships, and General Memberships in these programs, or in Area III (the rest of mathematics).

Foundations of Computational Mathematics (Fall 1998)

This half year program is organized around four topics: complexity of numerical computations, homotopy methods, optimization and interior point methods, and differential equations. The main emphasis is on the relationships among these topics. **The program committee consists of Felipe Cucker (co-Chair), Arieh Iserles (co-Chair), Tien Yien Li, Jim Renegar, Mike Shub (co-Chair) and Steve Smale.**

Symbolic Computation in Geometry and Analysis (Fall 1998)

The program will focus on computational algebraic geometry and algebraic properties of differential equations and their solutions. In geometry, some of the topics emphasized are: Gröbner bases, resultants and residues, enumerative and toric geometry and real algebraic geometry. In analysis some of the emphasized topics are: linear difference and differential equations, systems of differential equations, first integrals, symmetry and equivalence methods. **The program committee consists of Marie-Francoise Roy, Michael Singer (Chair) and Bernd Sturmfels.**

Random Matrix Models and Their Applications (Spring 1999)

The purpose of this half year program is to discuss and, thereby, to foster the development of challenging new problems and ideas which have recently arisen in the theory of random matrices. The main topics of the program will be: (1) random matrices and completely integrable systems of both the Painlevé and the KP types along with the Riemann-Hilbert and the Virasoro algebra approaches, (2) the relation to algebraic geometry and to topological field theories, (3) the universalities in matrix models, quantum chaos and the GUE conjectures for zeros of zeta functions, (4) the relation to exactly solvable statistical mechanics models and to quantum affine algebras, (5) applications to mesoscopic systems and (6) numerical aspects of the theory. **The program committee consists of Pavel Bleher (co-Chair), Alan Edelman, Alexander Its (co-Chair), Craig Tracy and Harold Widom.**

RESEARCH PROFESSORSHIPS **Deadline: September 30, 1997**

These awards are intended for midcareer mathematicians with a Ph.D. awarded 1992 or earlier. There is a preference for U.S. applicants.

POSTDOCTORAL FELLOWSHIPS **Deadline: November 30, 1997**

MSRI will award approximately 20 Postdoctoral Fellowships to candidates with a Ph.D. awarded in 1993 or later. There is a preference for U.S. applicants.

GENERAL MEMBERSHIPS **Deadline: November 30, 1997**

Applications are invited for part or all of 1998-99. It is expected that members at this level will come with partial or full support from other sources.

Application forms are available from the Mathematical Sciences Research Institute, 1000 Centennial Drive, Berkeley, CA 94720-5070, or by email (send email to: **send-application@msri.org**). Women and minority candidates are especially encouraged to apply. Late applications cannot be assured complete consideration. Awards will be announced by mid-December 1997 for Research Professorships and during spring 1998 for all others.

The Institute is committed to the principles of Equal Opportunity and Affirmative Action.

AWM PUBLICATIONS

Careers That Count: Opportunities in the Mathematical Sciences - encourages individuals to look at the mathematical sciences as a possible career choice.

AWM 1994 Membership Directory - to serve as a means for helping individuals network with fellow mathematicians.

1995-96 Directory of Women in Mathematicians - to serve as a means for helping individuals network with women mathematicians.

QTY.	DESCRIPTION	PRICE	TOTAL
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PUBLICATION ORDERS, ASSOCIATION FOR WOMEN IN MATHEMATICS, 4114 Computer & Space Science Building, University of Maryland, College Park, MD 20742-2461

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ASSOCIATION FOR WOMEN IN MATHEMATICS

1996/1997 MEMBERSHIP FORM

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

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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

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Please check the appropriate membership category below. Make checks or money order payable to: **Association for Women in Mathematics**.
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M/A 97

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Newsletter Volume 27, Number 2, March–April 1997

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