AWM
ASSOCIATION FOR WOMEN IN MATHEMATICS

Volume 32, Number 4 NEWSLETTER July–August 2002

PRESIDENT'S REPORT

Hello to all AWM members!

Congratulations to SIAM on its 50th Anniversary from all of us in AWM! Their 50th Anniversary and Annual Meeting will be celebrated July 8–12.

Our Executive Committee has recently approved the inauguration of a new activity—AWM student chapters—that will provide the opportunity for colleges and universities to start their own AWM "group." The details about "how to start an AWM chapter" will announced in an upcoming issue of the *Newsletter.* Thanks to Tamara Kolda, Carolyn Gordon, Tasha Inniss, Lea Jenkins and Jodie Novak for their work on the task force to formulate the guidelines for student chapters.

At the Mathfest, August 1–3, in Burlington, Vermont, the AWM-MAA lecture will be given by Annie Selden, the winner of the Hay Award this year. The title of her talk is "Two Research Traditions Separated by a Common Subject: Mathematics and Mathematics Education." AWM and MAA will be hosting a reception on Friday evening at Mathfest.

The Noether Lecture at the International Congress of Mathematicians will be given by Hesheng Hu of Fudan University, Shanghai, on "Two-Dimensional Toda Equations and Laplace Sequences of Surfaces in Projective Space." Her talk will be on the afternoon of August 24th and will be followed by a panel discussion organized in cooperation with European Women in Mathematics. The discussion will focus on "creating connections and opportunities for women in mathematics," and viewpoints from different countries will be represented. Thanks to Paula Kemp and Pao-sheng Hsu for their work in the organization of these events.

We will be sponsoring the AWM Essay Contest: Biographies of Contemporary Women in Mathematics again this year. Victoria Howle is once again leading the organization of the contest. The deadline for essays is November 1st. See the winning essays from the first contest on our website

IN THIS ISSUE

AWM
ASSOCIATION
FOR WOMEN IN
MATHEMATICS

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.

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

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Department of Mathematics
University of Tennessee
Knoxville, TN 37916
lenhart@math.utk.edu

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Newsletter Editor
Anne Leggett; leggett@math.luc.edu

AWM OFFICE

Director of Membership, Meetings and Marketing
Dawn V. Wheeler; awm@math.umd.edu

Accountant
Muriel B. Daley; awm@math.umd.edu

Office Assistant
Danielle Walton; awm@math.umd.edu

www.awm-math.org. Also, last year's winner, Alexandra McKinney, has sent us a letter of thanks and a photo of herself; see page 4.

We would like to encourage nominations for both the Louise Hay Award for contributions to mathematics education and the Alice T. Schafer prize for excellence in mathematics by an undergraduate women. Both deadlines are October 1st. The deadline for student and recent Ph.D. applications for our January Joint Meetings workshop is September 1st. The deadline for nominations for the 2004 Noether Lecturer is October 15th.

If you are involved in your local schools as a volunteer and/or a parent, you might want to look into the MAA American Mathematics Competitions. See their website www.unl.edu/amc. The competitions are for middle and high school students; the main competitions are the American Mathematics Contest (AMC) 8, 10 and 12 followed by other competitions if a student does very well on AMC 10 or 12. These contests give students a chance to compete nationally and are given at the local schools.

Thanks for your continuing support.

Suzanne Lenhart

Suzanne Lenhart
University of Tennessee and
Oak Ridge Labs
May 22, 2002

AFTER-SCHOOL PROGRAMS FOR GIRLS IN SCIENCE

On September 23-24, 2002 there will be a working conference which will address two critical issues related to after-school programs designed to engage and support all girls' interest in science, technology, engineering, and mathematics: 1) how to use available research and evaluation to inform program development and 2) how to ensure quality of current and future programs. Former AWM President Jean Taylor (taylor@math.rutgers.edu) is on the Advisory Committee for the conference, and would welcome input from AWM members on the subject. The results of the conference will be published in journals, websites, listservs, etc., and reported on in future issues of the AWM *Newsletter*.

CBMS MEETING

The Conference Board of the Mathematical Sciences (CBMS) had its usual spring meeting May 4, 2002. This organization is composed of the presidents of the various mathematical societies plus its own Executive Committee. There were reports on various ongoing activities: the CBMS-NSF Regional Research Conferences (this year nine, two of which are in Puerto Rico), the publication of the results of the CMBS Survey 2000, and the CBMS activities surrounding its study on the Mathematical Education of Teachers. We also discussed a proposed new CBMS Conference Series on Research in Mathematics Education, which is in the formative stages. We heard reports on the U.S. National Committee for Mathematics and the International Congress of Mathematicians, as well as the United States National Commission on Mathematics Instruction. A report from Achieve's Mathematics Achievement Partnership, the outgrowth of the 1996 National Education Summit; was followed by considerable discussion with the presenter from Achieve, Laura McGiffert. We heard about some of the Actuarial Foundation's efforts to bring actuaries and educators together in voluntary partnerships to enhance education. Finally, CBMS elected its new Exec utive Board: Raymond Johnson continues as Secretary-Treasurer, while Skip Fennel was elected to a two-year term as Member-at-Large, replacing Jean Taylor.

Jean Taylor, Rutgers University

MEMBERSHIP AND NEWSLETTER INFORMATION

Membership dues

Individual: $50 Family (no newsletter): $30
Contributing: $100 Retired, part-time: $25
Student, unemployed, developing nations: $15
Friend: $1000 Benefactor: $2500
All foreign memberships: $8 additional for postage
Dues in excess of $15 and all contributions are deductible from federal taxable income.
Institutional Members:
Level 1: $250
Level 2a: $125
Level 2b: $125
See http://www.awm-math.org for details on free ads, free student memberships, and ad discounts.
Affiliate Members: $250
Institutional Sponsors:
Friend: $1000+ Patron: $2500+
Benefactor: $5000+ Program Sponsor: $10,000+
See the AWM website for details.

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 $50/year ($58 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.

Newsletter 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.* Institutional members receive discounts on ads; see the AWM website for details. For non-members, the rate is $100 for a basic four-line ad. Additional lines are $6 each. See the AWM website for *Newsletter* display ad rates.

Newsletter 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, Math Dept., Loyola University, 6525 N. Sheridan Road, Chicago, IL 60626; email: leggett@math.luc.edu; phone: 773-508-3554; fax: 773-508-2123. Send all **book review** material to Book Review Editor, AWM, 4114 CSS Building, University of Maryland, College Park, MD 20742-2461 and all **education column** material to Ginger Warfield, Math Dept., University of Washington, Seattle, WA 98195; email: warfield@math. washington.edu. Send everything else, **including ads and address changes**, to Dawn V. Wheeler, 4114 CSS Building, University of Maryland, College Park, MD 20742-2461; phone: 301-405-7892; email: awm@math.umd.edu.

AWM ONLINE

Web Editor

Tamara G. Kolda
tgkolda@sandia.gov

Online Ads Coordinator

Aileen Gormley
aeg@wam.umd.edu

Online Ads Info

Classified and job link ads may be placed at the AWM website. Detailed information may be found there.

Website and Online Forums

http://www.awm-math.org

AWM-Net Editor

Dianne O'Leary
oleary@cs.umd.edu

AWM-Net

Send mail to awm-net-request@cs.umd.edu and include your email address; AWM members only.

AWM DEADLINES

AWM Workshop, January 2002: September 1, 2002

NSF-AWM Travel Grant: October 1, 2002 and February 1, 2003

Alice T. Schafer Prize for Undergraduate Women: October 1, 2002

Louise Hay Award for Contributions to Mathematics Education: October 1, 2002

2004 Noether Lecturer Nominations: October 15, 2002

AWM Essay Contest: November 1, 2002

AWM CALENDAR

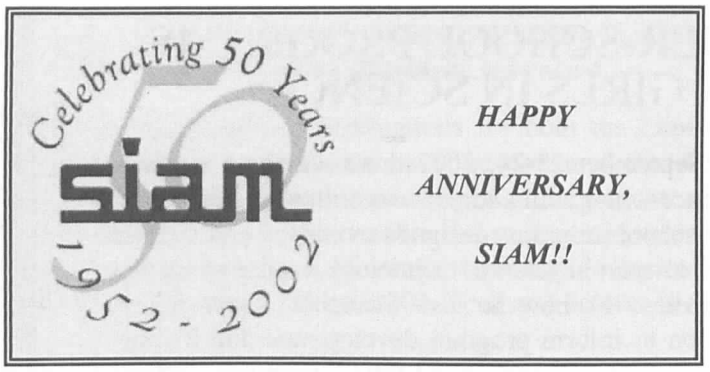
AWM Workshop, SIAM meetings, Philadelphia, July 8–9, 2002

Mathfest, Burlington: AWM Reception, August 2, 2002
AWM-MAA Lecture, August 3, 2002, Annie Selden

ICM Emmy Noether Lecture, August 24, 2002: Hesheng Hu

AWM CONTACT INFO

4114 Computer & Space Sciences Building
University of Maryland
College Park, MD 20742-2461
301-405-7892
awm@math.umd.edu



LETTER TO AWM

I am writing to thank AWM for the honor of being recognized as a winner of the 2001 AWM Essay Contest: Biographies of Contemporary Women in Mathematics. I am very excited that AWM choose my essay as the Grand Prize winner and the 1st place winner at the Middle School level. Interviewing Dr. Galvin, the subject of my essay, and learning about her life and work was a great experience. Dr. Galvin is a remarkably accomplished woman, and she also makes time to encourage girls to pursue interests in math and science. Your essay contest encouraged me to think about of the contributions of women in the mathematical sciences. It also reminded me that there are many women in these fields who are eager to encourage girls to love math and science too!

In addition to the honor of winning, I would also like to thank you for the beautiful plaque, the cool calculator and the honorarium checks. I already have the plaque hanging above my desk. The calculator is being put to good use in my math classes, and I've added the AWM *Newsletter* to my scrapbook. Of course, my mom and dad had to send one to every living relative too. I'm going to save the money until something really special tempts me!

I hope that AWM will be doing this essay contest again next year. I enjoy writing, especially about notable women. I also love math and science, so I think your essay contest is a lot of fun! Thanks again!

Sincerely,

Alexandra McKinney

ICM NOETHER LECTURE

A committee including representatives from Europe, Canada, Asia, and the US selected the Emmy Noether Lecturer for the International Congress of Mathematicians in Beijing, China, August 20–28. We are pleased to announce that Hu Hesheng from Fudan University in Shanghai, China, will be the ICM Noether Lecturer for 2002. The abstract for her talk and her bio appear below.

Two-Dimensional Toda Equations and Laplace Sequences of Surfaces in Projective Space

Toda equations are a class of important integrable systems [1]. Besides the original one-dimensional Toda equations, the two-dimensional Toda equations have also attracted many authors [2–6] in recent years. In particular, the elliptic version of two-dimensional Toda equations has many applications in differential geometry, such as minimal surfaces, surfaces of constant mean curvature, harmonic maps, etc.

The hyperbolic two-dimensional Toda equations can be traced back to G. Darboux [7]. Starting from Laplace sequences of the following hyperbolic equations (1) of second order:

$$z_{xt} + a_i z_x + b_i z_t + c_i z = 0$$

he derived the equations (2)

$$\frac{\partial^2 \log h_i}{\partial x \partial t} = -h_{i-1} + 2h_i - h_{i+1} \quad (h_i = \frac{\partial a_i}{\partial t} + a_i b_i - c_i).$$

If $h_i = e^{\omega_i}$, they are just the Toda equations (3)

$$\frac{\partial^2 \omega_i}{\partial x \partial t} = -e^{\omega_{i-1}} + 2e^{\omega_i} - e^{\omega_{i+1}} \quad (i=1,2,...,n)$$

of hyperbolic type.

However, it was pointed in [8] that some of the h_i may be negative, i.e. $h_i = \alpha_i e^{\omega_i}$ with $\alpha_i = \pm 1$ and the 2-dimensional hyperbolic Toda equations (4) should be

$$\frac{\partial^2 \omega_i}{\partial x \partial t} = -\alpha_{i-1} e^{\omega_i} + 2\alpha_i e^{\omega_i} - \alpha_{i+1} e^{\omega_{i+1}},$$

$$\alpha_i = \pm 1, \ (i=1,2,...,n)$$

which are called signed Toda equations.

Consequently, the corresponding 1-dimensional Toda equations (5) may be generalized as

$$\frac{d^2 \omega_i}{dt^2} = -\alpha_{i-1} e^{\omega_{i-1}} + 2\alpha_i e^{\omega_i} - \alpha_{i+1} e^{\omega_{i+1}}.$$

The physical interpretation of Equation 5 above is that the system consists of two kinds of particles and the interacting forces between them are either attraction or repulsion; the sign factors α_i are determined by the distribution of these two kinds of particles.

The periodic Laplace sequences of surfaces (LSS) as an important subject in classical projective differential geometry have been studied extensively [9–10]. Here, the relationship between LSS of period n in the projective space P_{n-1} and 2-dimensional signed Toda equations of period n is elucidated from the point of view of integrable systems.

First, it is pointed that the fundamental equations of the LSS are just the Lax equations of the signed Toda equations (4). It is noted that the LSS have two types, while type II occurs only for even n. Moreover, the Darboux transformation method for the 2-dimensional hyperbolic Toda equations [2] is valid for the signed equations with some modifications [8]. This provides a method to construct LSS of period n in P_{n-1} explicitly. Examples in P_3 of type I and type II are constructed.

Moreover, it is interesting to consider the Cauchy problem for LSS of period n in P_{n-1}. We propose the problem geometrically as follows [12]. Let $N_1(\tau)$, $N_2(\tau)$, ... $N_n(\tau)$ be the vertices of a one parameter family of n polygons in P_{n-1}, with the property that each tangential line of $N_i(\tau)$ (i=1,2,...,n) lies on the plane spanned by $N_i(\tau)$, $N_{i-1}(\tau)$, $N_{i+1}(\tau)$ respectively. It is proved that there exists an LSS $\{N_i(t, x)\}$ (i=1,...,n) of period n and a curve C: t=t(τ), x=x(τ) in the (t, x) plane such that $\{N_i(t, x)\}$ contains the given one parameter family of n polygons $N_i = N_i(x)$ along the curve C. Thus the Cauchy problem is solved.

It should be noted that the elliptic version of 2-dimensional signed Toda equations may be deduced from the harmonic sequences of the harmonic maps from a Riemann surface to the Grassmannian $G_{1,n}$ with indefinite metric C^{n+1} [13]. Also, the corresponding fact for harmonic sequences from the Minkowski plane is considered.

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Biographical Information

Hu Hesheng was born in Shanghai in 1928. A mathematician, she is a professor at Fudan University and an Academician of the Chinese Academy of Sciences. She has served as vice president of the Chinese Mathematical Society and as president of the Shanghai Mathematical Society.

She completed her graduate study in the Department of Mathematics, Zhejiang University in 1952. From 1952–1956, she was a research assistant and research associate of the Institute of Mathematics of the Chinese Academy of Sciences. Afterwards, she worked as a lecturer, associate professor and full professor at Fudan University. In 1991 she was elected as an academician of the Chinese Academy of Sciences.

For a long period, she was the head of the differential geometry group at the Institute of Mathematics at Fudan University. In her early work, she studied problems in classical differential geometry, such as the deformation of hypersurfaces in Riemannian space. In the 60s, she studied homogeneous Riemannian spaces, considered the isometric groups of Riemannian geometry and proposed a general method to determine the gaps of the isometric groups. In the 70s and 80s, she paid attention to mathematical physics and studied the mathematical structure of Yang-Mills fields, including the construction of spherically symmetric Yang-Mills fields, the Liouville theorem of massive Yang-Mills theory, the Yang-Mills equations in Schwarzschild space-time and the lump phenomena.

In the early 80s, she began to study the geometrical theory of solitons and made progress on the explicit constructions of a series of geometrical objects such as the periodic Laplace sequences in projective spaces, the pseudo-spherical congruences in Minkowski space and the harmonic maps by using Darboux transformations. In the meantime, some results on the sine-Laplace and sinh-Laplace equations, Toda equations and the KdV hierarchies with t-dependent coefficients were obtained.

SLOAN RESEARCH FELLOWSHIPS

Nominations for candidates for Sloan Research Fellowships are due by **September 15, 2002.** Candidates must be members of the regular faculty at a college or university in the United States or Canada and must be at an early stage of their research careers. For information contact: Sloan Research Fellowships, Alfred P. Sloan Foundation, 630 Fifth Avenue – Suite 2550, New York, NY 10111; email: teitelbaum@sloan.org; url: www.sloan.org.

BOOK REVIEW

Maralee Mayberry, Banu Subramaniam, and Lisa Weasel, editors. **Feminist science studies: A new generation**. Routledge, New York, 2001. 368 pages. ISBN 0-415-92696-3, $23.95 (paper).

Reviewed by sarah-marie belcastro, Department of Mathematics and Computer Science, Xavier University, Cincinnati, Ohio 45207-4441; e-mail smbelcas@cs.xu.edu. Book review editor: Marge Murray, Virginia Tech

"As always, introductions are read first and written last." So begins the three editors' introduction to the anthology under review. As part of this introduction, they attempt to explain the title of the volume and in doing so offer definitions of "generation" and of "feminist science studies." While their definition of "generation" overlaps greatly with that found in the dictionary, their definition of "feminist science studies" does not communicate well to those not in-the-know. With a view to helping prospective readers understand what feminist science studies is, I turn to my copy of *A Glossary of Literary Terms*, whose section on feminist criticism I summarize below.

Most feminist criticism proceeds from the assumption that we live in a patriarchal society. In this view, men and the masculine are the social norm and default, whereas women and the feminine are considered less important and even defined as those-who-are-not-male and that-which-is-not-masculine. Further, gender is mainly socially constructed and defined; in other words, whether "feminine" implies "wearing a skirt" depends on current social mores. Feminist criticism supposes that these gender constructions and the primacy of men/masculinity pervade all aspects of society and of human creativity and inquiry.

One extension of feminist criticism is to ask why there are two categories of sex or gender at all. Why not more categories? Why not a continuum? (For a great book on how this line of thought has been applied to study the medical determination of sex, see [1].) Some theorists, Judith Butler primary among them, go so far as to critique the sex/gender distinction as invalid, drawing on studies (both biological and social) of sex and gender to do so.

Feminist critiques of science begin with questions such as these: Why are there fewer women than men doing science, when parity has been reached in other fields? Is there something structurally masculine about scientific culture or even scientific content? Might women do science differently than men? Might feminists do science differently than non-feminists? If these are answerable questions, how do (or should) the answers impact the practice and content of science?

Scholars from various fields have, over the past two decades, tried to answer these questions. A fairly comprehensive summary of what's been done can be found in the work of Londa Schiebinger (I recommend [2] on the whole, though Schiebinger does not deliver what she promises in the chapter on physical sciences). There is a body of work which is critical of the structure of scientific culture, and also work critical of scientific methodology, knowledge, objectivity, and even content. Some view this work as anti-science.

Where once there seemed to be recognizable subcategories within the "feminist critique of science"—such as feminist epistemology of science, feminist sociology of science, feminist science pedagogy, and feminist critiques of technology in society—these lines have become blurred. For example, someone trained in philosophy might write about the history of science, or a sociologist might write about mathematical logic. Furthermore, there is now a great deal of work done from a feminist perspective which is not critical of science itself, but suggests changes in the culture surrounding science or the way science is taught. The sum total of this work is now referred to as "feminist science studies."

The "old generation" of scholars, who worked in feminist science studies twenty years ago (or even ten!), were pioneers, starting from scratch. In the intervening time, there have been critiques published of the original feminist critiques of science, and critiques of those critiques. I wouldn't go so far as to say that feminist science studies is a mature field, but it has certainly changed and grown over the years.

The editors of the present volume have backgrounds ideally suited to their task. Mayberry is a sociologist who specializes in feminist science pedagogy; Subramaniam does both plant biology and women's studies; Weasel is a biologist who is affiliated with women's studies. The anthology purports to be representative of the current state of feminist science studies, but here it certainly falls short—there's nothing on feminist philosophy of science, for example, or on feminist critiques

of technology. However, what *is* in the book is interesting and valuable. The strongest of the papers are valuable because they are useful to practicing scientists and women's studies faculty alike. Even the weaker papers are of interest, because they reveal what folks in other fields are thinking about sciences/scientists.

Roughly a third of the essays have non-descriptive titles and subtitles. If you're not experienced in reading social science or humanities papers, some of the material is a bit frustrating to read. Many papers are overlong and wordy; some have an introductory rhetorical section seemingly unrelated to the paper's main point. A few of the essays are just plain difficult to read because of their heavy theoretical content.

The anthology is broken into four sections. The titles of these sections don't really convey their subject matter (at least not until you've read the papers within), so I'll describe each section instead.

The first section consists of essays on moving between the academic worlds of science and women's studies. All the essays in this section are well done. They discuss the backgrounds and career paths of academics who have switched fields or have joint appointments, and give tips on how to cope with moving between fields and how joint appointments might be structured. There are lots of arguments made about why it is valuable for scientists to get involved in women's studies. While this section doesn't exactly represent feminist science studies research, it is important because it documents the processes by which bridges are built between scientists and those who study science. It's probably the most coherent section in the book, and—incidentally—the easiest to read.

The second section centers on examples of the influence of gender on research in the biological sciences, though there are other topics discussed as well. This section is far less impressive than the first. M. Wyer's introductory essay is an interesting short history/survey of feminist science studies, but overstates the content of the individual papers it describes. A few of the papers are of rather low quality; most of the papers make a good point, essentially, but have serious flaws which detract from their overall value. Here's a sampling of the papers in this section:

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. For foreign travel, US air carriers must be used (exceptions only per federal grants regulations; prior AWM approval required).

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 US (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 *any* sources of funding from a governmental agency (for example, NSF, NIH, ONR, DOD, or NSA), is ineligible. Partial travel support from the applicant's institution or from a non-governmental agency does not, however, make the applicant ineligible; the availability or possibility of such partial support should be indicated in the applicant's budget.

Target dates. There are three award periods per year. An applicant should send *five* copies of 1) a cover letter, including the conference name, conference dates and location (city/state/country), and amount of support requested, 2) a description of her current research and of how the proposed travel would benefit her research program, 3) her curriculum vitae, 4) a budget for the proposed travel, and 5) information about all other sources of travel funding available to the applicant to: Travel Grant Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. If you have questions, contact AWM by phone (301-405-7892) or email (awm@math.umd.edu). Applications via email or fax will not be accepted. The next three deadlines for receipt of applications are **October 1, 2002, February 1, 2003**, and **May 1, 2003**.

The first three essays are somewhat disappointing. There's an excerpted interview with Donna Haraway, difficult to follow if you haven't already read Haraway's work. Elizabeth Henry reflects on a nonfiction writing class which struggled to read the biological content in Evelyn Fox Keller's biography of Barbara McClintock [3] until a fellow student passed around an ear of corn; I found it difficult to take this paper seriously. Michael Witmore's essay deals with the possibility that science might provide insight into the humanities, much as the humanities have provided insight into science; unfortunately he doesn't really go anywhere with his thesis.

Three papers by practicing biologists are much better. Michelle Elekonich describes her theorizing about female-female aggression in song sparrows, and how thinking as a feminist led her to consider additional hypotheses. C. Phoebe Lostroh's paper combines complaints about a cover graphic in *Science* magazine (including a gratuitous naked female), the usage of the phrase "sexy science," and the master molecule model in molecular biology. Although the paper is weakened by the attempt to combine these three issues, her discussion of the biased and biasing nature of the master molecule model is excellent, and makes the paper a must-read for that reason alone. J. Kasi Jackson, like Elekonich, describes the influence of feminist thinking on her theory formation. She raises the important point that classifying the animal world by sex may not be the most useful way to gain knowledge about its behavior. Jackson is definitely representative of the "new generation" of feminist theorists, who suggest that the concepts of sex and gender can no longer be separated, arguing that a binary categorization system does not describe the richness of human (or animal) experience and expression.

The second section's final paper, by J. Phillips and K. Hausbeck, is based on a survey of introductory geoscience texts. They note the frequency with which women (vs. men) were mentioned or pictured in scientific contexts, the racial decomposition of people in photographs, and the frequency with which geoscience was placed in social contexts. Their results are often startling; for example, women appear in roughly 28% of photographs which include humans, and their role in such photos is generally one of illustrating scale rather than as scientists. However, I think the authors are overreaching when they cite the use of phrases such as "young, hot rock" and "spreading center" as evidence that sexual metaphor is sometimes used to teach geologic concepts.

The third section of the anthology is devoted to educational issues and may be valuable for those with an interest in cross-disciplinary teaching. The introductory essay, by L.S. Jones and K. Scantlebury, describes their work in teaching biology and biological science education courses, at the college level, in social context. M. Mayberry's essay investigates the (incorrect) assumption many educators make that collaborative learning is intrinsically feminist pedagogy. The third paper in this third section is undoubtedly my favorite, co-authored by Bonnie Shulman, AWM member extraordinaire. This essay addresses an issue I constantly struggle with: how to bridge the gap between communication in the sciences and communication in the humanities/social sciences,

CALL FOR NOMINATIONS: LOUISE HAY AWARD

The Executive Committee of the Association for Women in Mathematics has established the Louise Hay Award for Contributions to Mathematics Education, to be awarded annually to a woman at the Joint Prize Session at the Joint Mathematics Meetings in January. The purpose of this award is to recognize outstanding achievements in any area of mathematics education, to be interpreted in the broadest possible sense. The annual presentation of this award is intended to highlight the importance of mathematics education and to evoke the memory of all that Hay exemplified as a teacher, scholar, administrator, and human being.

The nomination documents should include: a one to three page letter of nomination highlighting the exceptional contributions of the candidate to be recognized, a curriculum vitae of the candidate not to exceed three pages, and three letters supporting the nomination. It is strongly recommended that the letters represent a range of constituents affected by the nominee's work. *Five* complete copies of nomination materials for this award should be sent to: The Hay Award Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. Nominations must be received by **October 1, 2002**. For more information, phone (301) 405-7892, email awm@math.umd.edu or visit www.awm-math.org. Nominations via email or fax will not be accepted.

particularly around issues of science, gender, and critiques of science. The authors describe two years of seminars held at Bates College in which scientists studied the feminist critique of science while women's studies faculty studied science and scientific thought. As one might imagine, not everything went smoothly. The paper discusses both the problems that arose and prospects for future efforts along the same lines.

This lovely work is followed, most unfortunately, by one of the few papers in the volume which actually makes me angry. L. Weasel, M. Honrado, and D. Bautista discuss curriculum, addressing both physical sciences/engineering and women's studies. They offer two excellent approaches: (a) the revision of existing courses to include a feminist perspective and (b) the creation of new courses. However, they go on to describe the outlines of a new course that strikes me as fundamentally anti-physics and anti-mathematics. The course is based on controversial readings by S. Harding, M. Wertheim, and N.K. Hayles. Harding's work [4, Ch. 4] has been soundly trounced by a number of authors and most scientists—in it she claims that sociology is the correct model for physics. Wertheim's book [5] is poorly documented, so that I, for one, can't seem to find sources to back up her claims. Hayles' highly controversial paper [6] attempts to argue that fluid mechanics is masculine using dubious reasoning; for example, (a) the rigor of calculus comes from discrete arithmetic rather than from continuous functions, and (b) conservation laws come from the male intuition of conservation of male sexual energy. (As Dave Barry might say in jest at this point, I am not making this up.) Regrettably, while there are many credible works on the gendered nature of physical-scientific language, laboratory interactions, and funding decisions, there are few credible works on the gendered nature of physical-scientific inquiry. The course would benefit from a more judicious selection of course materials, or a more critical presentation of the materials selected.

What's more, their course includes a module which concentrates on gendered content and epistemology in the physical sciences—heavy going for experienced academics, let alone the undergraduates for whom the course is intended—without prior extensive discussion of what a "feminist science" would be. This is crucial, because (a) the term has by no means a universal definition and (b) the course requires students to "design a physical science experiment of their own, specifically incorporating a feminist approach to interpreting or practicing science." I don't know of any physical scientists who can give examples of such experiments (readers: if you know of such examples, please communicate them to me), so I don't see how undergraduates would be able to complete the assigned project.

After this exasperating essay, the one that follows is fantastic. R. Herzig gives concrete examples of how to involve science (and, in one example, mathematics!) content and culture in introductory women's studies

CALL FOR NOMINATIONS: ALICE T. SCHAFER MATHEMATICS PRIZE

The Executive Committee of the Association for Women in Mathematics calls for nominations for the Alice T. Schafer Mathematics Prize to be awarded to an undergraduate woman for excellence in mathematics. All members of the mathematical community are invited to submit nominations for the Prize. The nominee may be at any level in her undergraduate career, but must be an undergraduate as of October 1, 2002. She must either be a U.S. citizen or have a school address in the U.S. The thirteenth annual Schafer Prize will be awarded at the Joint Prize Session at the Joint Mathematics Meetings in Baltimore, Maryland, January 15–18, 2003.

The letter of nomination should include, but is not limited to, an evaluation of the nominee on the following criteria: quality of performance in advanced mathematics courses and special programs, demonstration of real interest in mathematics, ability for independent work in mathematics, and performance in mathematical competitions at the local or national level, if any.

With letter of nomination, please include a copy of transcripts and indicate undergraduate level. Any additional supporting materials (e.g., reports from summer work using math, copies of talks given by members of student chapters, recommendation letters from professors, colleagues, etc.) should be enclosed with the nomination. Send *five* complete copies of nominations for this award to: The Alice T. Schafer Award Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. Nominations must be received by **October 1, 2002**. If you have questions, phone 301-405-7892 or email awm@math.umd.edu or visit www.awm-math.org. Nominations via email or fax will not be accepted.

classes. Read this article and send it to your women's studies colleagues—but read Bonnie Shulman's article first so that you'll be prepared for their reactions.

The remaining essays in this section are a mixed bag. Perhaps the best of these is S. Kinsman's essay describing a biology/women's studies course on sexual reproduction on both the cellular and organism levels and across species, and how feminist perspectives have affected and can still affect research in these areas. The paper resonates with Elekonich's in that there's nothing surprising here, but it's well-written and captures the state of the art in thinking on how to teach biology while introducing the ways in which social norms have influenced research directions in the field.

The theme of the fourth and concluding section of the anthology is activism. The issues discussed focus on the politics of health, and include reproductive control in different cultures and economic classes, breast cancer causes and treatments, medicalization of motherhood in different cultures, and uranium mining on Native American land. There are two non-health papers, by S. Harding and L. Weasel; each is activist in the sense that it suggests action, but not in the sense of describing injustice. Weasel's paper discusses the concept of a "science shop" (an idea imported from the Netherlands), in which a university decides the focus of some of its research courses by taking juried suggestions from community groups. It's a compelling idea, and the logistical issues raised are worthy of working through. Harding presents five modes of inquiry which she feels are good candidates for new and additional sciences—mission-directed research, hybridized natural/social sciences, engineering/technology, science from other cultures (e.g. acupuncture), and everyday science (e.g. fishermen knowing about fish)—but it's not clear in which sense of "science" she means these to be taken. If we think of science as having explanatory and predictive power, then we already recognize mission-directed research and hybridized sciences as "science." As is often the case when I read Harding's work, I was confused as to whether I was misunderstanding her point, or whether she was simply making little sense.

The essays in this section exemplify two flaws common in feminist science studies writing. First, science is presented as a monolith: physics is lumped together with biology which is sometimes lumped together with sociology; or, a statement made about (usually) biological sciences is written as a statement about science in general. Second, the opinions of the author are presented as incontrovertible and thus needing no justification. The most blatant example is found in the opening lines of S. Harding's paper, where she declares several frequently criticized studies to be "far more accurate to the recorded history of science and to current scientific practices" than the widely accepted work of Thomas Kuhn [7]. Of course, it may take a paper or book unto itself to justify her views. In such a case, I expect that the author should present such views *as* views (rather than as fact). While these problems might be present in earlier sections of the book, they are certainly more pronounced in section four.

Finally, I would like to highlight a semantic

CALL FOR NOMINATIONS: THE 2004 NOETHER LECTURE

The Association for Women in Mathematics established the Emmy Noether Lectures to honor women who have made fundamental and sustained contributions to the mathematical sciences. This one-hour expository lecture is presented at the Joint Mathematics Meetings each January. Emmy Noether was one of the great mathematicians of her time, someone who worked and struggled for what she loved and believed in. Her life and work remain a tremendous inspiration.

The mathematicians who have given the Noether lectures in the past are: Jessie MacWilliams, Olga Taussky Todd, Julia Robinson, Cathleen Morawetz, Mary Ellen Rudin, Jane Cronin Scanlon, Yvonne Choquet-Bruhat, Joan Birman, Karen Uhlenbeck, Mary Wheeler, Bhama Srinivasan, Alexandra Bellow, Nancy Kopell, Linda Keen, Lesley Sibner, Ol'ga Ladyzhenskaya, Judith Sally, Olga Oleinik, Linda Rothschild, Dusa McDuff, Krystyna Kuperberg, Margaret Wright, Sun-Yung Alice Chang, and Lenore Blum.

The letter of nomination should include a one page outline of the nominee's contribution to mathematics, giving four of her most important papers and other relevant information. *Five* copies of nominations should be sent by **October 15, 2002** to: The Noether Lecture Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461; phone: 301-405-7892; email: awm@math.umd.edu.

difference between the way we (mathematicians and other scientists) commonly read the word "science" and the way it is used in many of these papers, across the anthology. To us, "science" usually means fields of inquiry such as biology, chemistry, physics, and mathematics (and to some people, medicine). In this work it additionally connotes the culture of scientific research, the communication of scientific results, and the implementation of applications of science. This last is the most common meaning "science" has in the final section of the anthology. Sometimes we're uncomfortable with imprecise and ambiguous uses of the term, and this can cloud our perceptions of the work we're reading. In reading some of the papers, I had to work at trying to see what the authors most likely mean rather than what they seem to be literally saying.

As perhaps the reader has gathered from this review, I have mixed feelings about this anthology as a whole. I wondered, at times, whether the editors did their job fully and well. There are a few grammatical and punctuation errors in the text (some repeated), and I question the inclusion of some weak papers at the expense of page count for stronger papers. On the other hand, editing a lengthy volume is a substantial amount of work and difficult decisions have to be made by editors and by publishers. I'm glad that I read the entire work for the benefits I'll derive from the strongest papers, and perhaps this review will help the reader selectively read the volume to her tastes.

NOTES

1. Fausto-Sterling, Anne. 2000. *Sexing the body: Gender politics and the construction of sexuality.* New York: Basic Books.

2. Schiebinger, Londa. 1999. *Has feminism changed science?* Cambridge: Harvard University Press.

3. Keller, Evelyn Fox. 1983. *A feeling for the organism: The life and work of Barbara McClintock.* San Francisco: Freeman.

4. Harding, Sandra. 1991. *Whose science? Whose knowledge? Thinking from women's lives.* Ithaca, New York: Cornell University Press.

5. Wertheim, Margaret. 1995. *Pythagoras' trousers: God, physics, and the gender wars.* New York: Times Books/Random House.

6. Hayles, N. Katherine. 1992. Gender encoding in fluid mechanics: Masculine channels and feminine flows. *Differences* 4: 16-42.

7. Kuhn, Thomas. 1962. *The Structure of Scientific Revolutions.* Chicago: University of Chicago Press.

EDUCATION COLUMN

In Search of Math Pacifism

Not long ago a colleague whom I like and trust gave me a severe jolt: because I am rather vocal in my support of the views on education commonly labeled the *Standards*-based reform movement, he attributed to me several quite radical opinions which I do not share at all. My first reaction was to feel attacked and wounded. Later I began to wonder: just how often am I doing the same thing to those who do not support *Standards*-based reform? While I was brooding about this point, there came to my attention an article written by Judy Roitman in the mid-nineties which in effect supplied the answer to my question: probably quite often. Furthermore it is not only my colleague and I who are making these incorrect assumptions, it is an appalling percentage of the mathematical community. The result is the so-called "Math Wars", which Roitman very articulately maintains to be far more of a perceived disagreement than an actual one.

The article itself is too long to reproduce here, and furthermore some aspects of it are now dated (Roitman plans to provide an update for us sometime soon). What I am hoping to provide here is a capsule version of the portions of her article which resonated with the ideas I was just beginning to formulate.

The most basic of her contentions is that there is no Math War. Real differences of opinion do exist, and there is certainly room for a lot of discussion. However, the tendency of both sides to focus on the most extreme statements from the other side, or to take part of an idea and use it to form a caricature by pushing it to an absurd extreme, has obscured a huge common ground. Roitman lists and responds to some of the most prevalent caricatures:

> Some of the false charges made against the *NCTM Standards*:

Ginger Warfield, Column Editor, Mathematics, University of Washington, Seattle, WA; warfield@math.washington.edu

1. No conventional algorithms are to be taught.

2. Constructivism rules: children must invent all of school mathematics.

3. Individual work is discouraged: children must not only invent all of school mathematics, they must invent it solely by working in small groups.

4. Proof is essentially eliminated.

5. Facility with arithmetic and algebraic manipulations is discouraged.

6. Mistakes go uncorrected — everything is okay in "fuzzy math."

7. Contextualism rules: all of school mathematics must be motivated by real-world problems.

8. Teachers never lecture, they facilitate.

Some of the false charges made against critics of the *Standards*:

1. Only conventional algorithms are allowed.

2. Children must do as they are told.

3. Only individual work is allowed — worksheet after worksheet after worksheet, with no chance for class discussion.

4. "Proof" means dry and dull two-column proofs in geometry of obvious statements from other obvious statements; no other reasoning is encouraged.

5. Except for Euclidean geometry only facility with arithmetic and algebraic manipulations is the focus of the curriculum.

6. Mistakes are to be corrected immediately by the teacher, without discussion.

7. The only word problems allowed are those for which the teacher can present a precise algorithm for solution.

8. Teachers only talk at students; teachers never listen to students and are insensitive to student needs.

These statements have just enough grounding in truth (it doesn't take very much) to be believable: for example, children in traditional classrooms often spend a lot of time working on worksheets, and children learning from NSF-sponsored curricula often spend a significant amount of time working in small groups. But they are also caricatures: good teachers of all sorts involve their classes in discussion, and children learning from NSF-sponsored curricula also spend a significant amount of time working on their own.

When discussion focuses on these caricatures, we become sidetracked. They are all false, and that is all that needs to be said about them.*

This is good stuff!

Elsewhere in the article, Roitman demonstrates the overlap in the views of the two sides by quoting a series of statements, some made by folks strongly aligned with one side of the argument, some by folks strongly aligned with the other. Each addresses some issue on which the sides are commonly held to have irreconcilable differences, and each expresses a view that caricaturists would attribute exclusively to the opposite side.

Her argument, as I say, is highly convincing. Suppose we accept her conclusion: there are no Math Wars. What then, aside from general unpleasantness and acrimony, is the harm from their perceived existence? Well, for a start, there does exist a genuine problem, as almost anyone will agree: far too many of our students are not learning the mathematics they need to learn. It is not a *new problem*. The results of TIMSS (the Third International Mathematics and Science Study) provoked a great deal of uproar, but in fact we did quite badly on SIMSS (the Second International Mathematics and Science Study) and FIMSS (you guess). Since the latter two antedate the *Standards* this problem does not represent evidence against the current efforts. The problem of poor math achievement runs deeper than that. How to solve it is not clear. What is clear is that ignoring our areas of agreement and focusing on our differences is not conducive to any kind of solution.

This situation in the mathematical community has been under discussion for a number of years now, as is clear from its central position in Roitman's article (published in 1999). What has changed since she wrote is the stakes. In the nineties most of us were watching, nonplussed but non-involved, the playing out of the Math Wars at the state level in California. Before our eyes, educational decisions turned political and leapt from the hands of educators and mathematicians into those of politicians. But to most of us California seemed far away, and a world unto itself. Surely nowhere else would we see such bizarre handling of matters

educational.

Have you looked at DC lately? Education, in particular mathematics education, has suddenly become a highly charged issue at the forefront of the Washington scene. Decisions are being pushed by people whose motivation it is extremely difficult to see as anything but political, and whose underlying objective appears to be to take control of mathematics education away from both educators and mathematicians. Massive mandates which are demonstrably detrimental to current student learning and even more so to the education of future students are in the works and are highly likely to be carried through. These are not plans that one side of the famous Math Wars would support against the other – they are plans *that none of us will find acceptable*. And even to the extent that some of us may agree with some of their agendas, politics and education make dubious bedfellows. To quote Judy Roitman once more (not from her article): those who live by the political process may find that later they die by it. Or, more gently put, the political process is often quite non-collegial, with winners and losers who find themselves trading places as political winds ebb and flow.

Do we really want Lynn Cheney making our decisions for us? If not, it is time for us to stop taking pot shots at each other. It is time for us to step back, look around, and join forces in support and protection of what every one of us values: the future of mathematics not just in academia, but in the world at large.

Note

* Roitman, Judy. "Beyond the math wars", *Contemporary issues in mathematics education*, Gavosto, Krantz and McCallum (ed), Oxford University Press, 1999.

HRUMC

Last spring I attended the Hudson River Undergraduate Mathematics Conference (HRUMC) hosted by Skidmore College. I was a first year college student and had just assumed that I wouldn't be giving talks at conferences until about 10 years later, after I got a Ph.D. in math. However, after going and listening to undergraduates give talks all day, I realized that even undergraduates could give interesting, informative talks! I was completely inspired to write my own.

This spring, I attended this year's Hudson River Undergraduate Mathematics Conference, this time hosted by Hamilton College. I expected the same general day that I had experienced the year before—a day spent listening to engaging fifteen-minute talks mostly by undergraduates. However, the big difference in my HRUMC experience this year was that I was going to give a talk of my own, which made everything even more exciting.

We arrived at the beautiful campus of Hamilton College about 8:30 Saturday morning. We had some time before the talks began, which gave us a chance to peruse the schedule for the day and choose the talks we wanted to attend. This required selective choosing, as there were 128 talks going on throughout the day, with people representing 39 different schools.

We spent the morning listening to talks, then all assembled together in a large auditorium to listen to a talk by Robert Devaney of Boston University on Chaos Games and Fractal Images. It was a fun, informative talk, with live computer-simulated generations of fractal images that I think all of us in attendance thoroughly enjoyed. We had a long break for lunch, giving us a chance to socialize with lots of other students interested in math, as well as with the large number of faculty who were there.

I gave my talk first thing after lunch, and it was a wonderful way to get introduced to speaking at conferences. I spoke to a classroom full of people, most of whom were also speaking that day, so understood exactly what I was going through. It wasn't as if I was talking in some intense, high pressure situation, but at the same time, it was a formal conference setting that made everything seem very professional. As I gave my talk, I didn't feel like an undergraduate trying out something new, but rather like a mathematician who was there to inform people of interesting mathematics.

The rest of the afternoon consisted of going to more talks, both by students and faculty. I had a great time, I met some cool people, I got to experience something new (giving a talk), and I learned a lot of math ... so in my mind, the Hudson River Undergraduate Mathematics Conference was a huge success.

Kari Lock, Student, '04, Williams College

SONIA KOVALEVKY HIGH SCHOOL DAYS

Funded through grants from the National Security Agency and Coppin State College. Thanks to our funding agencies!

Full reports for SKHS Days from the preceding grant period are included below. Beginning with the current grant, we are requesting each program to submit an activity report, to provide a database of successful activities for others to consider when setting up their own programs.

Nassau Community College

On Friday, October 5, 2001, Nassau Community College hosted the Second Annual Y2M: Yes to Mathematics Workshop. This day was designed to encourage young women to pursue the field of mathematics. The day began for the participants with a light breakfast and ended at 2:30 with the third workshop.

With the help of this grant, we, the Y2M Committee, were able to extend the length of the program from last year. The conference was attended by about 60 young women from four high schools. The small number of minority participants was disappointing, but the committee is looking into ways of encouraging participation from more diverse groups. Due to recent tragic events, which slowed down the mail, additional schools were not able to obtain buses or make travel arrangements. In light of all this, the day was a success.

The day began with team contests. The teams consisted of students from different schools. By mixing the groups this way, the students were able to interact with girls from other schools and try to work together to solve the given problems. The interaction was great and the motivation level was high.

After the contest the students were able to attend three interactive hands-on workshops. Each participant was assigned to a workshop that dealt with careers. We were also able to provide lunch to keep the mental juices of the participants flowing. After lunch, the participants attended one more workshop.

The workshops were conducted by faculty members of the Mathematics/Statistics/Computer Processing Department of Nassau Community College. A number of other faculty members helped with the logistics of the day. None of this would have been possible without their help. You need as much help as you can get to handle the various situations that come up during the day. Another source of help that we did not tap into were Nassau Community College students, who could have helped with giving directions, checking on speakers/ presenters, and getting supplies that were needed.

Rochelle S. Robert

New College of Florida, Sarasota

On Saturday October 27, 2001 over 100 people participated in the 2nd Sonia Kovalevsky High School Math Day at the New College campus. The main sponsors for this event were AWM through a grant from Coppin College and NSA, and the New College Foundation. The Sarasota branch of the American Association of University Women also contributed a substantial amount of money in support of this effort; the local AAUW chapter also supported the first SK Math day at New College.

Following a yearlong period of preparations for this event, a web page was set up by Professor Poimendou to facilitate electronic registration and the dissemination of information to the conference participants. A list of the participating schools, the conference program, biographies of the workshop leaders, and other info was available at the SK website www.ncf.edu/mathday/. Two mailings to math departments of over 200 area high schools resulted in 19 participating schools, 28 teachers and 57 female high school students.

Participants of the Math Day started arriving around 8:30 at Sudakoff Center, where six New College students welcomed them and helped them register and obtain their name tags, registration packages and math day T-shirts. The program began at 9:30 with Professor Poimenidou welcoming the participants, acknowledging the sponsors, introducing the workshop leaders and listing the participating schools. Mike Michaelson, president of New College and Professor of Religion, offered the official welcome to New College and underlined the institutional commitment to support and encourage the advancement and participation of women in mathematics and the sciences.

At 9:45 the keynote speaker of the event, Andrea Bertozzi, Professor of Mathematics and Physics at Duke University, delivered her interactive presentation on

Eirini Poimenidou

The 1st place team from Booker High School, SKHS Day, New College of Florida

"Perspectives on Science: The Impact of Mathematics in the Natural, Social, and Engineering Sciences," showcasing a panorama of research programs by women scientists who directly link mathematics to real-world problems. Topics included cancer research, genomics, the AIDS virus, nuclear physics, the spread of disease, finance, traffic flow, crystal growth, granular flow, computer graphics, and forensic science. Her talk was based on the NSF-funded program ADVANCE at Duke, an interdisciplinary course for first-year female students that links the sciences to mathematics, statistics, and computer science.

Following Bertozzi's presentation, the teachers and students participated in separate hour-long workshops. The teacher workshop, led by Stephanie Fitchett, Professor of Mathematics at the honors college of Florida Atlantic University, was entitled "Mathematical Modeling for the Environment." The parallel student workshop was run by Eirini Poimenidou, and it introduced students to problems related to polyominoes, including a challenge open problem that participants were encouraged to attempt after the math day. The title of her talk was "Trials with Tiles: flip n'tuvwxyz."

During lunch, Elena Jeliazkova, a Pine View School of the Gifted student, made a very engaging and entertaining presentation on the life of Sonia Kovalevsky. Following lunch, students and teachers separated again for afternoon workshops. The teacher workshop was delivered by Gladis Kersaint, Professor of Mathematics Education at USF-Tampa. The title of her presentation was "Gender Issues in Mathematics Education: Myths, Realities & Teaching Strategies." The charismatic Tasha Inniss, Professor of Mathematics at Trinity College, wowed the participants at the afternoon student workshop with her talk "The Beauty of Compound Interest: Understanding Stocks and the Market."

The participants gathered again at 2 P.M. for the the conference photograph. Following the photograph, the students and teachers were once again separated for the last conference activity. The teachers participated in a panel discussion moderated by Ann Hankinson, math teacher, Riverview High School, Sarasota. At the same time, participating students were working on problems based on the two student workshops of the day as part of the Math Day Competition. Students worked in three person teams, and each team submitted one set of answers. The competition was coordinated by Poimenidou and New College students who proctored and graded the exams.

The math day came to a close around 3 P.M. with the filling out of questionnaires evaluating the impact of the day's events. Finally, the three winning student teams were awarded gift certificates from the Barnes and Noble bookshop, each participant received a certificate

Student workshop, SKHS Day, New College of Florida

of attendance, and each participating school received a copy of the book *She Does Math* for their school library.

Here at New College, we are already planning our next Sonia Kovalevsky High School Math Day for Fall 2003. Several teachers offered to assist in planning and publicizing the event. We are pleased that our two SK days are helping to create a network of teachers, professors and community members and organizations that will work together for years to come to impact the lives of many young women as they are considering their career options. The event was hailed a great success by many of its participants.

Our presenters were all women and included two African Americans. Our audience was more diverse than last time including several African American students, some Hispanic American teachers and students and some Asian American students. We plan to work with our newly appointed director of the New College Diversity center, Tasha Bradley, to increase the participation of minority students and teachers in the 2003 Math Day.

We thank again our generous sponsors and we hope that we can count on their support again as we plan our 3rd Sonia Kovalevsky Math Day. I also want to take this opportunity to thank again the workshop leaders for the enthusiasm that they brought to the program.

The Sage Colleges Troy, New York

The Sage Colleges were pleased to host their second annual Girls And Math Equal Success (GAMES) program for high school girls on Friday, October 19, 2001. This program, sponsored by AWM, Coppin State College, the National Security Agency, and The Sage Colleges, was held on the campus of Russell Sage College for Women in Troy, NY. We hosted a total of 33 students and eight teachers from seven different schools. The students were sophomores, juniors, or seniors. Four individuals, three of whom are faculty of The Sage Colleges, presented hands-on workshops to the students and teachers, while five women participated in a career panel. Throughout the day, Russell Sage College Students belonging to the group SMaRT (Science, Mathematics, Research, and Technology) Women helped with organization, directing traffic, and greeting the visiting students.

The day began with registration and refreshments. Each student had her own folder containing a copy of the day's program, campus map, information sheet on the AWM, AWM Newsletter, the booklet *Careers That Count*, pad of paper, pen and pencil, a response card for more information, and an evaluation form. Each teacher

also had her own folder containing the same material, with *Great Jobs for Math Majors* replacing *Careers That Count.* All participants were given T-shirts featuring the GAMES logo. Once all participants were registered, Professor Tina Mancuso of the Division of Mathematics and Computing Sciences of The Sage Colleges gave some opening remarks and a PowerPoint presentation on Sonia Kovalevsky's life.

There were two morning workshop sessions. During each session, students could choose which student workshop to attend, while there was one long workshop for the teachers. The sessions were as follows: Tilings and Tesselations (Nancy Buckley), Geometer's Sketchpad (Tom Sweeney), MonteCarlo Simulation (Tina Mancuso) and Teacher Workshop: Creating Your Own Home Page (Jamie Bickel).

As an introduction to the luncheon, Dean Enid Burrows of Russell Sage College presented some welcoming remarks and a discussion of the issues facing women in mathematics. She also told the students about the recent National Science Foundation grant awarded to Sage for Scholarships In Mathematics And Computer Science (SIMACS). Lunch featured a sandwich buffet. This provided a wonderful opportunity for the Sage faculty and students to chat with the visiting faculty and students. From 12:30-1:15, tour guides from our Admissions office took the students and any interested teachers on a tour of the campus.

The career panel took place from 1:15–2:15, followed by a closing reception and time to fill out evaluation forms. The panelists were: Shellie Asher, Emergency Room Physician, Albany Medical Center; Nancy Buckley, High School Mathematics Teacher, Amsterdam High School; Diana Delp, Architect, University at Albany; Laura Ahanj, Pharmacist, University at Albany; and Tammy Muselbeck, Software Engineer, Visionary Software Solutions.

We began with each panelist giving a five-minute introduction to herself, her field, her particular job, her education and career path, etc. This was followed with questions from the audience. This was a wonderful way for the students to hear first-hand about careers that involve the use of mathematics, whether directly or indirectly. A reception immediately followed, giving the students and panelists an opportunity to interact in a one-on-one fashion.

The feedback we received from all our participants was very favorable.

As the day began we believed that seven students would be staying for our evening program. However, for various reasons only one student elected to stay through the afternoon into the evening. Since there was only one student, we changed plans, and the student attended a seminar with one of our SMaRT students and then participated in Math Games with the SMaRT women. The evening ended with a pizza dinner, concluding at about 7 P.M.

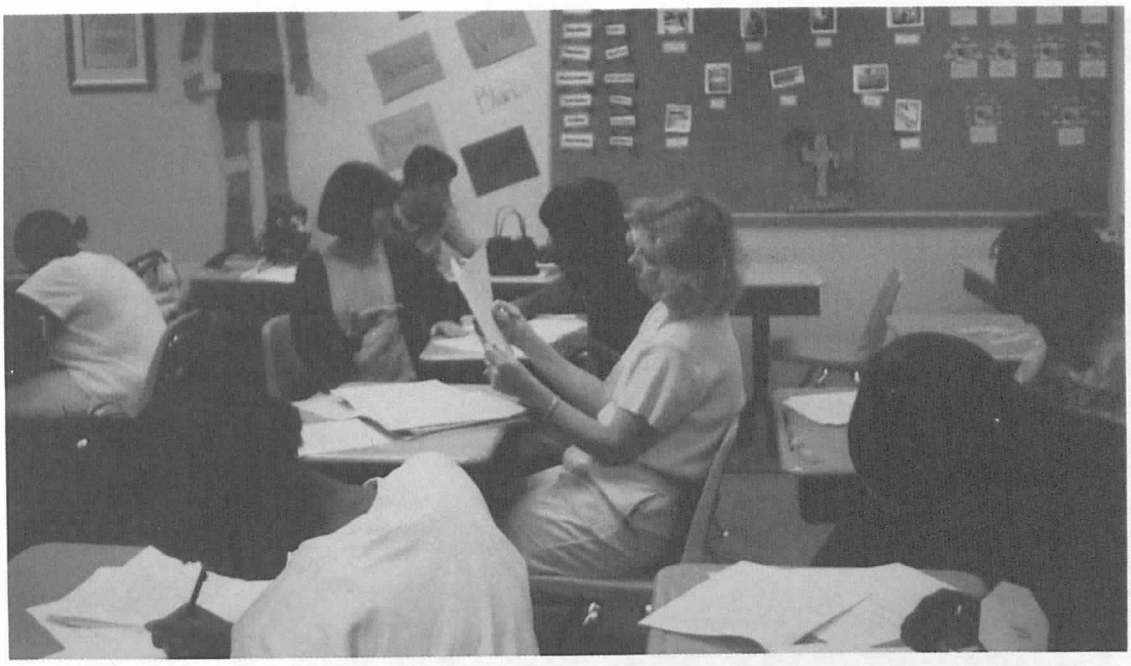
Having hosted a high school program for three years now, we continue to fine-tune the program. As some schools need to be back by 2:30, having the career panel end at 2:15 is a bit late. When we run this program next year, funded by the MAA/Tensor Foundation, we will hold the career panel earlier, possibly directly after lunch, with the tour following that for those interested. Based on the evaluations, the students most enjoyed the career panel, and so we feel it is important to make this available to all of those attending.

Although our numbers were lower than budgeted, we feel that this is due in part to changes in school policies on field trips, in the wake of the events of September 11. We know this to be the case with two of the schools that had planned to attend but ultimately did not. When the announcement is sent next May for next year's program, we will also make efforts to send the announcement directly to at least two high school mathematics teachers in each district. We would also like to put a particular emphasis in targeting a newly hired teacher in each school district.

Mercer Featured Activity

At the Mercer University Sonya Kovalevsky Day on April 20, 2002, Carolyn Yackel fascinated students with an introduction to cryptography followed by a code breaking activity. Rather than focusing on the latest techniques, she led students through the development of cryptosystems from staff ciphers to Caesar ciphers to Vignere ciphers. After mentioning substitution ciphers, but before moving to Caesar ciphers, there was an in-depth investigation of modular arithmetic, starting with a discussion of time keeping. This discussion helped the investigation into Caesar and Vignere ciphers in several ways. First it aided the students in "inventing" the idea of the Caesar decoder—two concentric circles, joined at

Carolyn Yackel, yackel_ca@mercer.edu



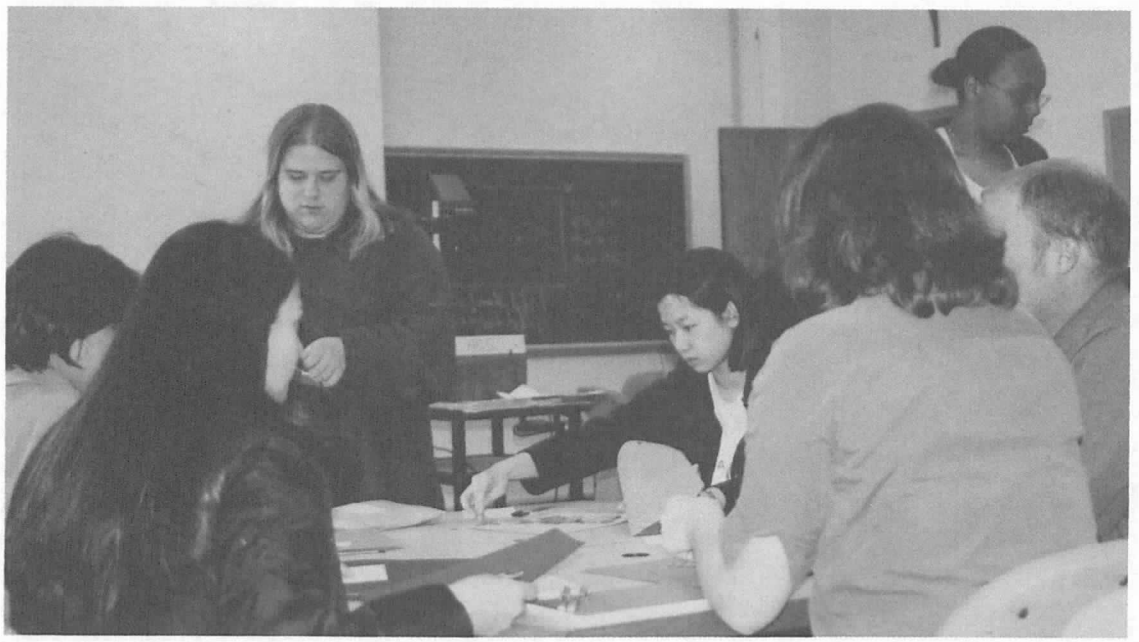
Mercer University SK Day: Carolyn Yackel (middle) and
Lynn Weathers (back) talk with participants during coding activity

the middle, each divided equally into 26 sectors with the alphabet written in order through the sectors. These were easy to make with paper and paper clips. After the students' "invention," pre-made decoders were distributed. Second, the discussion of modular arithmetic included a brief foray into multiplication and division that allowed the students to ponder the potential superiority of using a prime modulus. Third, the ideas of divisibility, including greatest common divisor and least common multiple, inherent in a discussion of modular arithmetic, primed the students for one portion of solving a Vignere cipher. The interactive lecture was peppered with historical references and an ongoing example of potential communication between the two speakers that should not be intercepted by the other faculty member. These examples led naturally to a discussion not only of encoding, but also of code breaking. Through the talk the level of mathematics varied greatly from things every participant understood well to that which none could quite grasp. This range allowed students to glimpse complicated mathematics without becoming intimidated.

The activity consisted merely of three encoded messages, each a quote from a book. The messages were encoded using a Caesar cipher, a keyword cipher (which is a type of substitution cipher), and a Vignere cipher. Jeff Denny supplied Maple programs to simplify the correct encoding of the messages. (These programs are available upon request.) The participants were told which three ciphers were used, but not which messages was encoded with which cipher. The participants were also not initially told the keywords for the keyword and Vignere ciphers, though these were given later as hints. This kind of activity is usually quite difficult, yet no one seemed to become discouraged. The faculty circulated, discussing results with various students, suggesting attacks, and encouraging efforts. It was wonderful to witness the delight of the participants as they identified the type of encoding used on a given message. Most affirming was that everyone was so engrossed in the activity that we went over by twenty-five minutes before realizing it was past time to end.

Mississippi University for Women Featured Activity

Mississippi University for Women hosted its Fifth Sonia Kovalevsky High School Mathematics Day in cooperation with Mississippi State University on Friday, April 12, 2002. One of the most popular activities was



Working on tessellations, SKHS Day, St. John's University

the session on origami boxes led by Dorothy Kerzel of MUW. The students liked the hands-on nature of the activity and ended up with a souvenir of the day.

The session started with an introduction to unit origami. With this variation of origami, one folds multiple copies of a unit that are pieced together into a different object—in our workshop, the object was a simple square box. The base and the top of the box each required four sheets of origami paper. Each student was given four sheets of two different colors to construct their box. The folding instructions came from the book *Origami Boxes* by Tomoko Fuse—pages 19–21 for the base and pages 24–26 for the top. The origami paper was ordered from Key Curriculum Press and came in packages of 400 six-inch square sheets.

As the students work on their constructions, Kerzel asked questions about shape and size that naturally arise from the folds themselves. For example, what angles are created by the folds? What is the area of the different shapes created by the folds? What is the proportion of smaller shapes to larger shapes created by the folds? The number and type of questions will depend on the size of the group, the background of the group, and the amount of time available.

We had over 100 participants at the Sonia Kovalevsky Day, which presented a number of challenges for a hands-on activity of this sort. I strongly recommend having a number of origami tutors (e.g., math majors) in the room to help students with the more difficult folds and with the final construction of the box. Also, I recommend having a second folding activity prepared for those students who may finish early.

For more information, please contact Dr. Jane H. Wenstrom at jwenstro@muw.edu.

St. John's University Featured Activities

Although there were many activities for the students to participate in this year, two new ones were added.

The first was a 90-minute workshop, which the students could select versus the usual choice of two 45-minute workshops. We were not at all sure how 90 minute sessions would appeal to students. To our delight, however, this workshop entitled "The Mathematician behind the Artist" drew a very good response. Different types of art were studied. Pointillism and the artist Seurat's work were examined: how he put little dots of

Rora Iacobacci. iacobacr@stjohns.edu and Anne Hughes, hughesa@stjohns.edu

Working on a new question at the Junior Math Bowl, SKHS Day, St. John's University

color on the canvas, *dot, dot, dot*, zero-dimensional points, hundreds upon hundreds of them, creating a work of breathtaking beauty.

Next Anamorphic Art was illustrated using simply a cylindrical can covered with a piece of mylar, which can be bought at any art shop. Students examined rectangular shapes and saw how they became curvilinear on the cylinder and conversely, distorted shapes were straightened out, after reflecting them on the cylinder. Paintings such as Holbein's *The Ambassadors* illustrated the use of anamorphic art. Students were amazed that going from rectangular to polar coordinates and vice versa were the mathematics behind such fascinating art.

Escher's work was also examined, and the mathematical concepts involved were investigated. Students then tried their hand at covering the plane with their own designs. When the 90 minutes were up no one wanted to leave the workshop.

The second new activity this year was a poetry contest. Along with the announcement of the Day, students were invited to write a poem on any aspect of mathematics or using mathematical terms to describe any situation and to bring it with them to SKMD. We made a brightly covered box to receive any entries, but frankly we were not too sanguine about the outcome. To our surprise, when students arrived, many of them deposited sheets of paper in the poetry box. The poetry box was in front of a poster board with the title "Mathematics is Poetry" at the top and math poems, some by famous authors, along the sides. During lunch our math majors read the entries and selected the three best ones. Their names were read out and the poets were invited to come up and read their works. Three proud poets read to a delighted and enthusiastic group of their peers. Next year, we will have available more than three prizes for the contestants.

Valdosta State University Featured Activity

This activity is designed to teach students how to use mathematics to estimate a population. The students combine the use of basic counting, fractions, percentages, and averages, along with some hands-on work, to draw conclusions about the number present in a population using beans.

Denise Reid, dtreid@valdosta.edu, and Kathy Simons ksimons@valdosta.edu

Population sampling workshop, SKHS Day, Valdosta State University

To conduct this activity, you will need the following supplies: dry white beans, red food coloring, plastic containers, plastic scoops, tape, paper, pencils, calculators, and a worksheet.

The worksheet is divided into four columns, headed Number of Sample, Number of Dyed Beans, Total Number of Beans, and Percentage of Dyed Beans in Sample, Col. 2 ÷ Col. 3 × 100. There are 10 rows for Samples 1–10 and another row for the Totals. At the bottom, the following text is enclosed in a box: Suppose that we know that 30 dyed beans have been placed in our sample space. To calculate the total number of beans in our sample space we use the proportion

$$\frac{30}{x} = \frac{\text{total percentage}}{100}.$$

A few days before the activity, you will need to dye a small portion of the beans with the food coloring. You do this by soaking the beans in water and food coloring overnight. You then let the beans dry. In each of the plastic containers, add a known number of red beans. Fill the remainder of each container with white beans and then mix well. On the bottom of each container, tape a small piece of paper with the number of red beans written on it. We varied the number of red beans in each container and also the sizes and shapes of the containers.

Before beginning the activity, talk with the students about how they think we can guess the number of fish in a pond. Ask them if they have ever heard about "tagging" animals and if they know what this involves. Ask if they have ever wondered how aerial photographs are used to estimate the population of deer. Give the students time to discuss these ideas.

Divide the students into groups of two and give each group a container of beans, a scoop, and a worksheet. Let them take sample scoops from their container and record the number of red beans and the total number of all beans in their sample. They will record this information on their worksheet and then calculate the percentage of each scoop that is red. After taking several samples, the students average the percentages to calculate what percentage of their container contains red beans. They then look on the bottom of their container to see how many red beans they have. The students can then use the formula (number of red beans)/(total number of all beans) = (average percentage of beans that are red)/100 to estimate the total number of beans in their container.

After the students finish the activity, discuss with them how this relates to the idea of calculating the number of fish in a pond or the number of deer in a certain area. Explain how the red beans were our

"tagged" animals that had been re-released into the wild and how our scoop was just a scoop of fish or an aerial photograph of the deer. The same techniques that we used in this activity are used everyday by environmentalists, marine biologists, entomologists, and forestry and wildlife management researchers.

Tesselation workshop, VSU SKHS Day

AAAS ACTIONS

Resolution on Freedom of Speech

Whereas the American Association for the Advancement of Science (AAAS) continues to believe that the strength of US science and engineering and the productivity of academic scholarship requires free inquiry, and

Whereas the AAAS continues to recognize the crucial role of higher education in providing an environment in which democracy and inquiry can flourish,

Therefore, in support of the position of our affiliate, the Society for Social Studies of Science, the AAAS

Recognizes that freedom of speech is central to the functioning of a democratic society;

Underscores that higher education should play a crucial role in promoting these democratic values and contributing to an educated citizenry;

Affirms the central role that critical debate and free inquiry play in enabling education to deliver this democratic function; and

Therefore, concludes that all members of society should be free to reflect critically upon, and constructively contribute to public debates on issues of technology, science, democracy and war.

Council Statement Regarding the Smithsonian

The Council of the American Association for the Advancement of Science, the world's largest general scientific organization, expresses its concern about some recent proposals regarding the directions and activities at the Smithsonian Institution that seems to depart from its traditional commitment to maintain properly its extraordinary and historical collections and resources and the research associated with them.

We, therefore, urge the Board of Regents to continue the longstanding leadership of the Smithsonian Institution in these areas.

Approved by the Council on February 17, 2002

TEXAS CONFERENCE

The Third Annual Texas Conference for Women will be held on Tuesday, September 10th, in Austin, Texas. This conference addresses issues involving the challenges that women face in their professional and personal lives. 3300 women attended this conference in 2001. See the website www.txconferenceforwomen.org for more information.

AWM WORKSHOP FOR WOMEN GRADUATE STUDENTS AND RECENT PH.D.'S

supported by the Air Force Office of Scientific Research, the Office of Naval Research, and the Association for Women in Mathematics

Over the past thirteen years, the Association for Women in Mathematics has held a series of workshops for women graduate students and recent Ph.D.'s in conjunction with major mathematics meetings.

WHEN: The next AWM Workshop to be held in conjunction with the annual Joint Mathematics Meetings will take place in Baltimore, Maryland, January 15–18, 2003. The workshop is scheduled to be held on Saturday, January 18, 2003 with an introductory dinner and discussion group on Friday evening, January 17.

FORMAT: Twenty women will be selected in advance of the workshop to present their work; the selected graduate students will present posters and the recent Ph.D.'s will give 20-minute talks. AWM will offer funding for travel and two days subsistence for the selected participants. The workshop will also include a panel discussion on issues of career development, a luncheon and a dinner with a discussion period. Participants will have the opportunity to meet with other women mathematicians at all stages of their careers. All mathematicians (female and male) are invited to attend the program. Departments are urged to help graduate students and recent Ph.D.'s who do not receive funding to obtain some institutional support to attend the workshop presentations and the associated meetings.

MENTORS: We also seek volunteers to lead discussion groups and to act as mentors for workshop participants. If you are interested in volunteering, please contact the AWM office.

ELIGIBILITY: Applications are welcome from graduate students who have made substantial progress towards their theses and from women who have received their Ph.D.'s within approximately the last five years (whether or not they currently hold a postdoctoral or other academic position). Women with grants or other sources of support are still welcome to apply. All non-US citizens must have a current US address. All applications should include a cover letter, a concise description of research (two to three pages), a title of the proposed talk or poster, a curriculum vitae, and at least one letter of recommendation from a faculty member or research mathematician who knows her research. In particular, a graduate students should include a letter of recommendation from her thesis advisor. Nominations by other mathematicians (along with the information described above) are also welcome. For some advice on the application process from some of the conference organizers see the AWM web site.

Send **five** complete copies of the application materials (including the cover letter) to:

Workshop Selection Committee
Association for Women in Mathematics
4114 Computer & Space Sciences Building
University of Maryland
College Park, Maryland 20742-2461

Phone: 301-405-7892
Email: awm@math.umd.edu URL: www.awm-math.org

APPLICATION DEADLINE: Applications must be received by **September 1, 2002**.
Applications via email or fax will not be accepted.

NSF AUTHORIZATION ACT

"The National Science Foundation (NSF) Authorization Act of 2002" sets the government's premier research agency on the path to doubling its budget over the next five years. The bill authorizes 15 percent increases in each of fiscal years 2003, 2004 and 2005. Specifically, the bill authorizes the following amounts:

- Research and Related Activities. The bill authorizes a 15 percent or $540 million increase in funding for research for FY 2003. Increases of 14 percent and 15 percent are provided for fiscal years 2004 and 2005 respectively. Within this amount, specific increases are provided for networking and information technology research, nanoscale science and engineering, mathematical sciences, and major research instrumentation.
- Education and Human Resources. The bill authorizes a 15 percent or $131 million increase in funding for science, technology, engineering and mathematics education for FY 2003. 15 percent increases are also provided for each of fiscal years 2004 and 2005. These increases fund existing programs as well as programs created by Science Committee education legislation pending before the Congress.
- Major Research Equipment and Facilities Construction. The bill authorizes an increase of 9.8 percent or $14 million for FY 2003. Increases of 48 percent and 27 percent are provided for fiscal years 2004 and 2005 respectively. These increases will enable the Foundation to reduce the backlog of large facilities projects that currently are awaiting funding.
- Salaries and Expenses. The bill authorizes the President's request for a 19 percent increase for FY 2003. The bill provides increases to cover inflation in each of fiscal years 2004 and 2005. This increase will increase the Foundation's capacity to conduct oversight of its grant programs.

Cutting-edge, world-class research requires not only talented scientists and engineers, but also a state-of-the art science and engineering infrastructure. Providing scientists and engineers with the necessary equipment and facilities is part of NSF's mission. As the number and cost of proposals has increased so has confusion as to how priorities are established for the inclusion of approved projects in the budget.

"The NSF Authorization Act of 2002" will provide greater transparency to the process through which major research and facilities construction projects are evaluated, prioritized, and selected for funding. The Act requires the Director to develop a list of the proposed projects, ranking the relative priority of each for funding. Upon approval of the list by the National Science Board (NSB), a panel of 24 eminent scientists who are appointed by the President to advise NSF, the Director will be required to submit the list to Congress along with a report describing how the projects were prioritized.

NSF and the National Aeronautics and Space Administration (NASA) sponsor the majority of Federally funded astronomy research in the United States. NSF has traditionally supported ground-based observatories and small research groups, while NASA's strength has been the support of major space-based missions. "The National Science Foundation Authorization Act of 2002," in response to concerns raised by a blue ribbon panel established last year by the National Research Council at the Administration's request, establishes an interagency advisory board to provide systematic, comprehensive, and coordinated planning of astronomy and astrophysics research and investments.

The NSB may not be complying with the spirit of the Government in the Sunshine Act (now contained in section 552b of Title 5 USC), which was intended to make meetings regarding a federal agencies' activities open to the public (with narrow statutory exemptions). The Board holds most of its meetings, including committee meetings where much of the Board's work gets done, behind closed doors, with a single session open to the public at the meeting's end.

"The NSF Authorization Act of 2002" requires the NSF Inspector General to conduct an annual audit of the NSB's compliance with the Sunshine Act, including the extent to which the proposed and actual content of closed meetings is consistent with those requirements. The IG will transmit this audit to the Congress along with recommendations for any corrective action that needs to be taken to achieve fuller compliance.

Introduced by Mr. Smith (MI), Ms. Eddie Bernice Johnson (TX), Mr. Boehlert, Mr. Hall (TX), and Mr. Smith (TX), Ms. Morella, Mr. Honda, and Mr. Ehlers

ADVERTISEMENTS

SMITH COLLEGE

Department of Mathematics Statistics

The Mathematics Department of Smith College invites applications for tenure-track position at the level of assistant professor, to begin in the fall of 2003. Candidates must have a Ph.D. in statistics or probability and must provide evidence of excellent teaching and an active research program. Experience teaching applied and mathematical statistics is strongly preferred. Send a curriculum vitae, a description of your research program, a statement of teaching experience and philosophy, and arrange to have three letters of recommendation sent to:

Statistics Search Committee
Clark Science Center
Smith College
Northampton, MA 01063

Applications will be reviewed as they are received and will be considered until the position is filled. Please indicate if you will attend the Joint Statistics meetings in New York. Smith College is an equal opportunity employer encouraging excellence through diversity.

Radcliffe Institute Fellowships

The Radcliffe Institute for Advanced Study at Harvard University awards about 40 fully funded fellowships each year. Radcliffe Institute fellowships support scholars, scientists, artists, and writers of exceptional promise and demonstrated accomplishment who wish to pursue work in academic and professional fields and in the creative arts. Applicants must have received their doctorate or appropriate terminal degree by December 2001 or have made comparable professional achievements in the area of the proposed project. The Radcliffe Institute welcomes proposals from small groups of scholars who have research interests or projects in common.

The stipend amount is $50,000. Fellows receive office space and access to libraries and other resources of Harvard University. Residence in the Boston area and participation in the Institute community are required during the fellowship year, which extends from September 8, 2003, through June 14, 2004. Fellows are expected to present works-in-progress and attend other fellows' events.

For more information, visit our Web site at www.radcliffe.edu. For an application, contact the Radcliffe Application Office at 34 Concord Avenue • Cambridge, MA 02138 • 617-496-1324 • 617-495-8136 fax • fellowships@radcliffe.edu. Applications must be postmarked by 10/01/02.

HARVEY MUDD COLLEGE - DEPARTMENT OF MATHEMATICS - Chairperson - Harvey Mudd College invites applications for a permanent position in mathematics at the full professor level. The successful candidate will begin service as department chair shortly after the appointment and will possess demonstrated leadership skills to support and mentor a young, enthusiastic department. Applicants should send a curriculum vita, a description of their teaching philosophy and accomplishments, a description of their current research program, and names and addresses of at least three persons as references. Only references of finalists for the position will be contacted. Applications will be reviewed as they are received, beginning September 15, 2002. Harvey Mudd College is an equal opportunity employer and is committed to the recruitment of candidates historically underrepresented on college faculties. For more information about the college and department, visit http://www.math.hmc.edu. Address for applications: **Professor Hank Krieger, Chair, Mathematics Senior Search Committee, Department of Mathematics, Harvey Mudd College, Claremont, CA 91711-5990.**

JOHNS HOPKINS UNIVERSITY, DEPARTMENT OF MATHEMATICS - The Department of Mathematics invites applications for two positions at the Associate or Full Professor level in the general areas of analysis, algebra, topology, number theory, and mathematical physics beginning Fall 2003 or later. Targeted areas of hiring are number theory and mathematical physics. Applicants should send a cover letter, curriculum vitae, and contact information for three professional references to **Chair, Hiring Committee, Johns Hopkins University, 3400 N. Charles Street, Krieger 404, Baltimore, MD 21218.** First round preference will be given to applications received by January 1, 2003. The Johns Hopkins University is an Affirmative Action/Equal Opportunity Employer and actively encourages interest from minorities and women.

JOHNS HOPKINS UNIVERSITY, DEPARTMENT OF MATHEMATICS - Director of Undergraduate Studies - The Department of Mathematics invites applications for the Director of Undergraduate Studies at the non-tenure track rank of Lecturer beginning Fall 2003. The position is renewable depending on performance. Required qualifications include M.A. or Ph.D. in mathematics; creative teacher with college teaching experience; ability to work well with others and play a leading role in curriculum development and using technology in teaching. The duties will involve administering the basic elementary mathematics courses: Pre-calculus, Calculus I, II, III, Linear Algebra, and Differential Equations. Responsibilities include supervision and training of Teaching Assistants, advising undergraduates, and coordinating course enrollment and scheduling with the Registrar and Office of Academic Advising. Applicants should send a cover letter, curriculum vitae, and contact information for three professional references to **Department Chair – Lecturer Hiring, Johns Hopkins University, 3400 N. Charles Street, Krieger 404, Baltimore, MD 21218.** First round preference will be given to applications received by November 15, 2002. The Johns Hopkins University is an Affirmative Action/Equal Opportunity Employer and actively encourages interest from minorities and women.

YALE UNIVERSITY- DEPARTMENT OF MATHEMATICS - Yale University applications accepted for Gibbs Instructorships/Assistant Professorships for Ph.D. with outstanding promise in research in pure Mathematics. Appointments are for two/three years, starting July 2003. The teaching load for Gibbs Instructors/Assistant Professors will be kept light, so as to allow ample time for research. This will consist of three one-semester courses per year. Part of the duties may consist of a one-semester course at the graduate level in the general area of the instructor's research. Applications and supporting materials must be received by January 1, 2003. Offers will be made during February. Salary at least $51,800. Applications are available at: http://www.math.yale.edu. Applications and supporting materials may be sent via U.S. mail to: **The Gibbs Committee, Department of Mathematics, Yale University, P.O. Box 208283, New Haven, CT 06520-8283** or via email to: gibbs.committee@math.yale.edu. Applications from women and members of minority groups are welcome. Yale is an AffirmativeAction/Equal Opportunity Employer.

AWM

Association for Women in Mathematics

2002/2003 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:
AWM Membership
4114 Computer & Space Sciences Building
University of Maryland
College Park, MD 20742-2461
The AWM Newsletter is published six times a year and is part of your membership. Any questions, contact AWM at awm@math.umd.edu; (301) 405-7892 or refer to our website at: **http://www.awm-math.org**

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JA_02

INDIVIDUAL DUES SCHEDULE

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

REGULAR INDIVIDUAL MEMBERSHIP	$ 50	
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ALL FOREIGN MEMBERSHIPS (INCLUDING CANADA & MEXICO)....**FOR ADDITIONAL POSTAGE ADD** **All payments must be in U.S. Funds** using cash, U.S. Postal orders, or checks drawn on U.S. Banks.	$ 8	
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Dues in excess of $15 and all cash contributions/donations are deductible from federal taxable income.

INSTITUTIONAL DUES SCHEDULE

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☐ CATEGORY **2A** (includes 3 student memberships; 1 free ad; 10% off additional Newsletter & online ads∗)....	$125	
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ADVERTISING: Institutional members on Categories 1 and 2a receive ONE FREE job link ad **or** ONE FREE Newsletter ad (up to 4 lines) for the membership year Oct. 1st to Sept. 30th. All institutional members receive discounts on other eligible∗ advertisements (25% off for Category 1 and 10% off for Categories 2a and 2b). ∗Eligible advertisements: The institutional discount applies to both classified and job link online ads as well as classified *Newsletter* ads, but it does not apply to *Newsletter* display ads. If institutional dues have not been received by the invoice date, the full advertising rate will be charged. *Newsletter* advertising deadlines are the 1st of every EVEN month. All institutions advertising are Affirmative Action/Equal Opportunity Employers. **STUDENT NOMINEES:** Institutions have the option to nominate students to receive the newsletter as part of their membership. List names and addresses of student nominees on opposite side or attach a separate page. [ADD $15 ($23 for foreign members) to the listed institutional rate for each student add-on over the initial 10 students for Category 1; over the initial 3 students for Category 2a & over the initial 6 students for Category 2b]. For more advertising/membership info see **www.awm-math.org**

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Volume 32, Number 4, July–August 2002

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Maryland 20742-2461

or E-MAIL:

awm@math.umd.edu

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