

# Association for Women in Mathematics

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NEWSLETTER

July-August 1990

## PRESIDENT'S REPORT

I am looking forward to a lively and interesting panel, "Enrichment programs in urban public schools," this summer in Columbus. The panelists will include Jacqueline Rivers, who runs The Algebra Project in Boston, Paul Sally, who directs the University of Chicago summer program for mathematically talented youth, and Harvey Keynes, who has been involved in an effort to increase the number of girls participating in the University of Minnesota Talented Youth Mathematics Program (UMTYMP). An article by Keynes describing the intervention program appeared in the last issue of the *AWM Newsletter*. While the latter two programs deal with mathematically talented youth, The Algebra Project, started by Bob Moses in Cambridge, Massachusetts, uses mathematics as a vehicle to raise the level of academic performance in general of inner city youth.

Remember, there will be an award ceremony for the Schafer Prize winners at the beginning of the Business Meeting in Columbus, so please come to meet and applaud these talented young women. We would like to increase the endowment so that the prize can be self-supporting, and I hope that you will all help us in this task.

I am delighted to congratulate two of our members: Cathleen Morawetz on her election to the National Academy of Sciences, and Lee Lorch on the receipt of an honorary degree from the City University of New York.

Rogers Newman, President of the National Association of Mathematicians, sent me a very nice note thanking the AWM for our congratulatory letter on the occasion of their 20th anniversary. Lida Barrett and I have appointed a joint AWM/MAA committee to examine and coordinate the activities of the MAA's Women and Mathematics (WAM) project and those of the AWM. The AWM representatives are Rhonda Hughes, Tricia Cross, and Carol Wood. The AMS has asked if the AWM would like to become an official member of the Joint Committee on Women. Although we have had a representative on the committee since its beginning, we are not a co-sponsor. The AWM Executive Committee will decide on this issue in August.

Beth Ruskai has informed me that the AAAS has approved our proposed session for the AAAS annual meeting in March 1991. The session will be part of our 20th anniversary celebration activities and will present a number of women mathematicians speaking about mathematics and public policy. We will announce the speakers when the program is set.

Last month, while I was at the CBMS meeting in Washington, two things came to my attention. The first was the availability of the CBMS office in the MAA's Dolciani Center for use by member organizations. The second is the decreasing number of proposals CBMS is receiving for their regional conferences. These conferences are supported by NSF. NSF generally provides \$25,000 per conference and has, in the past, included one month of summer support for the organizer. I encourage any of you with good ideas to apply.

On a more solemn note, I am sorry to say that Jessie MacWilliams died on May 27. She was the first Noether Lecturer. MacWilliams made fundamental contributions in the field of coding theory and worked for many years at AT&T Bell Laboratories. [See obituary below.]

The second David report, *Renewing U.S. Mathematics: A Plan for the 1990s*, was released in April. One of its recommendations was to "improve the career path in the mathematical sciences." In expanding on this point, the report states that "recruitment of women and minorities into the mathematical sciences is a high priority." Recruitment is a good first step, but continuing support is crucial to successfully increasing the representation of women and minorities in the mathematical community.

See you all in Columbus.

Jill Mesirov  
Thinking Machines Corporation  
245 First Street  
Cambridge, MA 02142  
mesirov@think.com

#### NSF-AWM TRAVEL GRANTS FOR WOMEN

The objective of the NSF-AWM Travel Grants is to enable women to attend research conferences in their field, thereby providing a valuable opportunity to advance women's research activities, as well as to increase the awareness that women are actively involved in research. If more women attend meetings, we increase the size of the pool from which speakers at subsequent meetings are drawn and thus address the problem of the absence of women speakers at many research conferences.

The Travel Grants. The grants will support travel and subsistence to 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.

Eligibility. Applicants must be women holding a doctorate in a field of research supported by the Division of Mathematical Sciences of the NSF (or have equivalent experience). A woman may not be awarded more than one grant in any two-year period and should not have available other sources of funding (except possibly partial institutional support).

Target Dates. There will be four award periods per year, with applications due November 1, February 1, May 1, and August 1.

Applicants should send a description of their current research and of how the proposed travel would benefit their program, a curriculum vita and a budget to Association for Women in Mathematics, Box 178, Wellesley College, Wellesley, MA 02181.

#### RUTH LYTTLE SATTER PRIZE IN MATHEMATICS

Joan Birman has endowed an AMS prize to be awarded in odd-numbered years to recognize an outstanding contribution to mathematics research by a woman in the previous five years. The first Satter Prize will be awarded at the Joint Mathematics Meetings in San Francisco in January, 1991.

In addition to Professor Birman, the prize committee consists of Linda Keen of Herbert H. Lehman College of the City University of New York (chair) and Karen Uhlenbeck of the University of Texas at Austin. The committee invites nominations from the mathematical sciences community for candidates for the prize. Nominations should include the candidate's name, affiliation, field of research, and a description of the work for which the prize would be awarded.

Please send nominations to Robert M. Fossum, Secretary of the AMS, Department of Mathematics, University of Illinois, 1409 W. Green Street, Urbana, IL 61801. Nominations must be received by **September 30, 1990.**

#### THERE THEY GO AGAIN!

Robert A. Rosenbaum, Director of PIMMS (the Project to Increase Mastery of Mathematics and Science), has sent a letter of protest to the owner of a company selling a T-shirt with the caption "I became a mother when I found out there wasn't any math involved." (The other shirts in the series aren't prizes, either: "I have to keep shopping. I know my life will work if I can just find the perfect outfit." "Now you know I don't repeat gossip, so I'm only going to say this once ... .")

## JESSIE MACWILLIAMS: IN MEMORIAM

from the *New York Times*, May 31, 1990, p. D23

Florence Jessie MacWilliams, a mathematician and a developer of the digital coding used in computers and telecommunications, died of an embolism on Sunday [May 27] at Morristown (N.J.) Memorial Hospital. She was 73 years old and lived in Bernardsville, N.J.

Mrs. MacWilliams was on the staff of A.T.&T. Bell Laboratories for 24 years and contributed to developing the coding to correct telephone and satellite communications errors. With Neil Sloane, she wrote a text, *The Theory of Error-Correcting Codes*.

A graduate of Cambridge University, Mrs. MacWilliams joined Bell Labs in 1957. She received a doctorate from Harvard in 1962. Mrs. MacWilliams discovered a set of fundamental equations, the MacWilliams Identities. She retired in 1982.

Surviving are her husband, Walter; a daughter, Anne Riley Patterson of Princeton, N.J.; a son, Harry, of Munich, West Germany; and four grandchildren.

## NSF/AWM TRAVEL GRANTS

The following women received NSF/AWM Travel Grants in the May 1990 award period. Congratulations!

Amy Babich, Austin, Texas  
Fifth International Topology Conference, Yugoslavia, June 1990

Lia Bronsard, Institute for Advanced Study, Princeton  
SIAM Conference on Dynamical Systems, Florida, May 1990

Kathryn Chaloner, University of Minnesota  
Workshop on Modeling Oriented Data Analysis, Bulgaria, May-June 1990

Menerva Cordero-Vourtsanis, Texas Tech University  
Combinatorics '90, Gaeta, Italy, May 1990

Greta M. Ljung, MIT  
IMS, Sweden, August 1990

Magda Peligrad, University of Cincinnati  
IMS, Sweden, August 1990

Emma Previato, Boston University  
Oberwolfach, July 1990

Rodica Simion, George Washington University  
Conference on Lattice Path Combinatorics and Applications, Ontario, Canada, July, 1990

Hong Zhang-Sun, Clemson University  
SIAM Annual Meeting, July, 1990

## STUDY ON HIRING OF WOMEN FACULTY

CSWP, the women's committee of the physics society, recently made a survey of the hiring patterns in the top ten physics departments. The fraction of women receiving new Ph.D.'s in these departments from 1982-88 was 7.6%, while the percentage of new hires was 5.5%. The top five departments had a rate at or above 8%, while the five lowest had a hiring rate of only 2%.

From the report:

In summary, then, the good news is that hiring in the top university physics departments has not fallen as far short of the Ph.D. composition as the faculty statistics and anecdotes would lead us to believe over the last seven years. The number of female faculty has nearly doubled in the interim. The bad news is that it needs yet to quadruple from the present position before faculty composition will accurately reflect the current Ph.D. demographics. Moreover, half of the major schools are hiring virtually no women at all.

What are the comparable statistics for us? We would like to encourage someone to do a similar survey using existing data for the mathematics community.

## AWARDS AND HONORS

most of this information is from the *AMS Notices*

Congratulations to Esther Szekeres, who recently received the title of Doctor of Science (*Honoris Causa*) from Macquarie University in Australia. She engaged in many activities to foster the mathematical talents of her students. (She and her husband George translated the Emmy Noether letters to Richard Brauer in old German script that Brauer had given to Alice Schafer; these letters are now in the Bryn Mawr archives.)

Congratulations to Bonnie Berger and Dorshka Wylie, recent recipients of NSF Mathematical Sciences Postdoctoral Research Fellowships. By coincidence, they are both planning to receive their doctoral degrees from MIT this year and to continue at MIT for their postdoctoral work. Berger will pursue research in the area of the design and analysis of parallel algorithms for problems in combinatorics, graph theory, computational geometry, and optimization. Wylie's field of research is set theory, and she will pursue research in the area of higher core models.

Congratulations to Carolyn Gordon of the Washington University of St. Louis, who has received one of the three AMS Centennial Fellowships for 1990-1991. She received her Ph.D. in 1979 from Washington University under the direction of Edward N. Wilson. After spending a year at the Technion-Israel Institute of Technology as a Lady Davis Postdoctoral Fellow and four years at Lehigh University, she returned to Washington University, where she was promoted to Associate Professor in 1987 and to Professor in 1989. She has also been a frequent visitor at the University of Pennsylvania.

Professor Gordon's primary research interest is differential geometry, especially eigenvalue problems on Riemannian manifolds and applications of Lie groups to differential geometry. Recently, she has focused on the analogue of the question "Can you hear the shape of a drum?" for closed manifolds.

Four of the twenty Sloan Fellowships in the mathematical sciences awarded this year go to women. Congratulations to Raneé Kathryn Brylinski, Pennsylvania State University; Ursula Hamenstadt, California Institute of Technology; Thea Pignataro, Columbia University; and Alice Silverberg, Ohio State University.

Congratulations to Susan A. Murphy, who has received an NSF-NATO Postdoctoral Fellowship. She received her Ph.D. from Pennsylvania State University and will pursue her fellowship at the University of Utrecht.

The following women have received NSF Graduate Fellowships. The recipients are listed with their undergraduate institutions in parentheses and their graduate institutions. Congratulations to: Linda Elizabeth Green (University of Chicago), University of Michigan; Margaret J. Holen (University of Chicago), Massachusetts Institute of Technology; Heather Marie Johnston (Massachusetts Institute of Technology), University of California, Berkeley; Catherine Esther Kriloff (University of Washington), Stanford University; Cynthia Hsieh Kuo (University of Chicago), Stanford University; Elizabeth Carol Schwerer (New York University), Massachusetts Institute of Technology; Brooke Elizabeth Shipley (Harvard University), University of California, Berkeley; Elizabeth Clare Hunke Trouy (Memphis State University), University of Arizona; and Anne Marie Wilkinson (Harvard University), University of California, Berkeley.

Congratulations to Elizabeth R. Jessup, assistant professor of computer science at the University of Colorado at Boulder, who will be the first Alston S. Household Fellow at Oak Ridge National Laboratory. Jessup received her Ph.D. in computer science from Yale University. In collaboration with Oak Ridge researchers, she will work on scientific problems involving high-performance computing. Specifically, she will focus on the development of algorithms for solving symmetric, tridiagonal eigenproblems that exhibit both the high accuracy and the significant large-grained parallelism appropriate for implementation on a distributed-memory MIMD multiprocessor.

## 1990 MATHEMATICAL SCIENCES DEPARTMENT CHAIRS COLLOQUIUM

The 1990 Mathematical Sciences Department Chairs Colloquium sponsored by the Board on Mathematical Sciences, National Research Council, will be held on October 19-20, 1990, in Arlington, Virginia. The theme of the 1990 colloquium is "Departmental Outreach." The program is designed to provide information chairs may use to foster departmental interaction with various constituent groups and external agencies.

In addition to a broad-based panel presentation/discussion on departmental outreach, the program includes: a report by the Committee on the Mathematical Sciences in the Year 2000, panels on women and minorities in mathematics, and statistics in mathematics departments. The program also includes two panels of representatives of federal agencies that fund mathematical sciences projects: one panel will discuss programs concerned with education and the second will provide information concerning research oriented programs. Ample opportunity will be provided for personal interaction with representatives of these agencies in both formal and informal settings.

Chairpersons may be particularly interested in the workshop based on the report *Renewing U. S. Mathematics: A Plan for the 1990s*, which was published by the Board on Mathematical Sciences, National Research Council in May of this year. In June a workshop involving about one dozen experienced chairpersons was held at the National Academy of Sciences. The participants developed a draft plan for renewing U. S. university mathematical sciences departments, along with materials to support briefings by chairpersons to university faculty and administrations on the report and related efforts. At the Chairs Colloquium, these materials will be discussed and refined and made available soon thereafter to all U. S. university mathematical sciences department chairpersons. The materials are intended as tools that, if widely used, should strengthen the hands of chairpersons as they work to improve support for their individual departments.

The registration fee is \$160 and includes all Colloquium sessions, materials, and related meals and social activities. For further information, contact the Board on Mathematical Sciences at (202) 334-2421. The mailing address is Board on Mathematical Sciences, National Research Council, 2101 Constitution Avenue, NW, Room NAS 312, Washington, DC 20418.

## NEW NSF PROGRAM FOR WOMEN FACULTY

from AMS *Notices*, May/June 1990, p. 586

The National Science Foundation has initiated a new program to recognize a number of the nation's most outstanding and promising women scientists and engineers who are engaged in academic research and teaching. The program, entitled Faculty Awards for Women, is designed to facilitate further development of their academic careers, providing grants of up to five years for research-related activities. Nominations for the awards must be made by a sponsoring institution. To be eligible, nominees must be U.S. citizens, hold a Ph.D. (or an equivalent degree) in science or engineering, and be tenured but not yet full professors (or the equivalent rank). The deadline for submission of nominations is September 1, 1990. The Division of Research Initiation and Improvement will be coordinating the program in the Foundation; the contact person there is Jean Vanski, 202-357-7552. In addition, the staff of the Office of Special Projects in the Division of Mathematical Sciences would be happy to answer questions about the program (202-357-3453).

## AWM MEMBERSHIP DATABASE

The Exxon Education Foundation has made it possible for AWM to purchase new software for office operations. We will install a new AWM Membership Database this summer. As a result, the renewal notices normally sent out in August will reach you a little early to allow more time to record the additional information we will be asking for. The early notices and subsequent reminders will not effect delivery of your newsletters, but I do ask that you return your form as soon as possible.

Starting in 1991, AWM will keep records of members' areas of mathematical interest, e-mail addresses, and other pertinent data. There will be a place on the form for you to indicate whether or not you want your information published in the *AWM Directory of Women in the Mathematical Sciences*. In the near future, the AWM Speaker's Bureau will be revitalized, and its information will be stored in the same database.

I appreciate your cooperation in this effort.

Tricia Cross  
Executive Director

## LETTERS TO THE EDITOR

To the editor:

I am writing to see if anyone in AWM might be able to provide some information to a committee I am on. A small group of us in the University of Wisconsin Centers is exploring the possibility of establishing some type of program which will assist women and minority lecturers whom we hire without terminal degrees to complete a graduate program. While the program would be open to individuals in all departments, the impetus grew out of the shortage of women and minority applicants in mathematics.

We are in the initial stages of this project, so are trying to learn as much as we can about similar programs before we start writing a description of our own. Basically, what we would like to be able to do is to provide some financial support, and some special incentives regarding possible future faculty positions, to part-time lecturers who do not have sufficient academic backgrounds for tenure-track appointments. We envision hiring lecturers who would enroll in graduate programs at the University of Wisconsin-Milwaukee or University of Wisconsin-Madison. The extent of the financial support is not yet known, but we are hoping that at the very least it will provide free tuition. The key element of the concept is that we would try to provide a tenure-track position to the person once the degree was obtained.

If you could provide me with any information regarding similar programs at other universities, I would appreciate it very much. I will be in my office most of the summer (414-338-5227 or 414-338-5200) and will be at the summer MAA meetings in Columbus.

Thank you for your assistance.

Gary Britton, Chairman  
Department of Mathematics  
University of Wisconsin Centers

Dear friends:

You have certainly heard of significant democratic changes in our country, creating new possibilities for more contacts with other countries. The best is done to make our pedagogic and scientific work first-rate.

A serious absence of professional literature from western countries is felt by us, because possibilities to acquire it up till now were really very limited. There is a fear that the near future economic prospects of our country will not make it possible to buy this sort of literature in sufficient amounts.

We were informed that some institutions in your country are ready to help us by giving your books to our schools free of charge.

Mathematic textbooks for schools at all levels would give us real pleasure. The comparison of mathematics courses in particular grades in both countries promises many interesting themes and methodic procedures from your textbooks for making our mathematic courses better.

Various monographs, proceedings from conferences, and other publications from the following fields of mathematics — theory of graphs, universal algebra and lattice theory, orthomodular lattices and posets, dynamical systems (including discrete ones, chaos, etc.), theory of real functions, didactics of mathematics — would help us enormously in our teaching of mathematics and in our scientific work.

We would be very obliged to you for sending us some books from these fields.

Mrs. Danica Hullová, Central Library Manager

Mr. Pavel Hanzel, Head, Department of Mathematics

Central Library and Study-Informative Centre, Faculty of Education,  
Tajovského 40, 975 49 BANSKÁ BYSTRICA, CZECHOSLOVAKIA

Dear Ms. Mesirov,

I read your comment in the *AWM Newsletter* about the Putnam Exam, and also checked the original entry in *Science*. Why all the fuss, when nobody knows or cares how many women took the bloody exam to begin with?

Is the fact that "40% of mathematics undergraduates are women," as *Science* claims, all that relevant to the issue? At my school, women are about 30-40% of the undergraduate math majors. But when we have lectures or undergraduate colloquia, usually less than 10% of the audience are women. Unless it's a lecture that draws a huge turnout, there'd be 1-2 women among 15-30 people. So what are you going to do, force women to attend lectures they don't have to and don't want to attend?

If, as you write, the Putnam Exam is not "the correct measure of success" (I take "success" to mean success in math, and of women in particular), what *is* the correct measure? The fact that after all the well-meaning efforts, women, who are 51% of the population, form only a tiny percentage of professional mathematicians? What about the systematic pseudo-scientific pontifications we have to put up with telling us we can't think as abstractly or as analytically as men? Such heights of bogus scholarship and intellectual (as well as human) incompetence can only be laughed at. But they are tolerated only when levelled at women, not at any other group. And *that* message is not lost on people.

So far, the only women I have met who are enthusiastic and motivated about mathematics, and who would start to talk math at the drop of a hat, are majoring in other fields. Oh, well.

Sincerely,

an undergraduate

## MAKING MATHEMATICS WORK FOR MINORITIES

The "Making Mathematics Work for Minorities" National Convocation was held May 3-4, 1990 in Washington, D.C. The culmination of a year of various activities, this working convocation was structured to produce a national action plan and to launch the Alliance to Improve Mathematics for Minorities, a consortium committed to achieving meaningful changes in mathematics education. The goals of the decade-long program are to focus national attention on the task of having more minority students succeed in mathematics, to increase minority participation in mathematics, and to develop a national action plan and a national alliance of organizations committed to improving the achievement of minority students in mathematics. The convocation's efforts are based on the work of the six recent regional workshops, which identified educational programs that work for minorities, delineated factors which influence minority achievement, and reached consensus on the directions for change.

## BOOK REVIEW COLUMN

**Sexual Science: The Victorian Construction of Womanhood**, by Cynthia Eagle Russett. Cambridge, Mass.: Harvard University Press, 1989, 245 pp. **The Mind Has No Sex? Women in the Origins of Modern Science**, by Londa Schiebinger. Cambridge, Mass.: Harvard University Press, 1989, 355 pp.

Reprinted with permission from Harriet Ritvo, "The mismeasure of women," *Issues in Science and Technology*, Volume VI, Number 2, Winter 1989-90. Copyright 1989, by the National Academy of Sciences, Washington, D.C.

Harriet Ritvo is the author of *The Animal Estate: The English and Other Creatures in the Victorian Age*, Harvard University Press, 1987. She teaches English at MIT.

Thanks to Allyn Jackson for bringing this to our attention.

Whenever we let down our mental guard, we are apt to mistake culturally constructed categories for the dictates of nature. We confuse the lenses through which we see the world, lenses that we desperately require in order to sort out the confusion that would otherwise overwhelm us, with the world itself. As a result, we often pose questions that are intrinsically rhetorical — questions that, however open-ended they may appear, lead inevitably to answers predetermined by the terms in which they are framed. No one is immune to this intellectual slippage, at least no one who uses language and lives among other people. Unrecognized social assumptions condition the thinking of scientists, just as they do the thinking of politicians and novelists.

Thus, as Stephen Jay Gould argued several years ago in *The Mismeasure of Man* (New York: Norton, 1981), scientific research about the comparative intelligence of various human races is the distinctive product of a racist society. If society did not assume that people of different colors or different ethnic origins had different mental capacities, it would not try to measure those differences; the relevant questions could not be framed. In the early years of this century, when nativism was in full spate, psychological researchers who were worried about the impact of massive immigration from southern and eastern Europe on the population of the United States frequently discovered that the average intelligence of such groups as Italians and Jews was in the subnormal range. Now that these groups are no longer perceived as racially alien or socially threatening, the immigrants' grandchildren seem to have become much smarter. In any case, scientific scrutiny of their innate mental capacity is considered unnecessary; or, to put it another way, it no longer makes sense to ask those questions.

### Male experts on the nature of women

This is not to say that similarly framed investigations, or the kind of policymaking based on their results, have ceased to exist in our society. If it is difficult to imagine measuring the relative intellectual competence of late twentieth-century Americans in terms of national origin, it is all too easy to imagine asking about it in terms of race. And it may be easier still — perhaps because it is an older intellectual habit, sanctified by the millennia that separate us from Aristotle and Plato, rather than the mere 200 or 300 years that separate us from the Enlightenment — to imagine asking about it in terms of sex, or gender. Even after several decades of affirmative action, relatively few people query the assumption that the physical differences between men and women somehow represent analogous mental differences; many further assume that these differences justify and explain their distinct and unequal social roles. Both *Sexual Science* and *The Mind Has No Sex?* are engaged and persuasive works of feminist scholarship; they challenge these assumptions by elucidating their history.

In *Sexual Science*, Cynthia Eagle Russett focuses on a relatively restricted period, the late nineteenth century, during which the analysis of the differences between men and women became particularly intense, pointed, and, in her view, scientific. Russett uses a well-known passage from Virginia Woolf's *A Room of One's Own*, written in 1929, as her epigraph: "Have you [Woolf was addressing a group of undergraduate women at the University of Cambridge] any notion how many books are written about women in the course of one year? Have you any notion how many are written by men?" Woolf went on to note that most of this commentary was disparaging and to speculate that the men who wrote it were mean and spiteful. Russett agrees on the first count, but searches for a deeper explanation, since the disparagers apparently included almost the entire male population, with a few prominent exceptions such as John Stuart Mill.

What the majority of these male experts on the nature of women discovered was that women were physically and mentally weaker than men, more emotional, less logical, more timid, less steady, and more frivolous. They were closer to nature than men, which meant they were less highly evolved, more like members of "lower races" (in the case of European women), and preserved more of the best

in their minds and bodies. The evidence produced in support of this analysis was overwhelming both in mass and in scope; almost every scientific and social science discipline had something to contribute. Physical anthropologists asserted that men's brains were heavier than those of women, and that this signified men's intellectual and moral superiority. Biologists suggested that the development of females was arrested at an earlier age than that of men — that is, that adult women were physically and mentally closer to children and therefore not fully mature or (in the most extreme extrapolation) fully human. Physiologists claimed that the energy drained by women's reproductive functions left them with insufficient mental stamina to pursue a rigorous education, except at severe risk to their health.

Wherever scientists looked, they found evidence that the elaborately separated spheres of middle-class Victorian society — in which feminine life and activity were largely confined to the domestic realm and the ideal woman could be celebrated as the "angel in the house" — reflected inexorable natural laws. That is, armed with the scientific method understood in more or less the same terms as it is understood a century later, they discovered an array of data that confirmed their social prejudices, even though much of it, as Russett plausibly demonstrates, could not have withstood rigorous scrutiny at the time it was presented.

### They found what they sought

How could this have occurred? Russett offers two explanations. In the first place, she notes, toward the end of the nineteenth century the stable Victorian paradigm was fragmenting, under pressure from Darwinism among other sources, and European men felt unprecedentedly threatened in their preeminence (not just with regard to women, but with regard to non-European peoples, and even to animals) and therefore unusually receptive to any arguments that shored up their collapsing position. In the second place, she suggests, their science was bad science, and if it had been better, the results would have more successfully stood the test of time.

These explanations are somewhat less persuasive than her generous and elegant marshalling of the facts. They imply that the phenomenon she describes — the self-serving masculine construction of women as intellectually inferior and generally suited to a circumscribed and dependent role in society — was limited to a specific time and place (she asserts that we know better now, that it is no longer a problem), and, perhaps more questionable, that it is possible to create a science that would deal with such topics but be unconditioned by the society its practitioners inhabited. Londa Schiebinger begins *The Mind Has No Sex?* with implicit denials on both counts. She notes that nineteenth-century fears that too much exercise of women's brains would shrivel their ovaries can be placed beside not only seventeenth-century claims that women's brains were too cold and soft for rigorous thought, but also twentieth-century assertions that "peculiarities in the right hemisphere supposedly make women unable to visualize spatial relationships." She further suggests that such assertions result not from the failure of science — or at least any failure that could be internally corrected — but from the failure to recognize that the practice of scientists is externally constrained by the assumptions they share with other members of their society. Scientists who have been drawn to the investigation of the differences between men and women have almost always framed their research in terms of explaining the superiority of one and the inferiority of the other — of discovering, in other words, why things are the way they are. And they have usually found what they sought.

Schiebinger's focus in *The Mind Has No Sex?* is on the exclusion of women from modern science, an exclusion that she sees as not completely inevitable. Her title, a translation of the words of François Poullain de la Barre, a seventeenth-century disciple of René Descartes, shows that at least some early scientists were willing to include women in their intellectual fellowship, even though the preponderance of opinion was on the other side.

It should be noted that Poullain's advocacy did not exist in a vacuum; at the time he wrote, and for about a century thereafter, there were a small number of distinguished female scientific practitioners. The careers of some, such as Maria Winkelmann, an astronomer and calendar maker in early eighteenth-century Berlin, reflected the origins of some scientific disciplines in medieval craft guilds, to which women might gain entrance through their fathers or husbands. In an aristocratic society, women of high rank, such as Margaret Cavendish, Duchess of Newcastle and natural philosopher, might use their status to join intellectual circles from which their sex would otherwise exclude them.

But both these windows of opportunity for women interested in science, narrow as they were, gradually closed. In the course of the eighteenth and nineteenth centuries, science became an increasingly academic preserve, and, as Schiebinger convincingly demonstrates, the university has

been much less sympathetic to the scientific aspirations of women than were the guild and the salon. As they excluded women from their lecture rooms and laboratories, academic scientists authoritatively defined women as incapable of participating in their pursuits.

Because twentieth-century science is also predominantly conducted under university auspices, this comparison brings Schiebinger's argument out of the Enlightenment and closer to home. She notes how slowly and reluctantly scientific institutions have recognized female ambition and achievements. In 1754, under very special circumstances, Dorothy Erxleben became the first woman to receive a medical degree from the University of Halle; no one followed in her footsteps at that university until 1901. In 1910 the French Academy of Sciences failed to elect Marie Curie as a member; it was 1964 before a woman became a full member of the Berlin Academy of Sciences on the basis of professional accomplishment rather than social rank.

Thus, like Russett, Schiebinger ends up at the present — of which, however, she offers a rather different evaluation. According to Russett, contemporary scientists have identified and discarded the biases that led their Victorian predecessors into the errors she documents, and are therefore likely to be more objective, or as she puts it, more scientific, in their research. Schiebinger is less sanguine, suggesting that the work of scientists will continue to embody the patterns of the past as long as the assumptions that underlie those patterns persist in society. Unfortunately, I think Schiebinger is right.

**The Handbook of Nonsexist Writing** by Kate Swift and Casey Miller, Harper and Row, 1988, ISBN 0-06-096238-0 (paper).

Reviewer: Cathy Kessel

Like poor notation or misleading diagrams, certain kinds of English usage can result in faulty deductions, befuddled readers, or confused listeners. Unlike mathematics, English doesn't require the definition of terms or the indication of conventions employed (consciously or unconsciously) by the user at the beginning of any article, talk, or conversation. *The Handbook of Nonsexist Writing* addresses linguistic difficulties which arise from sexist bias. Each chapter discusses a family of problems using a wide range of interesting (and sometimes comical) examples; gives its background, and offers clearer alternatives.

Of course there is a chapter on "generic" *he* (*he* used to mean *he or she*). It contains some interesting history.

Although the early grammarians examined many aspects of their native tongue and framed innumerable rules governing its use, their writings contain no statement to the effect that masculine pronouns are sex-inclusive when used in general references. Not until the eighteenth century did a "rule" mandating such usage appear in an English grammar book, and not until the nineteenth century was it widely taught.

Though "generic" *he* has been taught, studies have shown that it has failed to take root — "at all levels of education people whose native tongue is English seem to know that *he*, *him*, and *his* are gender-specific and cannot do the double duty asked of them." This is an interesting example of the failure of schools to inculcate a usage counter to that of the rest of society.

Casey and Miller give a nice example of how odd "generic" *he* may be, drawn from a letter to the *New York Times Magazine*.

The average American needs the small routines of getting ready for work. As he shaves or blow-dries his hair or pulls on his panty-hose, he is easing himself by small stages into the demands of the day.

After delineating the problem, Casey and Miller give a range of alternatives including using *he or she*, *they*, *he/she*, *s/he*; pluralizing; and eliminating pronouns. They give examples of their use both in current writing and in revising sentences containing "generic" *he*. There are enough examples to make those who object to the elimination of "generic" *he* on the grounds of awkwardness seem lazy or unskillful.

Casey and Miller don't discuss a solution I've seen used in some expository mathematics articles, that of alternating the sexes of hypothetical people. One article I read recently had two hypothetical people, a practitioner of a field and a computer user. The practitioner was male and the computer user was female. One sentence was:

A good model of the user may need to model her beliefs about the program and how it operates, her likely desires, and her physical abilities.

Here a simple substitution of *his or her* for *her* would be awkward. But pluralizing works (and seems better to me since it is unlikely that a computer program is ever destined for exactly one person):

A good model of the users may need to model their beliefs about the program and how it operates, their likely desires, and their physical abilities.

Or one could reduce the number of pronouns and use *his or her*:

A good model of the user may need to model his or her beliefs about the program and how it operates, likely desires, and physical abilities.

or eliminate possessive pronouns:

A good model of the user may need to model beliefs about the program and how it operates, likely desires, and physical abilities.

If you've ever wondered whether to address job applications to "chair," "chairperson" or "chairentity" (anticipating the era of the android department head), you may be cheered to know that "[t]he lexicographer Alma Graham points out that *chair* has been recognized, in the sense of the 'occupant of the chair ... as invested with dignity,' since the seventeenth century, just as *the Crown* has been used for the monarch or *the Oval Office* has come to stand for the President of the United States." This appears in the chapter on "generic" *man* and its relatives which cause difficulties similar to those caused by "generic" *he*.

There is a chapter on the parallel treatment of women and men with respect to terminology, title, categories, and order which gives examples of how nonparallel treatment may obscure meaning or information. For instance, why does "women and men" seem unusual? "People come up with all sorts of reasons why in word pairs males almost always come first," say Casey and Miller, and they give some of the reasons. But the "rule" (published in 1553) they quote from the grammarian Thomas Wilson seems far more convincing.

Some will set the cart before the horse, as thus. My mother and my father are both at home, even as though the good man of the house were no breaches, or that the graye Mare were the better horse. And what though it often so happeneth (God wotte the more pitte) yet in speaking at the leaste, let us kepe a natural order, and set the man before the woman for maners Sake.

At first glance this convention appears to obscure nothing (except perhaps the lack of a "natural order"). Casey and Miller provide an example to the contrary from a news story about "Dr. Renate Huch and Dr. Albert Huch of the University of Marburg."

[D]espite the refreshing reversal of the usual order [in the news story], the caption under the accompanying photograph followed the old pattern. Although Renate Huch stands to the viewer's left and her husband to the right, the caption reads

"Dr. Albert Huch and wife, Renate, at Marburg hospital."

Since English-speaking people are accustomed to reading pictures as we read type, from left to right, why did the caption writer not opt for

Dr. Renate Huch and Dr. Albert Huch ...

Other, perhaps more belittling forms of nonparallel treatment are being more often referred to by first name or social title, and being described by appearance or domestic relationships (try listening to the news with these in mind).

The last chapter of the *Handbook* discusses specific words. I've always felt uncomfortable about the word *coed*, so I was glad to know something of its history.

This word entered American English around the turn of the century as derisive slang. It exemplified the scorn and hostility directed at women who chose to invade male bastions of higher learning. Even after the idea of higher education for women became widely accepted, *coed* as a noun retained a connotation of frivolity that continues to impair the image of women as serious students.

The *Handbook* concludes with a brief thesaurus, a short list of rewritten proverbs, inclusive language resources for religious worship, and reference notes (some interesting sociolinguistic studies are cited here). It is a useful and extremely readable book.

Book Review Editor:  
Cathy Kessel  
3141 Lewiston Ave.  
Berkeley, CA 94705

## NEWS FROM SWEDEN

A panel discussion on the topic "Why are there so few women mathematicians? What can be done about that?" was held Friday, March 16 at the Swedish Mathematical Society Professional Development Day 1990. Panelists were Ragni Piene (Oslo University), Gudrun Brettström (Stockholm University), Gerd Eriksson (Royal Institute of Technology, Stockholm) and others.

A conference on women and mathematics was held April 21-22, 1990 at Teachers' College in Malmö. The conference addressed concerns of mathematicians and teachers of mathematical education from a female perspective. Some questions posed were the following: Is there a gender difference in learning mathematics? In that case, at what age does this become apparent? Why are there so few female lecturers and professors in mathematics? Are women able to write mathematical textbooks (of 20 authors of textbooks for the junior high school level, only 2 are women)?

One of the contributors to the program was Professor Leone Burton, who teaches at Thames Polytechnic in London. She is a professor of mathematical education, of which there is no equivalent in Sweden. A former chair of IOWME, the International Organization of Women and Mathematics Education, she chaired the section on "Women and mathematics" at the 1988 conference in mathematics in Budapest. Some of us who were there were inspired to arrange this conference with the same theme here at home.

Contributors included Margita Nilsson (Malmö), Sonja Lyttkens (Uppsala), Els-Mari Staberg (Umeå), Gudrun Malmer (Lund), Ulla Öberg (Malmö), Gerd Brandell (Luleå), Britt-Marie Stocke (Umeå), Sigrid Sjöstrand (Lund), and Märte Ahlmann (Lund). Also, Sweden's representative to IOWME, Ingegerd Palmer, was there to discuss the organization vis-à-vis Sweden.

## ELEONORA ALEKSANDROVNA STOROZHENKO (on her sixtieth birthday)

by D.E. Men'shov, S.M. Nikol'skii, P.L. Ul'yanov; translated by S. Rhodes; reprinted by permission from *Russian Math Surveys* 44:1 (1989), pp. 279-281; ©1989 London Math. Soc.  
Thanks to Lee Lorch for bringing this to our attention.

Eleonora Aleksandrovna Storozhenko was born on 5 November 1928 in Odessa. In 1952 she graduated from the Physics and Mathematics Faculty of Odessa University. In 1960 she defended her Ph.D. thesis on "The best approximation of functions of several variables", and in 1979 a D.Sc. thesis on "The approximation of functions and embedding theorems in the spaces  $H^p$  and  $L^p$ ." She was made a professor in 1980.

All Storozhenko's scientific, pedagogical, and social work has been continually linked to Odessa University. Since 1955, after finishing as a post-graduate, she has worked in the department of mathematical analysis at the Odessa State University, and since 1974 has been head of this department.

Professor Storozhenko's scientific work has been devoted to the theory of functions. She has published over 40 papers. Her research embraces a wide circle of problems: questions on the convergence and summability of orthogonal series, embedding theorems, approximation of functions of real and complex variables, boundary conditions of analytic functions. Storozhenko's papers opened up an important new direction in the theory of approximation of functions related to the study of the spaces  $L^p$  and  $H^p$  for  $0 < p < 1$ . In this area she developed a fundamentally new methodology, and obtained a number of fundamental results. In the first place related to these were necessary and sufficient conditions for embedding classes of functions, direct and converse theorems of Jackson type in  $L^p$  ( $0 < p < 1$ ), estimates for the approximation of algebraic polynomials, inequalities of Whitney type, theorems on the representation of functions of the Hardy class  $H^p$  ( $0 < p \leq 1$ ) by different averages of the Taylor series on the unit circle, and estimates of the growth of derivatives.

Among Storozhenko's results on embedding theory for classes of functions we should mention estimates of equimeasurable rearrangements, theorems on embedding in Orlicz classes and in exponential classes. She was the first to discover that for monotonic functions some inequalities of the type of embedding theorems can be inverted.

A central place in her work is taken by her research on boundary conditions for functions of class  $H^p$  that are directly linked to the classical results of Riesz, Hardy and Littlewood, and Zygmund. The inequalities Storozhenko obtained give a solution to fundamental problems in the theory of the

approximation of functions. Among them we should particularly note estimates of the speed of approximation by Abel-Poisson averages and  $(C, \alpha)$ -averages: if  $f \in H^p$  ( $0 < p \leq 1$ ) and  $\alpha \in (-1, \infty)$ , then

$$\|f(re^{i\varphi}) - f(e^{i\varphi})\|_p \leq c\omega(1-r; f)_p,$$

$$\|f - \sigma_n^\alpha\|_p \leq c\omega(1/n; f) \gamma_n, \quad \gamma_n = \left(\sum_{k=1}^n k^{-p(\alpha+1)}\right)^{1/p}.$$

These estimates are definitive for any  $\alpha$  and  $p$ .

Storozhenko devoted a series of papers to one of the central themes of approximation theory — estimates of the best approximations in terms of the moduli of smoothness (estimates of Jackson type). The methods she developed made it possible to obtain such estimates for  $0 < p \leq 1$  in the real case as well as for functions of class  $H^p$ .

Her estimates for higher-order derivatives in terms of the moduli of smoothness on a unit circle, which she introduced, have been important for the theory of classes  $H^p$  and various applications of it (for example in embedding theory).

In recent years Storozhenko has successfully developed the theory of boundary conditions for  $H^p$ -spaces by studying local best approximations and also approximations of functions of class  $H^p$  in the unit ball.

Storozhenko's work on the theory of approximation of functions contains fundamental results, ideas, and directions that have been actively developed by a number of mathematicians both in the Soviet Union and abroad.

She has put much energy into organizational work. Her creative activity, profound knowledge, organizational talent, and interest in everything has furthered the development of research on the theory of functions at Odessa University. Since 1969 she has been head of the research seminar on the theory of functions which she founded. So far participants of the seminar have prepared and defended 11 Ph.D. theses under her supervision. Among her students have been two doctors of the physico-mathematical sciences; the topics of their dissertations have been directly connected with Storozhenko's research.

Storozhenko takes an active part in all-union and international conferences. She keeps constant academic links with many colleagues in our country and abroad. Over the course of a number of years she has attracted leading Soviet experts on the theory of functions to give lectures and participate at the seminar at Odessa University.

She has great pedagogical talent. Her lectures are always noted for their depth of content, high professional skill, and emotion. The breadth and diversity of her interests, the combination of high demands with sympathy and good-naturedness, and the great personal admiration for her continually attract creative young people to her.

A remarkable mathematician and teacher, Eleonora Aleksandrovna Storozhenko puts all her strength, knowledge, and talent into science. From our hearts we wish her good health and great new successes.

## EDUCATION COMMITTEE COLUMN

Sally I. Lipsey, chair

Suda Kunyosying (Shepherd College), a member of our education committee, has sent us the following news from her state. In future issues, we anticipate publication of news by other "state reporters."

A Report from West Virginia

### The State Mathematics Coalition

West Virginia is one of the 25 states that received \$10,000 from the Mathematical Sciences Education Board for the planning of a state mathematics coalition (see *AWM Newsletter*, March-April, 1990, p. 22). Now being formed, the governing board of the coalition will consist not only of educators, but also of CEOs from business and industry. The goal of the coalition is to involve the

business and industry sector, the public policy sector, and the education sector, in supporting and improving mathematics education. Directors of the coalition are Brenda Parnell, West Virginia state mathematics coordinator, and Robert P. Mason, assistant superintendent of Mineral County Schools and current president of the West Virginia Council of Teachers of Mathematics.

### **Implementation of the NCTM Curriculum and Evaluation Standards for School Mathematics**

Twenty-one mathematics educators from West Virginia attended a conference in Atlanta to address ways to make the "Standards" a reality in classrooms throughout the country. The group representing West Virginia developed a plan of action to (1) create awareness of the reform movement in mathematics education; (2) establish a dialogue among parents, administrators, and teachers; and (3) promote realistic ways of changing instructional practices and curriculum to meet the goals outlined in the "Standards." Sessions to address these goals will be starting soon.

### **Presidential Award for Excellence in the Teaching of Mathematics**

At a ceremony in the Rose Garden at the White House, Deborah Seldomridge of Kaiser High School, West Virginia, received from President Bush the 1989 Presidential Award for Excellence in Mathematics Teaching. Deborah takes an active part in the projects described above. She is also involved in a project to coordinate mathematics activities at the high school and college levels. The goal of this project is to utilize the expertise of both high school and college personnel to promote articulation. The project has been funded by West Virginia Regional Education Service Agencies, a grant from the Department of Education, and the department of mathematics at West Virginia University.

### **EDUCATION COMMITTEE CALL FOR STATE REPORTERS**

We would like to make sure that each state is represented in our column. Would you like to become a member of our committee as a "state reporter"? The charge would be to take responsibility for an annual report (1-2 pages, or longer if circumstances dictate) on mathematical education news from your state (particularly, but not only, with respect to projects involving women). Such information might be based on material from a state department of education, state or local educational institutions, or other sources. If you would care to take on this responsibility, please let us know when during the year it would be convenient for you to submit your report. We would appreciate your contribution greatly. Please respond to AWM Education Committee, c/o Sally I. Lipsey, 70 East 10th St., #3A, New York, NY 10003. Thank you.

### **ROW PROGRAM**

NSF has released a report entitled *NSF's Research Opportunities for Women Program: An Assessment of the First Three Years*. Research Opportunities for Women (ROW) encourage female scientists and engineers to launch research careers, providing an opportunity for their first federal grant. The study findings are based on telephone interviews with 657 eligible women who applied through ROW, directly to other NSF programs, or did not apply at all. The study also examined the ROW-eligible women's views about NSF and about research career issues.

Copies are available from NSF Forms and Publications, 1800 G St., NW, Washington, DC 20550. Request NSF 90-13.

### **ERRATUM**

In the list of contributors to the Alice T. Schafer Prize, "G.R. Wyckoff" should read "D.R. Wyckoff." Our apologies for the error.

## OTHER NEWSLETTERS

This section contains both excerpts from a number of newsletters and information about some of them. Some are free, some are privileges of membership: all of them are interesting. Thanks to Cathy Kessel for bringing a couple of them to our attention.

*AWIS Newsletter*, May/June 1990. Privilege of membership. Write: AWIS, Suite 820, 1522 K Street, NW, Washington, DC 20005.

Stephanie Bird, AWIS President, announces in this issue that AWIS has joined FairTest and a number of other organizations in expressing the view that "the National Governors' Association and the Bush Administration should NOT use standardized multiple-choice tests as the primary measure of the achievement of national educational goals." "In addition, AWIS joined with the National Coalition for Women and Girls in Education in calling for discontinuation of the use of the PSAT/NMSQT multiple-choice tests as the sole factor for selecting semifinalists for National Merit Scholarships."

Barbara Mandula wrote an interesting article about sessions and plenary talks at the annual meeting of the American Association for the Advancement of Science in February that were about human resources, especially in math, science, and engineering. "A few of the major themes of the sessions are stated below . . . . The country cannot sustain large uneducated minorities. Nothing is wrong with the children; what is wrong is the teaching. Who is teaching the teachers? Hard work, not innate ability, determines how much one learns. Everyone needs to be encouraged to study M/S/E. Many children are subjected to 'cumulative disadvantages.'"

*Conference to Examine Mathematics as a Humanistic Discipline Newsletter*. Write: Alvin White, Department of Mathematics, Harvey Mudd College, Claremont, CA 91711.

The themes explored in this newsletter relate to teaching mathematics humanistically and teaching humanistic mathematics. The most recent issue contained the following articles: "Hassler Whitney 1907-1989: Some Recollections, 1979-1989" by Anneli Lax, "PDP/Academic Excellence Workshops in Mathematics" by M. Catharine Hudspeth, and "Tapping Creativity and Ingenuity of Liberal Arts Majors in a Math Course" by Helen Christensen.

*IOWME Newsletter*, November 1990. Privilege of membership in the International Organization of Women and Mathematics Education. U.S. coordinator: Sherry Fraser, EQUALS, Lawrence Hall of Science, University of California, Berkeley, CA 94720.

Plans for a first international conference on girls and mathematics are underway. We are currently trying to obtain funds for this conference. In the event that we are successful in raising the necessary funds, we will aim at having the conference in Europe, possibly Germany, during the month of March 1991. Further details will be published in [various sources]. To this end, Gila Hanna and Gilah Leder have written a background discussion paper.

from that discussion paper:

The specific objectives of the conference are: 1. To review and examine critically recent research on gender and mathematics education; 2. To exchange information concerning intervention programs which have been aimed at reducing gender differences in enrollment and in achievement; 3. To investigate promising future directions for avenues of research into gender and mathematics education.

...

It was specifically proposed that the following topics be discussed in workshops: 1. Explanatory models of gender differences: factors associated with the learner (cognitive and psychosocial); factors associated with the environment (societal, curricular, situational); 2. Improvement of the situation: existing intervention programs and their perceived effectiveness; 3. Content and form of the mathematics curriculum: possible factors contributing to gender differences, especially as they relate to minority and low socioeconomic groups; 4. Current research projects: lessons learned from research and future research directions with an emphasis on instruction and changing attitudes.

*Kovalevskaia Fund Newsletter*, May 1990. A tax-deductible donation will put you on the mailing list. The Kovalevskaia Fund is a small foundation which aims to encourage women in science and technology in developing countries through appropriate forms of support. Write: Dr. Ann Hibner Koblitz, Director, Kovalevskaia Fund, 6547 17th Ave. N.E., Seattle, WA 98115.

GASAT 6 (Sixth International Gender and Science and Technology Conference) will be held at the University of Melbourne in Victoria, Australia, in July 1991. For further information, contact Ms. Gaell Hildebrand, School of Education (Hoy), Institute of Education, University of Melbourne, Parkville, Victoria, 3052, Australia, FAX: 61-3-3448338.

Ninth International Conference of Women Engineers and Scientists will be held at the University of Warwick, U.K., 14-20 July 1991. People wishing to give papers must request abstract forms, which should be submitted no later than 30 November 1990. Write to: Conference Services ICWES9, Congress House, 55 New Cavendish Street, London W1M 7RE, U.K.

The Nigerian Association of Women in Science, Technology and Mathematics (NAWSTEM) has branches in several cities and university towns of Nigeria. Recently, the NAWSTEM chapter at the University of Benin launched a media campaign to increase public awareness of the importance of the study of science and technology for young girls and women. NAWSTEM-UNIBEN has sponsored a series of television programs featuring interviews with Nigerian women in a variety of scientific fields. For further information on NAWSTEM or its individual chapters contact: Dr. Comfort A. Ekundayo, NAWSTEM President, Dept. of Botany, Univ. of Benin, P.M.B. 1154, Benin City, Nigeria.

*MER Newsletter*. Write: Naomi Fisher, Office of Mathematics and Computer Education (M/C 249), The University of Illinois at Chicago, Box 4348, Chicago, IL 60680.

This is the newsletter of the Mathematicians and Education Reform Network. MER is an NSF project in precollege mathematics education. The latest issue contained articles on the March 1990 MER workshop at Ohio State University, the special session on Mathematics and Education Reform held at the January joint meetings, and Teaching Integrated Math and Science (TIMS), an NSF funded project which has developed innovative math/science curriculum modules for grades 1-8.

To promote greater participation of mathematicians in precollege education, the MER Network seeks to promote and develop efforts to: inform and interest mathematicians in precollege mathematics education, attract a pool of mathematicians who are willing to make a sustained commitment to working in precollege mathematics education, develop organizational support to advise mathematicians in planning and implementing precollege mathematics education projects, increase communication between the mathematics community and the mathematics education community, and sensitize the mathematics community to the importance of having mathematicians work in school mathematics and to consider models for institutional recognition for work in school mathematics.

*UME Trends: News and Reports on Undergraduate Mathematics Education*, May 1990. Distributed to members of AMS, MAA, SIAM, and others.

This issue contains an interesting article on the Conference on Women in Mathematics and the Sciences at St. Cloud State University, November 1989. Comprehensive proceedings from the conference will be available in September from Sandra Keith, Department of Mathematics and Statistics, St. Cloud State University, St. Cloud, MN 56301.

from the article:

The conference underscored the view that central to any improvement in training mathematicians and scientists in this country are programs to enhance the participation of women and minorities. In other words, this is a good time for women and minorities to state their needs and for colleges to listen, as industries and national or state granting programs appear to be interested in investing in educational reform. Ironically, math and science departments often fail to see women as a resource on these issues: for one thing, they often discount the commitment of women to math or science as a discipline. (Some women reported how wonderful it felt to be a mathematician, rather than a "woman mathematician" at the conference.) Also, while on the surface committed to educational reform, math and science departments may not acknowledge or support their faculty in creating reform.

...  
While concrete, positive suggestions were in abundance, discrimination is still an issue, as demonstrated in the *Glass Ceiling* discussion. While the "glass ceiling" (invisible barrier to success) has moved up a notch and appears to be less felt in mathematics than the hard sciences, discrimination seems to have "moved underground", from blatant cases of abuse to more subtle forms of pressure. A Harvard study revealed that even NSF women mathematics scholars are likely to say discrimination persists. This problem creates terrible waste. Lawsuits continue to cost universities millions. Most seriously of all, however, the service activities to which women may feel drawn in their commitment to a younger generation, and which are performed in addition to research and departmental duties, are not always credited by their departments or colleges, and may even be used to devalue their mathematical or scientific endeavors. Many threads in the conference pointed to the conclusion that colleges should be prepared to give professional credit to individuals who implement model programs, and they should be explicit about their commitment to educational reform in granting promotion and tenure. This will often mean that departments must become more open to cross-institutional linkages and collaboration in research and teaching — the networking that can allow more to be done in the face of diminishing funds.

## RESOURCES FOR MINORITIES, FEMALES, AND DISABLED

reprinted from AAAS *Science Directory*, 1989

*AAAS Directory of Scientists and Engineers with Disabilities; Career Opportunities in the Sciences; Equity and Excellence: Compatible Goals; List of Precollege Mathematics and Science Programs for Minority and/or Female Students by State; MESHwork: Associations of/for Racial and Ethnic Minority Engineering, Science, and Health Professionals*

AAAS Office of Opportunities in Science, 1333 H Street, NW  
Washington, DC 20005, (202) 326-6667

These and other publications and newsletters are focused on improving the access to and quality of educational opportunities for minority, female, and disabled students at all levels.

### *Blacks and Mathematics (BAM)*

John Alexander, College of Arts and Sciences, Wentworth Institute of Technology  
Boston, MA 02115, (617) 442-9010

The goal of BAM is to increase black students' awareness of the need for mathematics courses in preparing for science-related careers.

### *Directory of Federal R&D Agencies' Programs to Attract Women, Minorities, and the Physically Handicapped to Careers in Science and Engineering*

National Science Foundation, 1800 G Street, NW, Washington, DC 20550, (202) 357-9496

The directory lists more than 40 federally sponsored programs located at various government agencies.

### *EQUALS*

Nancy Kreinberg, Director, Lawrence Hall of Science  
University of California, Berkeley, CA 94720, (415) 642-1823

The EQUALS center carries out several programs and provides publications related to equal opportunity and access to mathematics and science learning for students and teachers.

### *Just Say Yes*

National Urban Coalition, 1220 G Street, NW, Washington, DC 20005, (202) 628-2990

This program, located in several cities, is aimed at improving the mathematics and science proficiency of minority students in elementary grades through hands-on lessons, mentors, career Information, tutoring sessions, and other activities.

*Math/Science Network*

2727 College Avenue, Berkeley, CA 94705, (415) 841-MATH

The Network works to increase the participation of girls and women in mathematics, science, and technology. Their activities and resources include conferences, newsletters, videotapes, and a resource center.

*Minority Women in Science (MWIS)*

AAAS Office of Opportunities in Science, 1333 H Street, NW  
Washington, DC 20005, (202) 326-6670

MWIS is a national network of chapters involved in projects to facilitate the entrance of minority women to science careers.

*National Council of La Raza Education Office*

Lori Orum, 548 South Spring Street, Suite #802, Los Angeles, CA 90013, (213) 489-3428

Concerned with improving the educational status of Hispanic Americans, the education office runs Project EXCEL (Excellence in Community Educational Leadership). The project provides affiliates with training in teaching problem solving skills in mathematics and science.

*National Society of Black Engineers*

Florida Morehead, Executive Director, 344 Commerce Street, Alexandria, VA 22314, (703) 509-2207

NSBE develops intensive programs for increasing the participation of black and other ethnic minorities in the fields of engineering and the engineering technologies. Tutorial programs, seminars, NSBENET electronic mail program, a journal, and newsletter are some of their activities. Precollege programs, scholarships, and career fairs are features too.

*Operation S.M.A.R.T.*

Girls Clubs of America, Inc., 205 Lexington Avenue, New York, NY 10016, (212) 689-3700

This is a program aimed at introducing 13-to-15-year-old girls to the fields of mathematics, science, and technology and to increase their skills in these areas.

*Precollege Engineering Programs*

National Action Council for Minorities in Engineering (NACME), Richard F. Neblett, President  
3 West 35th Street, New York, NY 10001, (212) 279-2626

These are national programs serving some 13,000 students, based at more than 90 colleges and universities. The programs supplement the mathematics and science preparation of minority students who wish to pursue engineering careers.

*Women and Mathematics (WAM)*

Carole B. Lacampagne, Department of Mathematical Sciences, Northern Illinois University  
DeKalb, IL 60115, (815) 753-0567

WAM sponsors women from business, industry, and other fields to speak to students about the importance of mathematics in their careers.

## OFFICE OF OPPORTUNITIES IN SCIENCE

reprinted from AAAS Science Directory, 1989

The AAAS Office of Opportunities in Science (OOS) works to enhance the status and accelerate the advancement of women, minorities, and physically disabled persons in all the scientific, engineering, and related professions; and to ensure that educational and professional opportunities are open to these groups at all levels. To accomplish these goals, the OOS is involved in a variety of projects.

The Linkages Project (supported by the Carnegie Corporation of New York) is a major initiative to link community-based advocacy and service organizations with the resources of the scientific community. The goal of the project is to improve the mathematics and science education of young people who are female, have physical disabilities, or are members of underrepresented racial or ethnic groups.

The Project on Women In Science has undertaken many activities to increase the participation of women, including convening the first national conference on women in science and engineering; conducting a survey of educational career-related programs in science, mathematics, and engineering for women and girls; disseminating a bibliography on women in science and mathematics; and compiling lists of scientific associations and committees.

The Project on Science, Technology and Disability has developed a resource group of scientists and engineers with disabilities who consult in their areas of scientific expertise, and on matters of disabled individuals' access to science and education careers. The project publishes a *Resource Directory of Scientists and Engineers with Disabilities* (with names of people to serve as speakers and role models); and *Barrier Free Meetings*, a guide to making professional meetings accessible to all.

The Middle School: Years of Choice and the Black Churches-Connection to Linkages programs are extensions of the Linkages project, supported by the Ford Foundation. Through these programs, OOS hopes to increase the quality of middle school mathematics preparation for minorities, women, and disabled persons; and to involve those organizational units that collectively form the Black Church outreach networks in mathematics and science education activities.

The AAAS Office of Opportunities In Science and Apple Computer, Inc, has established 38 community-based computer learning centers in 22 states and the District of Columbia. All sites will be connected electronically to each other and to AAAS through AppleLink. Science and mathematics activities for preschool to senior citizens will be made available to sites by AAAS.

The Science Resources for Schools and Community-Based Organizations (SRS/CBO) project is helping to improve both teaching and learning for black and Hispanic 5th- through 9th- grade students (and their parents and teachers) in eight inner-city schools. These after-school Science programs are co-operated by schools and community groups in Cleveland, OH; New Orleans, LA; Little Rock, AK; Tucson, AZ; Houston, TX; Newark, NJ; Washington, DC; and Detroit, MI. This project is supported by the U.S. Department of Education.

The names of the individuals who are responsible for these activities are listed below. The offices of OOS are located at 1333 H St., NW, Washington, DC 20005. The central OOS telephone number is (202) 326-6670. The names are: Shirley M. Malcom, Program Head, OOS; Marsha Lakes Matyas, Director, Project on Women in Science; Virginia Stern, Director, Project on Science, Technology and Disability; Yolanda Scott George, Co-director, Linkages Project; Walter J. Bogan, Jr., Project Director, Science Resources for Schools and Community-Based Organizations; Judy Kass, Program Associate; Estrelia Triana, Program Associate; and Dara B. Prout, Administrative Associate.

## OF POSSIBLE INTEREST

*Feminism and Science*, edited by Nancy Tuana, Indiana University Press, 1989

*Women of Science*, edited by G. Kass-Simon and Patricia Farnes, Indiana University Press, 1989

*Women Changing Work*, by Patricia Lunneborg, Bergin and Garvey, 1990

*Getting Into Gear: Gender Inclusive Teaching Strategies in Science* by the McClintock Collective and *Gender Equity in Mathematics and Science*, Girls and Maths and Science Teaching Project. Available from: The McClintock Collective, Hawthorn Professional Development Centre, 11 Paterson Street, Hawthorn, Vic., 3122, Australia.

*Get It Together: Math Problems for Groups, Grades 4-12*, EQUALS, Lawrence Hall of Science, Berkeley, CA 94720

*The Transfer Challenge: Removing Barriers, Maintaining Commitment*, Association of American Colleges, 1818 R Street, NW, Washington, DC 20009

*Women Workers and Global Restructuring*, edited by Kathryn Ward, ILR Press, Cornell University, 1990

DEADLINES: July 24 for September-October, Sept. 24 for November-December, Nov. 24 for January-February  
AD DEADLINES: August 5 for September-October, Oct. 5 for November-December, Dec. 5 for January-February  
ADDRESSES: Send all Newsletter material **except ads and book review material** to Anne Leggett,

Dept. of Math. Sci., Loyola Univ., 6525 N. Sheridan Rd., Chicago, IL 60626;

email: cantor!bore!alm@gargoyle.uchicago.edu \$L\$MA24@LUCCPUA (bitnet)

Send all material regarding **book reviews** to Cathy Kessel, 3141 Lewiston Ave., Berkeley, CA 94705.

Send everything else, **including ads**, to Tricia Cross, AWM, Box 178, Wellesley College,

Wellesley, MA 02181. phone: (617) 237-7517 email: PCROSS@LUCY.WELLESLEY.EDU

## ADVERTISEMENT GUIDELINES

AWM will accept advertisements for the AWM 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 Executive Director, 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 of AWM receive two free ads per year.** All other ads are \$20 each for the first eight lines of type. Ads longer than eight lines will be an additional \$15 for each eight lines or fraction thereof (i.e., \$35 for 9-16 lines, \$50 for 17-24 lines, etc.)

ADVERTISEMENTS

All institutions advertising in the AWM NEWSLETTER are Affirmative Action/Equal Opportunity Employers. Institutional members of AWM receive two free ads per year. Ads must be prepaid by check or P.O. Institutions are listed in alphabetical order.

FACULTY POSITIONS

Ferris State University. Dept of Math invites nominations and applications for the position of Head of the Dept of Math. The dept. has 23 faculty and is responsible for undergraduate education in math and comp. sci. and for baccalaureate prog. in Applied Mathematics and Actuarial Science. Qualifications: An earned doctorate in Math or App. Math or an earned doctorate in Math Ed. with a Master's in Math; professional development and teaching exp. appropriate to senior rank; familiarity with a broad spectrum of math instruction; ability to work with others in a broad array of disciplines; and personal qualities of integrity, industriousness, organization, leadership and interpersonal skills. Review of applications will begin August 30, 1990, with tentative start date of December 1, 1990. Send letter of interest, curriculum vita, 3 letters of reference, and official transcripts to: George Wales, Search Committee Chair, Starr 120, Ferris State University, Big Rapids, MI 49307.

Marshall University. Mathematics. Now accepting applications for at least one position at the assistant professor/instructor levels, beginning August 27, 1990. An assistant professor position may be tenure-track. Ph.D degree or its equivalent is required for all assistant professor positions. At least a master's degree is required for instructor level. Submit resume, transcript, and direct three letters of reference to Professor Steven Hatfield, Search Committee Chairperson, Mathematics Department, Marshall University, Huntington, WV 25722-2560. Screening begins June 19. AA/EOE.

Southern Illinois University At Carbondale. Department of Mathematics, Carbondale, Illinois 62901. Temporary positions are anticipated starting on August 16, 1990 as Lecturer. Masters degree in mathematics or admission to candidacy required; Ph.D preferred. Applicants should provide evidence of excellence in teaching and foreign applicants must provide evidence of ability to teach in English effectively. Preference given to applicants with research interests compatible with those of the faculty. The duties will consist of 12 hours of undergraduate mathematics instruction each semester. Closing date May 15, 1990 or until positions are filled. Send applications (including transcripts) to: Temporary Positions; c/o Ronald Kirk, Chair, Department of Mathematics; Southern Illinois University; Carbondale, Illinois 62901. SIUC is and Equal Opportunity/Affirmative Action Employer

POSITION OF INTEREST

Director Mathematical Sciences Research Institute, Berkeley, California. The Institute seeks a Director to assume duties in summer 1992 when the term of the current Director, I. Kaplansky, expires. The Director is the Chief Executive Officer of the Institute and reports to the Board of Trustees of the Institute. The candidate should have the qualifications to provide scientific and administrative leadership of the Institute. Tenure, salary, and benefits are negotiable. Send resume to Professor John Morgan, Chairman of the Board of Trustees, and Chairman of the Directorship Search Committee, Department of Mathematics, Columbia University, New York, NY 10027, preferably by August 15, 1990.

PROGRAM OF INTEREST

Rhode Island, Massachusetts, and Connecticut residents mark your calendars now! The American Association of University Women (AAUW), the Society of Women Engineers (SWE), and AWM will sponsor a program entitled: "Women in Mathematics & Science: Pipeline to the 21st Century" to be held on Thursday, October 11, 1990 at the Marriott Hotel, Providence, Rhode Island. The afternoon/evening program will focus on a number of critical topics such as gender issues in mathematics and science, mathematics education reform, and the need for the Rhode Island workforce to keep pace with the changing demands for skilled workers in business and industry. Rhode Island (and close neighbors) high school mathematics and science teachers, area college instructors, and representatives from Rhode Island business, industry, and government will be among the diverse groups invited.

There will be two afternoon panel discussions, a dinner, and the Keynote Address. The title of the first panel is "Mathematics in Business and Industry: Creating Partnerships for Excellence". The second panel is entitled "Bridging the Gender Gap in Mathematics and Science".

For further information, or if you want to insure your place on the mailing list, please call the AWM office at 617-237-7517.

# Association for Women in Mathematics

## MEMBERSHIP FORM

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

\_\_\_\_\_

Institutional affiliation (if any): \_\_\_\_\_

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### Circle Amount Enclosed

*Individual*: \$20, *Family*: \$25, *Student, Retired, Unemployed*: \$5

*New member rate*: \$15 for each of the first two years

*Foreign members*, other than Canada and Mexico: add \$8 for postage

*Contributing Member*: \$25 plus dues

Contributions of any size very welcome.

*Institutional members* receive two free advertisements per year in the AWM Newsletter.

*Sponsoring, Category I* (may nominate 10 students for membership): \$100

*Sponsoring, Category II* (may nominate 5 students for membership): \$75

*Regular*: \$50

Note: AWM membership year is October 1 to October 1

# Association for Women in Mathematics

MEMBERSHIP FORM

NEWSLETTER

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JULY - AUGUST 1990

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