Association for Women in Mathematics

PRESIDENT'S REPORT

The mathematics community appears to be in the midst of an unusually introspective cycle. Plummeting enrollments of American students in graduate mathematics programs seriously threaten the future of mathematics in this country. At the undergraduate level, the widespread failure of calculus instruction to capture the enthusiasm of young people for careers in mathematics and science contributes to the problem. On October 28-29, an exciting symposium, "Calculus for a New Century," highlighted the issues surrounding calculus instruction, and offered ideas and opportunities to implement change. The National Science Foundation is actively soliciting proposals for curriculum development, providing new opportunities for support of faculty, who may be primarily involved in teaching. For more information about the Undergraduate Curriculum Development in Mathematics — Calculus program, contact Louise Raphael at NSF (202-357-2668).

These two much-publicized issues are particularly interesting when viewed from the point of view of women. In the first instance, graduate enrollments were only deemed a crisis when American men stopped enrolling in mathematics graduate programs; and, in the second, calculus appears to be an area of relative success for women. When asked to write a background paper for the Calculus conference on the subject of how calculus should be taught to make science-based careers more accessible to women, I was hard-pressed to find anyone who felt that calculus *per se* held women back. In fact, undergraduate mathematics in general is a high point for women — in 1986, 46% of bachelor's degrees in mathematics were awarded to women. While there is plenty wrong with the present content and teaching of calculus, reformers should bear in mind that there must be something right about calculus, at least for women. If you have any statistics or anecdotal evidence to support or refute these claims, I would appreciate hearing from you.

"There They Go Again…"

Another important symposium, "American Mathematics Entering its Second Century," has been announced with not a single woman on the program. The symposium is sponsored by the AMS in celebration of its centennial year and is part of the annual meeting of the AAAS in Boston in February. Judging from the programs of the summer meeting in Providence and of this symposium, women have had precious little to do with mathematics for the past hundred years, and not much hope of making an impact in the second century. It is frustrating havirg to write to one conference organizer after another about the absence of women from their programs. How can AWM exert influence on organizing committees at an earlier stage in the process? In the case of the ICM, we can begin work well in advance to try to avert in 1990 the situation that arose in 1986. This is much more difficult to do with other conferences. In Atlanta, we must formulate a strong policy to urge the NSF, AMS, MAA, CBMS and other relevant parties to develop strong guidelines that would insure the inclusion of women and minorities in the programs of major conferences.

AWM activities.

For those of you who would like to be more active at the local level, we are preparing some material that may be of interest to you. Lori Kenschaft and Alice Schafer are writing a pamphlet on how to organize a high-school day in your area. Those held in the Boston area have been most successful in encouraging young women to study mathematics. The idea is too good not to spread, so if you want more information, contact Lori at the Wellesley office.

Many of you have written to me asking for suggestions for women speakers, either for research-level or expository talks. We are preparing a list for such purposes, but would very much appreciate your suggestions to augment the list.

Warm thanks * to all AWM members who responded to my urgent plea for committee volunteers. We still need more help, so keep writing.

     * to Mary Beth Ruskai, who suggested that we have a Book Review column in the *Newsletter*. An invitation to a potential editor has gone out, and we hope this feature will soon appear.

     * to our tireless Editor, Anne Leggett, who goes on and on, year after year, producing a superb *Newsletter* we are all proud of. Her contribution to AWM is immeasurable.

<div align="right">

Rhonda Hughes
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AWM ELECTION RESULTS

Congratulations to our newly elected slate of officers!

President-Elect:	Jill Mesirov
Treasurer:	Jenny Baglivo
Members-at-Large:	Ruth Rebekka Struik
	Carol Wood

LETTER FROM THE EDITOR

The Project on the Status and Education of Women has published another good paper. This one is called "Looking for More Than a Few Good Women in Traditionally Male Fields." Here are some excerpts.

The underutilization of women in traditionally male fields takes its toll in several areas. By failing to encourage women as well as men, the country wastes a substantial portion of its talent and severely limits women's potential contributions. Moreover, the social and personal costs of inequity are considerable. Women who wish to enter careers in fields where men predominate are less likely to be encouraged to do so and are less likely to be rewarded for their efforts. Women already in these careers are frequently limited by lack of opportunity for advancement, token status, discriminatory employment practices, and unequal pay. Finally, the importance of these fields in the future cannot be underestimated. Science and technology will increasingly change many aspects of the way we live our lives, and the continued underrepresentation of women in science and technology will mean that crucial decisions in these areas will be made with input from only a few women with technical expertise. Obviously the issue of women's participation in fields such as science, law, medicine, computer science, and engineering has important implications not only for women themselves but for the whole of society and the shape of the future.

...

Computers often become the intellectual equivalent of sports, and the game can get rough. In one high school, teenage boys were telling girls they were stupid in order to discourage them from registering for after-school computer courses. The boys admitted they were harassing the girls deliberately so they themselves could have more computer time.

...

Those women who reported having been influenced by their high school teachers and counselors in making college plans were *less* likely to major in science.

Individual copies of the paper are available for $5.00 (prepaid) from the Project on the Status and Education of Women, Association of American Colleges, 1818 R St., NW, Washington, DC 20009.

A booklet called " 'Friends' Raping Friends: Could It Happen to You?" is available from the same address for $2.00 (prepaid). Bulk rates are available.

From "Women in Physics: An International Perspective" by Barbara Wilson, CSWP, AT&T Bell Laboratories, Murray Hill, NJ, printed in the *CSWP Gazette: A Newsletter of the Committee on the Status of Women in Physics of the American Physical Society*, July 1987, Volume 7, Issue 2:

> The questionnaire also requested an identification of the most important social barrier(s) inhibiting the full participation of women in the physical sciences in each country. The most common response, reported in six countries, was that of conflict between career and home/family responsibilities. Thus it is understandable that women physicists might be more numerous and more successful in countries where assistance with child care is more readily available. Four responses cited discrimination in educational and employment opportunities due to prevailing social prejudice. Indeed, as noted by Dr. Dumler in her comparison of Spain and Germany, and consistent with the more general conclusions of the UNESCO study, the proportion of women in science depends on the degree to which it is stereotyped as "masculine" within that society. In Jordan, for example, although women are largely absent from the professional ranks, science is not perceived as a "man's field," and 50% of the Bachelor's degrees in physics are earned by women.

"The History and Philosophy of Women in Science: A Review Essay" by Londa Schiebinger, Program in Values, Technology, Science and Society, Stanford University, is a survey of the literature. It appeared in *Signs*, Vol. 12, No. 2 (1987), pp. 305-332. It organizes the literature according to four conceptual approaches and three fundamental points of view. The approaches:

> The first, involving literature from Christine de Pizan to Margaret Rossiter, seeks to recover the achievements of Hypatia's sisters, to brush off the dust of obscurity from those women whose scientific contributions have been neglected by mainstream (or in Mary O'Brien's phrase, "malestream") historians of science. The second approach complements the first by analyzing the history of women's participation in the institutions of science, focusing on the history of women's (limited) access to the means of scientific production and on the current status of women within the scientific profession. The third approach looks at how the sciences — most often the biological and medical sciences — have defined (and misdefined) the nature of women. The fourth approach analyzes the masculinist nature of science and seeks to unveil distortions in the very norms and methods of science that have resulted from the historic absence of women from any significant role in the making of modern science.

The points of view:

> The first is that women simply cannot do science as well as men — that something in the physical, psychological, and intellectual nature of women prohibits them from producing great science. The second standpoint sees the absence of women from science as an access-to-education-and-employment issue and advocates a straightforward integration of women into science. The third standpoint maintains that it is not enough for women to be scientists if science is to proceed along its present course; the task of opening science to women must be combined with the task of making science more responsible.

A reader writes to report that current textbooks in child psychology "are claiming that at puberty the average male becomes superior to the average female in mathematics, especially in analysis, application, reasoning and spatial skills." He cites, for example, pages 461-463, 609-610, and 648 of *Child Development* by Carol Tomlinson-Keasey (The Dorsey Press, Homewood, Illinois). All we need is for all the education majors in the country to be taught such nonsense!

Anne Leggett
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ICME TRAVEL GRANTS

Mathematics educators, including pre-college classroom teachers, may qualify for travel grants for the Sixth International Congress on Mathematical Education. The Congress takes place from July 27-August 3, 1988 in Budapest, Hungary. Information and applications for travel grants can be obtained by writing: Dept. E, National Council of Teachers of Mathematics, 1906 Association Drive, Reston, VA 22091.

Applications must be received by March 1, 1988.

DISCARDED MINDS

According to a new report called *Discarded Minds: How Gender, Race, and Class Biases Prevent Young Women from Obtaining an Adequate Math and Science Education in New York City's Public High Schools*, math and science course participation in New York City's public high schools is disastrously low. Citywide, 35% of the senior classes of 1985 and 1986 had never completed a high-school–level math course. In addition, race, class and gender discrimination result in even lower rates of participation, especially for young women of color.

Students at schools which are predominantly minority and lower income have significantly lower rates of participation than students at predominantly white and higher-income schools. For example, for every 10 students at predominantly white schools who complete Math 11, there are only 3 students completing Math 11 at predominantly minority schools.

The lowest participation rates are among young women of color or from low-income families. Among schools with predominantly minority and low-income student populations, over 50% of the female seniors in 1985 and 1986 had never completed a high-school–level math course. These young women were allowed to fulfill the two-year math requirement for graduation by taking remedial math courses such as Fundamentals of Math or Recordkeeping.

According to the report's author, Lisa Syron, the basic structure of the city's high school programs contributes to racial, ethnic, class and gender disparities in math and science course participation. Entering students are quickly placed in academic tracks leading toward either the local or state-endorsed high school diploma. Two years of math and science credit are required for both diplomas, but standards for the content of these courses are quite different and, for the local diploma, extremely low. Support services, such as guidance counselling, often mirror these tracks with richer services available to students in higher-level tracks. Inadequate remedial and tutorial services further ensure that students move only downward into lower-level tracks.

This educational design sets low horizons for many students, especially in math and science where participation eventually becomes elective and therefore requires greater student motivation and interest. These hurdles affect all students but have a harsher impact on young women, especially minority and low-income females, who must also overcome discrimination in the classroom and the legacy from the traditional exclusion of women and minorities from math and science.

In turn, low educational horizons contribute to a host of broader problems for young women. As schooling becomes less promising and less appealing, other alternatives — such as pregnancy or dropping out of school — are likely to become more interesting. Later, when these young women join the workforce, inadequate educational preparation, particularly in math, will make it difficult for them to secure a livable wage or to become self-sufficient.

The report, by the Center for Public Advocacy Research, is based on a year-long study of math and science education including a statistical analysis of course completion among high school seniors and an analysis of school policies and practices based on school site visits and interviews with administrators, teachers and students. It concludes with a set of findings and recommendations.

A more detailed summary of the findings of *Discarded Minds* follows.

Are N.Y.C.'s Math and Science Programs Adequate to the Needs of Its Students?

Math and science skills are "critical filters" to a wide range of opportunities. Undoubtedly, the value of math and science education will continue to grow as the use of technology in our society expands. Especially for those children entering school next fall, many of whom will graduate in the year 2000, math and science education will serve as critical filters to:

Employment: In a review of 100 occupations, 69 were found to require General Math. Completion of Algebra and Geometry correlates with better scores on entrance exams for federal, civil service and private sector jobs. Many college majors — over 70% of all majors at one university — require four years of high school math. Math preparation is also required for participation in science studies and occupations.

Personal Decisions: Technology has transformed our personal lives, requiring a higher level of scientific understanding. A variety of personal decisions ranging from consumer decisions to choice of appropriate medical treatment during illness require greater scientific sophistication.

Citizenship: Many public policies are intertwined with mathematical and scientific issues. A sound math and science education is needed to understand public debate and voice an opinion on issues such as environmental questions, the national debt, and military use of high technology.

Inadequate Math and Science Education in N.Y.C.'s Public Schools

The following statistics are based on the math and science course participation of seniors in the classes of 1985 and 1986 at 54 of the city's public high schools. According to the Board of Education, the majority of these students will go on to some kind of post-secondary education. These statistics do not include data on those students who dropped out of high school prior to their senior year.

» 35% of the senior classes of 1985 and 1986 in N.Y.C. public high schools had never completed Algebra or any other high-school–level math course. One year of Algebra is worth an additional $3,000 in starting salaries.

» Only 40% of the '85 and '86 seniors completed both Algebra and Geometry. Completion of Algebra and Geometry correlates with better scores on entrance exams for federal, civil service and private sector jobs.

» Less than 27% of the classes of '85 and '86 completed more than three years of math. Four years of high school math are required for many college majors — over 70% of all majors at one university.

» Science programs in N.Y.C. high schools are stronger. A greater percentage of students complete the lower-level science courses: 87% complete General Science and 62% complete Biology. But more students drop out of the advanced-level science courses: only 27% complete Chemistry. At least three years of science are required for most science majors, including engineering, in college.

A Lack of Equity in N.Y.C.'s Math and Science Education

N.Y.C.'s public schools offer some outstanding examples of programs which are both excellent and equitable. At one specialized science school, 82% of the seniors completed three or more years of math and three or more years of science compared to only 27% of the students citywide. The school's strong record in math and science has been built by a student population which is 82% minority and 40% female.

Generally, however, the city's math and science programs are far from equitable. In fact, disparities based on race, ethnicity, income and gender exist and are often dramatic.

» For every 10 students at predominantly white schools who complete Math 9, there are only 6 students completing Math 9 at predominantly minority schools, a ratio of 10 to 6. In Math 11, the ratio is 10 to 3. While proportions are nearly equal in lower-level science courses, the ratio is 10 to 4 in Chemistry.

» For every 10 students at higher-income schools completing Math 9, there are 7 students at lower-income schools. In Math 11, the ratio is 10 to 5. While proportions are again nearly equal in lower-level science courses, the ratio is 10 to 5 in Chemistry.

» Female students attending predominantly minority and low-income schools have the lowest math and science participation rates of all students.

Policies and Practices Which Contribute to the Problem

Lack of excellence and equity in math science programs is linked to a variety of policies and practices including:

Lack of Math and Science Education in Elementary Schools: Some schools offer extremely limited math and science instruction in the elementary grades, as little as an hour per week.

Inadequate Remedial Programs: Approximately 50% of all students enter high school below grade level in math. The major remedial program, called the PREP program, serves only those students most in need. Few other remedial programs or services are available.

Academic Tracking: Students are placed in a track which determines most subsequent coursework by the end of the ninth grade.

Low Minimal Standards: Although the city requires two years worth of credit in math and science, the content of these required courses is not stipulated. Therefore, a student can take two years of Recordkeeping to satisfy the math requirement.

Tracking in Support Services: Students in "fast tracks" often receive enriched support services including weekly meetings with guidance counselors and special career information services. Meanwhile, guidance counselor to student ratios in other tracks are as high as one counselor to over 600 students.

Inadequate Civil Rights Enforcement: Despite increasing standards in math and science as a result of the Regents' Action Plan, neither the city nor the state regularly reviews school data broken down by race, ethnicity, income or gender.

A New Beginning

In recognition of the need to address both excellence and equity in N.Y.C.'s math and science education, the Chancellor established the Citywide Advisory Committee on Improving Opportunities for Minorities and Women in Science and Mathematics in May 1987. This committee is charged with providing recommendations to the Chancellor on math and science education kindergarten through grade 12. Clearly, this signals a greater commitment to improving the math and science opportunities for all students regardless of their race, ethnicity, class or gender. The acceptance, implementation, and funding of the final recommendations will test the strength of this commitment to equitable math and science education.

ORDERING INFORMATION: The report is available from the Center for Public Advocacy Research, 12 West 37th Street, 8th Floor, New York, NY 10018. The price, which includes postage, is $6.00.

DIRECTORY OF INTERVENTION PROGRAMS

The Educational Testing Service, Princeton, NJ 08541 has published the directory *Intervention Programs in Mathematics, Science and Computer Science for Minority and Female Students in Grades Four Through Eight*. This directory was prepared with the support of the Ford Foundation as part of its initiative to increase the representation of minorities and females in these fields.

The directory identifies and briefly characterizes intervention programs at the middle school level. It is hoped that this information will facilitate communication between professionals involved in the delivery and/or support of intervention programs and highlight the need for continued support for these activities.

JOINT COMMITTEE ON WOMEN IN THE MATHEMATICAL SCIENCES

report of the Salt Lake City Meeting, August 7, 1987
by Pat Kenschaft, Montclair State College

Although the group was small, there was unanimous agreement that such meetings are important to coordinate efforts on behalf of females in mathematics. There are many people working in the movement, and most are very busy, so we need to avoid duplication. The discussion centered on division of labor.

The new MAA Committee on the Participation of Women, chaired by Pat Kenschaft, will concentrate on changes within the MAA itself before turning to other activities, although the boundary

between college mathematics departments and the MAA is blurred. Pat noted that there were plenty of ideas suggested by members of the committee (which had had its first meeting on the previous day) for activities to keep the new committee busy for some time.

It will use some ideas already implemented by AWM with regard to the AMS, such as investigating publication patterns of the sexes. Mary Lane of the AMS office did a recent study of the four AMS journals. Her report says that 4.4% of the authors are known to be female and 17.3% of the authors are of unknown sex, due either to the use of initials or to a first name that did not reveal the author's sex to her.

Marjorie suggested that the new MAA committee ask that journals use only initials when sending submitted articles to referees, so that the sex of new authors is not immediately apparent. Articles accepted for publication should have the names published as the authors request, preferably a complete name. The committee enthusiastically endorsed this suggestion, as did the MAA committee at its second meeting two days later. The latter committee authorized Pat to request also that names of institutions be omitted from papers when they are sent to referees. Members of both committees expressed a wish for blind refereeing, but realized that the AMS has tried this policy and decided it requires too much work for referees.

The Joint Committee agreed that WAM provides a fine structure for sending women mathematicians to high schools and applauded Carole Lacampagne's leadership. She said she believes that the AWM Speakers' Bureau might provide a similar service for colleges, and that such a service is greatly needed.

The new Greenwood Press book *Women of Mathematics: A Biobibliographic Sourcebook*, including the biographies of 43 women mathematicians and edited by Paul Campbell and Louise Grinstein, should be immediately added to the Joint Committee's bibliography, but those working on the bibliography in the past are busy elsewhere. It was hoped that the bibliography could be entered into the AWM computer, where it can be easily updated and disseminated. Lori noted that, as Executive Director of AWM, she often receives requests for the bibliography. Carole noted that she had left the heading blank so that any group that wants to can claim it as its own. She suggested that this policy be continued.

The Joint Committee noted that one group not yet specifically served by any of our organizations is that of women holding bachelor's and/or master's degrees in mathematics, including graduate students. This is an omission we hope can be filled, perhaps by AWM.

Marjorie reported that whenever she asks a group of middle school students whether boys or girls are smarter in math, the group always responds "girls." This startled her so much the first time that she has asked the question to many other such groups, of both sexes and in many locations. The perception by middle school students is always the same. Girls are better at math. This is borne out by data found from the NAEP (National Assessment of Educational Progress). The meeting concluded with significant looks and nods.

WOMEN IN COMPUTERS: ALMOST A SUCCESS STORY

a panel discussion
Computer education is one of the interests of the Education Committee of AWM. Suda Kunyosying (Shepherd College, WV), a member of the Education Committee, participated in the third annual Eastern Small College Computing Conference, held on October 16-17, 1987, at Marist College, NY. The following is her report on one of the meetings.

Among the excellent presentations was a well-attended panel discussion on Women and Computers. The panelists (all women from William Peterson College, New Jersey) were Beva Eastman (Mathematics), Jean Werth (Biology), Shelley Wepner (Curriculum Development), and Priscilla Orr (Director of the Center for Academic Support). All were enthusiastic computer users, both for personal use and in their disciplines.

The moderator and first speaker, Dr. Eastman, while expressing concern over the decreasing representation of women in computer science, discussed some of the new and creative ways women are contributing to the computer field. She cited examples of multifaceted educational software, developed by women programmers, for teaching history, social studies, language, and math. These programs are both educational and non-violent in contrast to much educational software available in

the market. Software developed by men tends to be more violent, which may be one of the reasons why boys like computers more than girls do. Another example of creative use of computers by a woman was in the field of rehabilitation — using microcomputers to restore thinking ability in people with brain damage resulting from accident or stroke, and in retraining therapy for hand-eye coordination. A final example was a computerized women's thesaurus. The National Council for Research on Women is developing an on-line thesaurus and database for improving access to women's information resources. The Thesaurus Task Force and Database Steering Committee is coordinated by Mary Ellen S. Capek, the editor of *A Women's Thesaurus*.

Dr. Werth discussed the differences between women and men regarding the use of telecommunications and bulletin boards. Initially, women tend to be reluctant to use this type of facility, but once they have overcome "machine anxiety," they seem to enjoy using telecommunications and bulletin boards more than men. The increasing number of women using these systems has resulted in a bonding among women users. Dr. Werth remarked that this bonding may lead to the establishment of a new "professional women's network" comparable to the "old boy's network" which has contributed to the success of men. Dr. Eastman added that at present there are three women's bulletin boards around the country.

Dr. Wepner discussed issues related to sex bias in educational software, and the unequal distribution and use of computers among female and male students, particularly in K-12 situations. She presented a variety of strategies that can be used to promote computer equity in the classroom so that the stereotype of the computer as a male machine can begin to change.

The final speaker, Ms. Orr, maintained that computers can be a viable tool in writing instruction by allowing professors and students to concentrate on the most essential aspect of writing — the composing process itself. Those students who are terrified of using a computer often benefited the most when encouraged to use the computer in a positive but simple manner, such as in the writing process.

WOMEN AND COMPUTER EDUCATION: SURVEY OF READERS
(Answers will be summarized in a forthcoming issue of this *Newsletter*.)

1.   In your community, academic or otherwise, is the computer predominantly a "male machine"?

2.   What actions have you seen undertaken to promote the use of computers among females? With what results?

3.   What actions would you suggest to promote the use of computers among females?

Please return this page (or your own, if you need more space) to Education Committee, AWM, c/o Sally I. Lipsey, 70 E. 10th St., #3A, New York, NY 10003.

CONFERENCE REPORT: GASAT IV

by Phyllis Chinn, Humboldt State University, Arcata, CA 95521

The Fourth International Meeting on Girls and Science and Technology (GASAT IV) was held in North America for the first time July 24-29, 1987, on the campus of the University of Michigan in Ann Arbor. It was attended by approximately 150 people from 31 different nations, mostly from Western Europe and North America plus a large delegation from Australia. There were also representatives from several developing nations including Kenya, Nigeria, Malaysia, Thailand and the People's Republic of China. By agreement with the international organizers, the United States was limited to 30 participants. To accommodate the large number of people from the U.S. who are interested in this topic, the American Association for the Advancement of Sciences (AAAS) sponsored a second conference, entitled "Women in Science and Engineering: From Vision to Reality."

Speakers at both conferences expressed anger at inequitable treatment of girls and boys in classrooms as well as optimism and even enthusiasm that some intervention programs are having positive effects. During an intense week of formal and informal sessions, participants from six continents listened to, and learned from, one another. Old friendships were renewed, and many new ones begun. We discovered how much stronger are the bonds which unite us as human beings and women than those which separate us by our country of origin.

GASAT IV participants reported that the situation for females in mathematics and science is comparable in many countries around the world: boys and girls perform equally well in math and science classes as long as the courses are required. Once such courses are optional, boys are more prone to select them than are girls. Studies have been done in many countries to explain the differences in selections made by children.

One set of explanations focuses on the stereotypes associated with science and scientists. According to several of the researchers, the children, parents, teachers and often the scientists themselves view science as rational, linear, controlling, and masculine. In fact, these researchers claim, science is not exclusively any of these — science also requires intuition, holistic thinking, observing, and nurturing and caring, all of which we often consider feminine traits.

Several other studies have investigated behavior within classrooms. In several countries, researchers have found that boys often tend to play a more active role in science and math classrooms than girls. They ask more questions, volunteer more (correct and incorrect) answers, use equipment (especially computers) more readily and more creatively than girls ("tinkering around"), and bring a broader background of science-related experiences from outside school to their classes. Girls, on the other hand, often do neater and more meticulous work, and thus earn good grades in classes even when they may not have as great a depth of understanding of some topics as do the boys. In several countries girls are reported to have greater interest in science topics that relate to their everyday experiences and concerns — from cooking to energy conservation to problems of pollution — than topics which are interesting primarily for boys, like paths of balls or ballistics. Unfortunately, the "boy's topics" are more often taught in school science classes than topics of more general interest.

Other researchers have observed that teachers tend to pay more attention to the boys (in both positive and negative ways) and to encourage their efforts more strongly than the girls. Girls are more often asked rote, recall questions while boys tend to be asked more complex or open-ended questions. Boys are also often given longer to think of an answer and are often prompted if they answer incorrectly; if a girl hesitates or answers incorrectly, usually a boy will be called on for the correct answer. Some teachers are unaware that they treat boys and girls differently. Others claim that, because girls are so conscientious, they need less encouragement than boys. As a result of differential treatment and lack of encouragement, many of the girls drop out of science classes as soon as that is an option.

Among countries not represented at the conference, including much of Eastern Europe and the Soviet Union, women constitute a high proportion of scientists and engineers. This fact suggests that sociocultural rather than genetic factors account for the different performances of males and females in these fields.

Several strategies are being tested in different areas of the world to insure that all children have access to good science education to prepare them to live in a world that will be increasingly complex technologically, where most women will be working outside the house for much of their adult life and where people lacking good science and math backgrounds will be limited to relatively few job options, most of them low-paid.

Among the recommended strategies is to offer science workshops/career days along the model of the Expanding Your Horizons in Science and Math Conferences or the Nothing But Options Conferences that have been held at various sites over the last several years. A second idea is to encourage women working in non-traditional careers to visit science and math classrooms as guest speakers. Another strategy that has been very successful in increasing the continuation rates of girls in science is to train teachers in the subtle forms of discrimination that may occur in classrooms so that the teachers can combat negative attitudes and give suitable encouragement to all students.

Several countries or regions have had success in revising the content and/or methodology of the school science classroom. Changes include having more topics that relate to the everyday experience and interest of the children, and using cooperative learning techniques, activity-oriented, learner-centered science with creativity, inquiry and discovery encouraged and rewarded. There were also several reports of girls doing better in science and mathematics courses when they were taught in girls-only classes.

By the end of the conference, over 120 papers that were printed in a three-volume proceedings had been discussed. Numerous small and large group discussions had offered suggestions and ideas for further research and implementation. Several networks had been formed which will attempt to sustain themselves between now and GASAT V — tentatively scheduled for Fall 1989 in Israel. Women who had attended the National Conference all filled out personal plans of action, committing themselves to various activities as a result of their experiences at the conference. Many participants suggested having further regional or national conferences on similar topics, perhaps to be held in the even years, between international GASAT meetings. No dates or locations were announced for such conferences.

At the end of the week, weary participants left Ann Arbor for all parts of the world, inspired and enriched by our new friendships and the learning and work we had done together.

HANNA NEUMANN: A GREAT WOMAN MATHEMATICIAN FROM DOWN UNDER

by Kailash K. Anand, Associate Professor, Concordia University, Montreal

Abstract: A biography of Hanna Neumann along with her early difficulties is given. Her rise to the position of a full professor in Pure Mathematics at the Australian National University, School of General Studies, was not without personal sacrifices. She became the first woman to be appointed to occupy the chair in Mathematics at the same university. Her work as an algebraist is described. Her untimely death on November 14, 1971, was a great loss to our present generation of mathematicians.

1. **Introduction.** It was quite a stroke of luck that in 1983 while reading *The Nature and Growth of Modern Mathematics*, Volume 2, by Edna E. Kramer, I saw a mention of the Neumann family and the comparison of it with the Bernoulli family. I noticed that Bernhard and Hanna Neumann's daughter Irene had married Dharam Pal Dhall, a distinguished surgeon from England. That excited my curiosity because my maiden name is also Dhall. I suspected, and with Dr. Bernhard Neumann's help established, that Dharam Pal Dhall is indeed my cousin who grew up in Nairobi, Kenya but studied in England for a medical degree. The marriage between Pal and Irene was unfortunately dissolved, but they had five children, who are Hanna and Bernhard's grandchildren. Through these children, I am proud to be related to the Neumann family.

I have come to like Bernhard very much. Unfortunately, I never knew Hanna Neumann during her lifetime. As I discovered more and more about Hanna through her husband and others whom I contacted, e.g., R.G. Burns from York University in Toronto, my respect for her grew. There are so few women mathematicians, and Hanna definitely stands out.

2. **Biography.** I am deeply indebted to M.F. Neumann and G.E. Wall for letting me use their article "Hanna Neumann" in the *Journal of the Australian Mathematical Society*, Vol. XVII, Part 1.

Hanna (born February 12, 1914) was the youngest child of Hermann and Katharina von Caemmerer. She entered the University of Berlin in 1932. Amongst her teachers were some famous names like Fiegl, Bieberbach, E. Schmidt and Schur. Bernhard was amongst the group of people she knew at the University of Berlin. Being Jewish, Bernhard had to leave Berlin for Cambridge, England.

Hanna was sympathetic toward Jewish lecturers, who were being hassled by the Nazis. That resulted in her losing her job at the Mathematical Institute in Berlin. She also had to settle for a Staatsexamen instead of a doctorate in mathematics at Berlin because of political conditions. Later research work with Hasse, a professor in Göttingen, did not lead to a Ph.D. because Hanna quit after three semesters to join Bernhard in England.

Late in 1938, Bernhard and Hanna were married in Cardiff, England. Hanna's life was not to be very easy. Very often Bernhard was working in one town and Hanna in another. She was managing a growing family and housing problems. Yet she managed to receive her D.Phil. from Oxford in 1944.

With the end of the war, Bernhard resumed his teaching career with a temporary lectureship, while Hanna started out with a temporary assistant lectureship at the University College in Hull in 1946 (after the birth of their fourth child!). By the end of her twelve years at Hull, Hanna had risen to the position of a Senior Lecturer. During that period Bernhard had started lecturing in Manchester.

I must express my admiration for Hanna's courage and organizational capacities: she was able to bring up five well-disciplined children, four of them with keen interests in mathematics, while teaching and introducing new courses and administering new programs. As if that was not enough, she continued with her research in group theory.

With the aim of making one home for the family, Hanna moved to Manchester in 1958 when the Faculty of Technology of the University of Manchester appointed her to set up an Honours program in mathematics. But when Bernhard took off on study leave, Hanna was left not only to manage her new job and their complete household, but also with the supervision of one of Bernhard's students.

Hanna continued giving clear, illuminating lectures and developing new techniques and examples which made abstract concepts easier to comprehend. She was also building up a solid research team around her. Her interests in botany, cycling, swimming, and photography continued along with her meetings with colleagues and research students at tea parties in her home. When after a joint sabbatical (1961-1962) at New York University, Bernhard went on invitation to set up a research department of mathematics at the Australian National University, Hanna stayed behind for one year although she had been offered the Reader's post in the same department. She wanted to fulfill her commitments to her research students in Manchester.

In Australia, 1963, Hanna's career really took off. Martin Ward and Bob Burns both completed their doctorates under her supervision. R.G. Burns was her Ph.D. student from September, 1963–January, 1966. Bob worked on wreath products and varieties of groups. In his words, "Hanna was an excellent supervisor — very caring."

She was invited to take the newly created Chair of Pure Mathematics in the National University School of General Studies. She took up the appointment in April 1964. This carried with it the headship of the department of pure mathematics. Hanna started on the difficult task of building up a keen young department by inviting some of her former students and some people in Bernhard's department to give courses and conduct research. She also invited some senior people like M. Stone from Chicago and Professor Coxeter from Toronto for short terms. Her new responsibilities left little time for research. Yet even then Narain and Kanta Gupta earned their Ph.D.'s working with Hanna and Bernhard around 1965.

In 1965 Hanna helped organize, in Canberra, a very successful international conference on the theory of groups. At the conference she gave an important survey talk on varieties of groups [30]. Her monograph on varieties of groups appeared early in 1967. In this Hanna listed some unsolved problems in that area, some of which have since been solved by the very people she inspired. She continued helping students in their research projects, giving talks to different mathematical societies, inspiring teachers in secondary schools. Hanna, as professor of pure mathematics, was involved in committee work, where people respected her for her fairness, balance, and impartiality. Although it was a very demanding job, she accepted the position of Dean of Students from January 1968 until August 1969. She won the admiration and appreciation of the student body by acting fairly and squarely on their account.

She was rewarded as an academician with fellowships of the Australian College of Education and Australian Academy of Sciences. The Australian Mathematical Society invited Hanna to be the director of the Ninth Summer Research Institute held in January 1969. This was very successful, with visits by Erdös and Hirsch. It is difficult to recount all of the honors that Hanna got after going to Australia.

Hanna and Bernhard went on a joint study leave in August 1969. After attending the I.C.M.E. at Lyons and "Decision Problems in Group Theory" in California, they went for a five-month stay at Vanderbilt University in Nashville, Tennessee, where Hanna was on a N.S.F. Senior Foreign Scientist

Fellowship. Hanna and Ian Dey, a student of Hanna's, were able to conclude that the free products of finitely many finitely generated Hopf groups are indeed Hopf groups [32]. During the rest of her sabbatical, they visited Cambridge, England; the University of Freiburg, Germany; and then Lahore, Madras and Madurai on the Indian subcontinent before returning to Australia in August 1970.

During the winter of 1971-1972, Hanna was invited to make a lecture tour of Canada under the Commonwealth Universities Interchange Scheme. Bernhard tells me that he was not with Hanna this time. After visiting the Universities of British Columbia, Calgary, Alberta, Saskatchewan, and Manitoba, she arrived at Carleton University in Ottawa on the 8th of November. On the 12th, she felt uneasy and admitted herself to a hospital. Bernhard told me that she went into a coma, from which she never came out. She passed away on the 14th of November, 1971.

Hanna was a very capable mathematician and administrator, and she was a kindly, humane person. A list of her papers is below. Her papers dealt with groups under the subheadings free products with amalgamations, embeddings, varieties, and others such as combinatorial problems and projective planes.

3. **Recognition**. The *Journal of the Australian Mathematical Society*, Volumes XVII and XVIII are dedicated entirely to the memory of Hanna Neumann. The Australian National University (A.N.U.) has named the building in which the Department of Mathematics of the Faculty of Science and the Centre for Mathematical Analysis is housed, the Hanna Neumann Building. There are two prizes for undergraduate students of mathematics in this University called the Hanna Neumann prizes. At the annual National Summer School in Mathematics sponsored jointly by A.N.U. and the Australian Association of Mathematics Teachers, there is a Hanna Neumann Scholarship for one of the participants. The annual mathematics competition for secondary school students arranged by the Canberra Mathematical Association is called the Hanna Neumann Competition. One of the invited lectures at the biennial meeting of the Australian Association of Mathematics Teachers is called the Hanna Neumann Lecture. During the International Congress of Mathematics Education, August 1984, one whole series of lectures was called the Hanna Neumann Series. All this shows just how much impact this mathematician has had and continues to have on her contemporaries and those who follow her.

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REFLECTIONS ON THE JOINT MATHEMATICAL MEETINGS IN SALT LAKE CITY

by Lori Kenschaft, Executive Director, AWM

When Rhonda first asked me to write about my reactions to the Meetings a few days after I returned, I felt overwhelmed: so many things had happened in a few short days. I guess that is the feeling of most novice conference-goers, and perhaps even of experienced ones too. But some patterns did emerge.

I arrived in Salt Lake City on the first day of the Meetings, marvelled at the platter-flat city surrounded by imposing and barren mountains, and set up the AWM table before going to the Executive Committee meeting at which Rhonda and I had our first face-to-face conversation since I began working. After this productive and pleasant tête-à-tête, I decided there were some benefits to the fact that the Great Salt Lake had attracted fewer participants to these Meetings than any other in recent history.

Thursday was AWM day, with a panel discussion on "The Relationship Between Gender and Science" followed by the business meeting and an AWM party in the evening. The panel was well-attended and evoked interesting discussions both during the official question session and afterwards. For me, Thursday was even more AWM day, since I spent all possible time at the AWM table talking with people who came to inquire about AWM, make suggestions for AWM activities and contacts, and generally to discuss ideas and events associated with women and/or mathematics. The table was quite busy, and I really enjoyed talking with conference participants, their families, university students, and various other folks who happened to wander by.

Friday morning the newly formed MAA Committee on the Participation of Women had its first panel, "What are the Problems? What are the Solutions?" If, as Donald Bushaw quoted Bertrand Russell, the mark of a civilized person is the ability to shed tears at a table of numbers, there were plenty of reasons for wetted cheeks. But the very existence of the committee (four women and four men) is a hopeful sign, and they announced triumphantly that they had fourteen resolutions on which they intend to act.

The Joint Committee on Women in the Mathematical Sciences (jointly sponsored by the AMS, MAA, NCTM, and ASA) met after the panel. The Committee's purpose is to keep track of the various groups concerned with women in mathematics, in order to facilitate cooperation and prevent duplication of efforts. The conversation rapidly alternated between coordinating detailed practicalities and attempting to see the larger picture of women's relationship with mathematics.

Similar themes appeared in many of these contexts. One that seemed to meet broad agreement was that in the late 1980's most of women's problems in the mathematical community are not due to malicious sexism or overt discrimination. Instead, men and women of good will find that their actions, whether from habit or ignorance or structural circumstance, exclude women from mathematics. Since our primary struggles are with institutional structures and deeply rooted but subtle preconceptions, it is sometimes difficult to find appropriate strategies.

Another theme that reappeared is that structures that are disadvantageous to women are often similarly disadvantageous to other underrepresented groups. For example, the myth that mathematics is a young person's activity (a myth disproved by studies of authors' ages) hurts both women, who are more likely to spend some of their early years bearing and raising children, and blacks, who are more likely to need to earn money to support themselves and their families. Similarly, since both women and blacks are less likely than white men to work at prestigious institutions, both groups are affected if journal reviewers are prejudiced by knowing the institutional affiliations of authors.

In conclusion, I found the Meetings to be a very thought-provoking and satisfying introduction to AWM's membership. But I also found myself wondering about the people who weren't there. There were very few women of color present, and proportionately few women from teaching-oriented institutions. These disproportions indicate that women at national meetings are really a selected subset of women in mathematics: those who can find the financial resources to fly to a beautiful city in the southwestern desert.

AWM's proposed NSF grant, which would give women travel money for conferences, should help, but this is only one step. I would like to see AWM develop more local programs to give support, inspiration, and encouragement to women involved in all of the many aspects of mathematics: women in high schools, community colleges, and universities; women who are students, teachers, and employees in industry, business, and government. We have a lot to learn from each other, and we can't count on national meetings to provide all the necessary networking. If you are interested in local organizing, please write to me, and I will help you in whatever ways I can.

WISE: WOMEN IN SCIENCE AND ENGINEERING

by Bonnie Shulman
About the author: Bonnie is a third-year graduate student in mathematical physics at the
University of Colorado at Boulder. She is a single parent. Raised in New York City, she has
lived in Colorado for twelve years.

I was a junior majoring in mathematics with lots of physics and astrophysics courses. I met a few other women in my classes and wondered who they were and about their lives. I am now 36, was then 33, and began school at 30 (my daughter was 9 and is now 15). I want to grow up to be a mathematical physicist. What were these other women's stories?

A seminar I attended, "Women in Science," inspired me one day to ask a group of these women to get together for breakfast, just to talk. So was born WISE, Women in Science and Engineering. We grew by association. We each tried to bring one new person to the next meeting. Our sessions were irregular but steady for the fall semester — either a pot luck at someone's house or brunch at a restaurant. We met on various days and spread a net (work) that caught different women each time, with the core of the original six of us staying intact.

A phone list grew, friendships deepened. We were 19-73 years old, and represented many fields — mathematics, biology, civil engineering, physics, nursing, biochemistry, astrophysics, computer science, geology... some were students, undergraduate and graduate; some professors; some working in industry; some scientists employed at NCAR (National Center for Atmospheric Research), JILA (Joint Institute for Laboratory Astrophysics) or NBS (National Bureau of Standards).

At first we arranged for one woman to talk to us about her work and her life each time we met. The scientific curiosity and interest in the audience were very satisfying to the speakers, and sharing our struggles as women and as scientists was supportive as well as consciousness-raising.

We began to get more organized and took tours of local facilities (NCAR, Solar Mesosphere Explorer, the electron microscope on campus), created a circulating library, and initiated a special table we set up during Fall and Spring Registration, to advise (and recruit) other women (we were a very popular table).

We have never become an official student group. New people join through word of mouth. Our phone list is on someone's computer account and changes every meeting. We got one woman a job. This year we would like to present a panel or program of some kind during career day at local high schools. We make modest plans each semester and usually fulfill all of them.

Five of our original six have graduated this year. But there remains a core of four or five women who run into each other in class, in the lab, in the supermarket, at the bus stop...and soon it's time again. We split up the phone list and make calls: someone is going to speak about her field work in Antarctica on the ozone layer — bring the book you borrowed, I have the second one in the trilogy — I got a letter from Kathy, she just passed her qualifying exams — I brought zucchini bread, anyone want zucchini from my garden? — have you signed this petition yet, it's about.... .

And so another WISE meeting takes place. If you're ever in Boulder, give us a call.

BOOKS FOR YOUNG PEOPLE BY AWM MEMBERS

Claudia Zaslavsky has written *Math Comes Alive: Activities From Many Cultures*. It provides an easy way for teachers to show that math is, literally, everywhere. The 64 open-ended activities and games in this reproducible book (permission is granted to photocopy student pages for all students of one teacher) let teachers introduce their classes to the practical applications, history, and fun of mathematics. The activities are both multicultural and interdisciplinary — just what is needed to arouse curiosity and help develop critical thinking skills.

Classes will learn about many societies and cultures of today and the past — their numeration and measurement systems, their games of chance and skill, and their patterns in art and architecture. At the same time, students get painless practice in such areas as problem-solving, estimation, geometry, measurement, tables and graphs, predictions, and many more.

Complete and self-contained, the book has all the answers to the activities for quick reference, plus a skills chart and a bibliography. The worksheets are appropriate for grades 5-9, as enrichment projects for gifted students, and for adaptation for higher grades. Order for $15.00 ($1.50 shipping for cash and credit card orders) from J. Weston Walch, Publisher, 321 Valley St., P.O. Box 658, Portland, ME 04104, or call 1-800-341-6094.

Two resource books are currently available for math teachers or parents, aunts and uncles who want to help young people learn about interesting women who have led lives much enriched by their interest and training in mathematics.

Math Equals by Teri Perl, appropriate for young people age thirteen and up, contains biographies of non-contemporary women. It is available from Addison-Wesley Publishing Company, Innovative Division, 2725 Sand Hill Road, Menlo Park, CA 94025 for $12.95, or call 415-854-0300 for catalog or additional information.

Women, Numbers and Dreams, funded under a grant from the Women's Educational Equity Act, is appropriate for younger children. This book by Teri Perl and Joan M. Manning includes biographies of contemporary as well as non-contemporary women. One of the people in *Women, Numbers and Dreams* is Lenore Blum, a founder of AWM. The book is available for $18.95 from the National Women's History Project, Box 3716, Santa Rosa, CA 95402, or call 707-526-5974 for catalog or additional information.

All biographies are accompanied by math-related activities, making the books particularly useful to teachers. These activities are at a level of difficulty appropriate to the recommended age group for each book. Teachers are encouraged to duplicate the activities for classroom use.

MARGARET MUNROE'S RETIREMENT PARTY, 6/15/87: installment 1

Margaret Munroe, Alice T. Schafer

Margaret Menzin, Lenore Feigenbaum, Carol Munroe

Barbara Peskin, Donna Beers, Marjorie Bayer

Ellen Marycock Parker, Marianne Gardner, Arlene Ash

SCIENTIFIC EXCHANGES

The National Academy of Sciences (NAS) invites applications from American scientists who wish to make visits beginning during the period January 1, 1989 through December 31, 1989 to the U.S.S.R., Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, Romania, and Yugoslavia. Long-term research visits of 3 to 12 months duration are encouraged, particularly if contact with colleagues in the other country has already been established. The minimum length of visits is one month in one country.

Applicants must be U.S. citizens and have a doctoral degree or its equivalent by June 1988 in physics; chemistry; mathematics and computer sciences; earth, atmospheric, and oceanographic sciences; agricultural, forestry, fishery, and plant sciences; biological sciences; environmental sciences; engineering; archaeology and anthropology; geography; or psychology. Also included are science and technology policy and those aspects of the economic and social sciences that involve quantitative analysis as a primary consideration. Other scientific disciplines not explicitly mentioned will be considered on a case-by-case basis. Necessary expenses will be met by the NAS and the foreign academy, including reimbursement for long-term visitors for salary lost up to a predetermined maximum and expenses for accompanying family members for visits exceeding five months.

Requests for applications should reach the National Academy of Sciences not later than February 15, 1988. Applications must be postmarked by February 29, 1988. Address application requests to: National Academy of Sciences, Office of International Affairs, Soviet and East European Affairs (GF-166), 2101 Constitution, NW, Washington, DC 20418, phone (202) 334-2644.

JUST BETWEEN SISTERS

Electrician, copier service technician, plumber, train master, line technician: all are well-paying jobs, jobs that still conjure up male, not female, images in the mind's eye when most people think of them.

In a multimedia package of a videotape, a set of ten posters and a supplementary career education guide, called *Just Between Sisters: Futures Unlimited*, the electrician, copier service technician, plumber, line technician, mechanic and train master are women.

"Women are often in great need of a high-paying job with good benefits so as to support themselves and their families," stated Bette Baranco Bland, one of two project coordinators. "Yet, statistically, most of the 50 million women who work outside their homes work in low-paying jobs," she continued. "This makes women, particularly those with children, more likely to be candidates for living in poverty conditions — even if they have a college degree."

Just Between Sisters: Futures Unlimited presents some alternatives to low-paying work. Developed by project coordinators Bette Bland and Barbara Juman for the Consortium for Educational Equity at Rutgers, The State University of New Jersey at New Brunswick, the project highlights Black and Hispanic women in nontraditional, technically-oriented careers as role models.

"What we've done," added Juman, "is to find role models, women in nontraditional jobs, women with ambition, and women whose lives didn't necessarily follow an orderly path, but who are succeeding in the workplace now."

Funded by a grant from the United States Department of Education, Women's Educational Equity Act (WEEA), *Just Between Sisters: Futures Unlimited* is the third in the series of the *FUTURES UNLIMITED* multimedia products. The first videotape, *Expanding Your Horizons in Mathematics and Science*, encourages high school students to pursue science- and math-based careers, by profiling young women who talk about their education and their jobs. The second, *Expanding Your Horizons in Technical and Vocational Education* features attractive women working in the exciting world of technology, including an aircraft mechanic, a television technician, a chemical laboratory technician, and land surveyor among its role models.

The target audience for *Just Between Sisters* is minority teen-aged girls in urban settings who lack a variety of role models to inspire them. "This audience includes those girls who see no reason to take courses in higher math and sciences, or maybe are thinking of dropping out," says Juman. "These young women are [those who are] most likely to seek employment directly out of high school or who must work full-time while pursuing higher education. We selected women in well-paying

nontraditional jobs that require competent skills in math and basic science and who could clearly tell their own stories."

Twenty-five women were interviewed as potential role models from companies such as Ortho Pharmaceutical, Warner-Lambert, Xerox, and Public Service Electric & Gas, trade unions and hospitals. Ten were selected and then photographed on-the-job for the poster set. Four of the ten are profiled in the videotape, and all are included in the supplementary guide.

"In making a selection, we considered the job, which had to be nontraditional for women; the skills required; salary; and, of course, the role model's attitude," Bland said. "We also explored job benefits and access to further opportunities that these women would have through their employers, such as promotions, tuition assistance programs, career counselling."

The average starting salary for role models in *Just Between Sisters* was $16,500 with six-month increases at an average of $500. Most have been working for four or more years, and some have salaries in the mid-twenties, a few in the mid- to upper-thirties.

One of the role models featured in the video was Carol Thomas, a customer service engineer for Xerox. After high school, she opted for technical training at RCA and completed the training as one of only two women in her class of 18 trainees. She passed up an offer to work on an assembly line to take a position with Xerox. "My basic field is servicing electrical and mechanical equipment. I was looking for a challenge, and that's exactly what I got," stated Thomas. Thomas' job included management skills; she was responsible for a territory and as many as 50 to 100 customers. "You don't know how many different problems you're going to have to respond to in one day, so besides mechanical and technical skills, you have to be able to decide when you need to call in assistance."

Thomas described her feelings of control and achievement with her work: "Some customers are intimidated by the equipment, and I have to reassure them and show them that they must be able to communicate a problem as clearly as possible. You know, customers are still not used to seeing women come into their business office to service equipment. They're still looking for a male to come through the door to help them in time of need."

The other role models are: an electrician, Ortho Pharmaceutical; a laboratory technician, Hoffmann-La Roche; a train master, New Jersey Transit; an x-ray technologist, Robert Wood Johnson Hospital; an aviation mechanic/instructor, Aviation High School; a sheet metal apprentice, Sheet Metal Union #28; a line maintenance person, Jersey Central Power & Light; a plumber apprentice, Plumber's Union #2; and a police officer, New York City Police Department.

Just Between Sisters specifically targeted an audience that has been identified as being "at risk." Its objectives were to motivate and to encourage young women to stay in high school and to persist with their studies, especially in math and science. The videotape and the poster set provide the role models, many of whom have not taken a conventional path to where they are today, and can relate easily to their audience. "The supplementary guide is designed to provide some realistic information on women's expected participation in the labor force (most will work for over 35 years)," said Rebecca Lubetkin, director of the Consortium for Educational Equity, "and includes activities to expand their horizons and help improve their self-esteem."

The *Just Between Sisters: Futures Unlimited* multimedia package is now available from the Consortium for Educational Equity, Rutgers University, New Brunswick, NJ 08903. The poster set and the videotape are available separately with the supplementary guide. For additional information, call (201) 932-2071.

FORD FOUNDATION AWARD TO GIRLS CLUBS OF AMERICA

Operation SMART, the Girls Clubs of America (GCA) program, to encourage every girl in Science, Math And Relevant Technology, has received a Ford Foundation grant of $221,000. The money will be used for research into how informal educational organizations — such as local Girls Clubs — can encourage girls, ages 9-14, to persist in studying math, science and technology.

Operation SMART is GCA's response to research compiled by social scientists at its own National Resource Center which indicates that many girls drop out of the critical areas of science, math and technology while still in school, and cut off their options for many jobs that pay well, offer opportunities for advancement and provide fulfillment and satisfaction.

"The Ford Foundation wants to encourage the development of new models of intervention and service in math, science and technology education for inner-city girls," said Barbara Scott Nelson, program officer, Urban Poverty, Ford Foundation, in awarding the grant. "We are fortunate that Girls Clubs of America was developing Operation SMART at a time when we were moving in that direction. We are glad to be able to support this program."

The GCA Operation SMART research project was begun in 1985 with a Ford Foundation grant of $98,500. The culminating case studies on the relationships between Girls Clubs and schools in providing math and science education to girls aged 9 through 14 as well as proceedings from a conference of experts on girls in science and math are available for $3.00 and $5.00 respectively from the Girls Clubs of America National Resource Center, 441 West Michigan Street, Indianapolis, IN 46202.

The new grant will support the next stage of the project, which has two parts. The first is the production of a "tool kit" of enjoyable, challenging activities to stimulate 9-to-14-year-old girls to think about and record their own and their peers' attitudes towards math, science and technology.

The second part is an intensive study of Girls Clubs in Pueblo, CO; Atlanta, GA; and Schenectady, NY and the subtle "messages" girls receive about women in math and science from home, school, community and the media.

Research is just one part of GCA's Operation SMART, which also includes hands-on activities for Girls Club members; training seminars for professionals working with girls; career awareness conferences for girls; and MuseumLink, a collaboration between GCA and the Museum of Science in Boston, MA.

Girls Clubs of America is a national not-for-profit organization that serves 250,000 girls and young women ages 6-18 in 240 Girls Clubs centers and through various outreach programs. Operation SMART is one of the many programs GCA is developing to help today's girls meet the challenges of the future.

OF POSSIBLE INTEREST

The date has been set for the Boston session of the Task Force on Women, Minorities and the Handicapped in Science and Technology mentioned in the last *Newsletter*. It will be held on April 7, 1988.

Women's Voices. A volume of essays in which feminist scholars examine women's contributions and insights in a wide range of subject areas (e.g., literature, computer science, theology, psychology, sociology), including analysis of obstacles women historically have encountered in these fields. Lead article by Carolyn Heilbrun.

To order, send $5.00 (plus $1.00 postage and handling) to *Women's Voices*, Coordinator of Women's Studies, c/o Office of the Academic Dean, Marymount College, Tarrytown, NY 10591. Please make checks payable to Marymount College.

The National Women's Studies Association is pleased to announce that it will begin publishing the *NWSA Journal*, a new interdisciplinary, multicultural, feminist journal which will be located in the Center for Women's Studies at The Ohio State University. The first issue is scheduled for Spring 1988. The journal is actively soliciting scholarly articles of interest to women's studies researchers, teachers, and others involved with feminist concerns. In the review process, essays will be read anonymously by women's studies scholars before a final publication decision.

The journal welcomes submissions in all disciplines and is especially interested in essays written from an interdisciplinary approach, research focusing on feminist pedagogy, and articles by and about women of color. It also will be publishing reviews of books, films, and other educational materials, and, on occasion, some student research. Articles will be written from a feminist perspective and in a language and style accessible to a variety of readers.

For more information, write MaryJo Wagner, Editor, *NWSA Journal*, Center for Women's Studies, 207 Dulles Hall, 230 W. 17th Avenue, The Ohio State University, Columbus, OH 43201.

Also, the National Women's Studies Association, in co-sponsorship with the University of Minnesota, is proud to announce its 10th annual conference, "Leadership and Power: Women's Alliances for Social Change" from June 22-26, 1988. In celebration of NWSA's eleventh anniversary, over 1500 women from overseas and the United States are expected to attend. The conference will explore leadership and empowerment among women and will examine culturally diverse leadership models. The conference will also offer the opportunity for women from different backgrounds to find common ground and build coalitions. Three plenary sessions highlighting international, American Indian, and lesbian issues are scheduled for the conference. Two hundred and fifty workshops will feature speakers and issues from the local, national and international communities. Cultural events programming includes a film festival, a book exhibit, international and intercultural exhibitions, and entertainers. For more information, write: Lori Graven or Ann Veverica, NWSA '88, University of Minnesota, 217 Nolte Center, 315 Pillsbury Drive S.E., Minneapolis, MN 55455.

Women's Studies. University of Illinois Press, 54 East Gregory Drive, Champaign, IL 61820.

Women's Studies. Beacon Press, 25 Beacon St., Boston, MA 02108.

Feminist Studies. University of Minnesota Press, 2037 Univ. Ave. SE, Minneapolis, MN 55414.

Gender Studies. University of Chicago Press, 5801 S. Ellis Ave., Chicago, IL 60637.

Women's Studies. New Society Publishers, New Society Educational Fndn., P.O. Box 582, Santa Cruz, CA 95601.

Gender Studies, Women's Studies, Human Sexuality. The Haworth Press, Inc., 12 W. 32nd St., NY, NY 10001.

Women's Studies. Rutgers University Press, 109 Church St., New Brunswick, NJ 08901.

DEADLINES: Jan. 24 for Mar.-Apr., Mar. 24 for May-June, May 24 for July-Aug.
AD DEADLINES: Feb. 5 for Mar.-Apr., Apr. 5 for May-June, June 5 for July-Aug.
ADDRESSES: Send all Newsletter material **except ads** to Anne Leggett, Dept. of Math. Sci., Loyola University, 6525 N. Sheridan Rd., Chicago, IL 60626.
Send everything else, **including ads,** to Lori Kenschaft, Executive Director, AWM, Box 178, Wellesley College, Wellesley, MA 02181.

JOB ADS

Institutional members of AWM receive two free ads per year. All other ads are $10.00 apiece and must be prepaid. The vacancies listed below appear in alphabetical order by state. All institutions advertising below are Affirmative Action/Equal Opportunity employers.

University of Alabama at Birmingham. Dept of Math, Birmingham, AL 35294. Positions at all ranks. Dept wants to develop Numerical PDE/Scientific Computation group over next 5 yrs. Access to Alabama Super Computer (using a Sun Station & a T-1 line to a Cray X-MP/24) available 2/88. Other areas that enhance proposed PhD in Applied Math seriously considered. Required: (sr positions) excellence in research, (jr positions) promise of excellence. Send vita, publication list, a few selected reprints, names of 3 references to Search Comm ASAP.

University of Alabama in Huntsville. Dept of Math & Stat, Huntsville, AL 35899. Peter M. Gibson, Chair. Tenure track Asst or Assoc Prof position to begin 9/16/87. Rank & salary depend on credentials. Required: PhD in math or related field with emphasis in applied math, evidence of good teaching skills, and excellent research ability. Preferred: Numerical Analysis, Differential Eqs, Dynamical Systems, Mathematical Modeling, Fluid Dynamics, Discrete Math, and Prob/Stats. Send letter, vita, and 3 letters of reference to Chair. Screening begins 2/8/88 and continues until position is filled.

Arizona State University. Dept of Math, Tempe, AZ 85287-1804. William T. Trotter, Chair. Tenure track, visiting, faculty associate positions at all ranks and in all areas of math to begin 8/88. Tenure track positions require PhD and involve teaching, research, and service commensurate with policy to "continue development as a major research university" and "to become competitive with the best public universities in the nation"; primarily Asst Prof. Visiting appts require research interests that support & reinforce faculty research. Faculty Associates require at least a masters degree in math or related field and an outstanding teaching record. Dept is growing, esp interested in: Computational Math, Differential Eqs (incl PDE's), Discrete Math, Dynamical Systems, Operator Theory, and Systems & Control. Salaries competitive, depend on experience & qualifications. Review begins 1/1/88, continues until positions filled. Send resume and have at least 3 letters of recommendation sent to Chair by 1/15/88.

California State University, Chico. Dept of Math, Chico, CA 95929-0525. (1) Tenure track Asst Prof position in math. Required: PhD in math or statistics, interest in teaching excellence. Duties: 12 units undergrad teaching per semester, scholarly research. $25182 - $35676. (2) 1 yr temp lecturer position in math. Required: PhD in math or statistics, interest in teaching excellence. $25812 - $49548. Send resume, graduate transcripts, supporting documents, and at least 3 letters of recommendation by 2/1/88.

California State University, Fullerton. Dept of Math, Fullerton, CA 92634. Tenure track Asst or Assoc Prof position and a visiting lectureship position for 1988-89. Required: outstanding teaching qualifications and commitment to continued research. Rank & salary determined by experience and qualifications. Send resume and 3 letters of reference to Chair of the Selection Comm by 2/12/88. Indicate interest in tenure track, lectureship, or both. Restricted to individuals lawfully authorized to work in the US.

California State University, Hayward. Dept of Math & CS, Hayward, CA 94542-3902. Entry-level tenure track Asst Prof positions to begin Fall '88. Required: PhD, commitment to excellence in teaching, exhibited competence & potential for continuing research. All areas of specialization considered. Send resume & names of 3 references to Math Faculty Search Comm. Applications by 1/20/88 receive full consideration.

California State University, Los Angeles. Dept of Math & CS, Los Angeles, CA 90032. Wayne Bishop, Chair. Two tenure track positions in CS at any rank and one in math ed at Asst or Assoc. Required: PhD in math, CS, or math ed. Strong CS background required; ABD toward PhD in CS will be considered for one year temporary. Also one year visiting position in math with PhD & strong record. Begin 9/88. Salary: $30,300 - $57,200 w/ summer employment possibilities. Contact Chair by 2/1/88.

Loyola Marymount University. Dept of Math, Los Angeles, CA 90045. Tenure track Asst Prof position for Fall 1988. May be 1-2 visiting positions. Required: PhD in math (no restriction on area of specialization), willing to teach wide variety of undergrad classes. Load: 9-12 hrs per semester. Applications by 2/1/88 receive full consideration. Send cover letter (indicate whether planning to attend AMS/MAA Annual Meeting in Atlanta), resume, & 3 letters of recommendation (at least 1 on teaching) to Dennis G. Zill, Hiring Comm.

Occidental College. Dept of Math, Los Angeles, CA 90041. One or two regular positions to begin 9/88. One entry level Asst Prof with expertise in CS, excellence in teaching and active research interests expected; other open. Required: PhD in Math Sci. Load: 2 courses per term (8-9 hrs). OC is a liberal arts college offering AB in math w/ optional CS emphasis. Send vita and 3 letters of reference (1 on teaching) to Nalsey Tinberg by 3/1/88. Interviews at AMS meeting in Atlanta in January.

San Diego State University. Math Sciences Dept, San Diego, CA 92182. Two tenurable positions in math ed and one each in CS, math, and statistics. Rank open. Required: PhD by 9/88, strong research background, good teaching references. Duties: grad & undergrad teaching, curriculum development, directing master's research, & conducting own research. Send vita and have 3 letters of recommendation sent to appropriate Search Comm: CS, Math, Math Ed, or Stat. Closing date 2/1/88. Later applications considered if position open. We do not discriminate against the handicapped.

San Jose State University. Dept of Math & CS, One Washington Sq, San Jose, CA 95192-0103. Veril J. Phillips, Chair. (1) 4 tenure track Asst or Assoc Prof (Prof in exceptional cases) positions. Required: PhD in math sciences, commitment to quality teaching at all levels, interest in dept affairs. Preferred: Partial Differentials, Numerical Analysis, Applied Math, Math or CS Education, Statistics, or CS. Eventual tenure requires significant professional activity. Salary: $27,000-$52,000. (2) 2 tenure track Asst or Assoc Prof (Prof in exceptional cases) positions. PhD in CS preferred, but PhD in math sciences with substantial CS teaching/research experience considered. Required: commitment to quality teaching at all levels & interest in dept affairs. Eventual tenure requires significant scholarly or professional activity. Salary: $33,000-$57,000. (3) 1 tenure track Asst or Assoc Prof (Prof in exceptional cases) position in Math or CS Education. Required: PhD with emphasis on math ed and master's degree in math or equivalent, pre-college teaching experience. Eventual tenure requires significant scholarly or professional activity. Salary: $27,000-$52,000. Send vitae, 3 letters of reference, and transcript to Chair by 2/5/88.

University of California, Berkeley. Dept of Math, Berkeley, CA 95720. Several temporary postdoctoral positions, to begin Fall 1988 for new and recent PhD's of any age, in Algebra, Analysis, Applied Math, Foundations, or Geometry and Topology. Term appt 1 to 3 yrs, depending partly on administrative decisions. Applicants for NSF or other postdoctoral fellowships encouraged to apply; combined teaching/research appts possible for up to 3 yrs. Research interests close to dept given some preference. Send resume, reprints, preprints, and/or dissertation abstract, and have 3 letters of recommendation sent to Arthur E. Ogus, Vice Chair for Faculty Affairs, by 1/15/88.

University of California, Berkeley. Dept of Math, Berkeley, CA 95720. One or more tenure track Asst Prof positons, subject to budgetary approval, to begin 7/1/88, in Algebra, Analysis, Applied Math, Foundations, or Geometry and Topology. Required: demonstrated outstanding research potential, normally incl major contributions beyond doctoral dissertation. Send vitae, list of publications, a few selected reprints or preprints, and have 3 letters of recommendation sent to Arthur E. Ogus, Vice Chair for Faculty Affairs, by 1/15/88.

University of California, Berkeley. Dept of Math, Berkeley, CA 95720. One or more tenured positions (Assoc or Full Prof), subject to budgetary approval, to begin 7/1/87, in Algebra, Analysis, Applied Math, Foundations, or Geometry and Topology. Demonstrated leadership in research expected. Send vitae, publication list, a few selected reprints or preprints, and names of 3 references to Arthur E. Ogus, Vice Chair for Faculty Affairs, by 1/15/88.

University of California, Davis. Dept of Math, Davis, CA 95616. Two or more anticipated tenure track positions to begin 7/1/88. Rank & salary commensurate with qualifications. Duties include teaching at all levels. Preferred: distinguished research record in Applied Analysis, Mathematical Physics, or Mathematical Biology; outstanding candidates in other fields will be given full consideration. Send vitae, publications list, & names of 3 references -- we will solicit letters of reference -- to Chair of Search Comm. Postmark by 2/16/87.

University of California, Santa Barbara. Math Dept, Santa Barbara, CA 93106. Alex Rosenberg, Chair. Four special visiting Asst Professorships, 1988-89. Possibility of 2nd yr. Research and teaching 5 one-quarter courses. Salary approx $32,600. Required: PhD by 6/30/88, strong promise in research, superior teaching ability, proof of US citizenship or eligibility for employment. Send vitae, publication list, and 3 letters of recommendation to Chair by 1/30/88.

University of California, Santa Cruz. Board of Studies in Math, Applied Sciences Bldg, Santa Cruz, CA 95064. Full Prof position in Non-linear Analysis or Applied Math to begin 7/1/88. Required: PhD in Math and strong research & teaching credentials. Salary commensurate with qualifications & experience. Send vitae and 4 letters of recommendation to Recruitment Comm.

University of Colorado at Denver. Dept of Math, 1100 14th St, Campus Box 170, Denver, CO 80202. Two tenure track positions in an expanding applied math program. Asst Prof, but senior candidates with particularly appropriate credentials will be considered. Research interest in one or more of: Statistics, Operations Research, Computational Math, Modeling, Differential Eqs, CS, or Discrete Math. Visiting positions may be available. Applicants w/ industrial experience encouraged. Required: commitment to excellence in teaching & research. Salary competitive. Dept started new PhD program last year, has exciting opportunities for academic program development, doctoral supervision, and interaction w/ local technical community. Send full resume & 3 letters of recommendation to Richard Lundgren. Review begins 1/15/87.

Southern Connecticut State University. Dept of Math, 501 Crescent St, New Haven, CT 06515. Two f-t tenure track Asst or Assoc Prof to begin Fall '88. Required: PhD by June '89 in math, math ed, or related area; potential for scholarly growth; demonstrated commitment to teaching. Salary & rank commensurate w/ experience & qualifications. Send letter, resume, 3 letters of recommendation, and transcripts to Chair, Search Comm by 2/15/88.

Southern Connecticut State University. Dept of Math, 501 Crescent St, New Haven, CT 06515. Tenure track Asst or Assoc Prof. Required: PhD in math or related area, expertise in math applications, demonstrated commitment to teaching. Send letter, resume, 3 letters of recommendation, and transcripts to Michael R. Meck, Chair, Search Comm, by 2/15/87.

Southern Connecticut State University. Dept of Math, 501 Crescent St, New Haven, CT 06515. Two tenure track Asst or Assoc Prof positions to begin Fall 1988. Duties: 12 credit hours per semester teaching undergrad & grad math. Required: PhD in math, math ed, or related area by 6/89, potential for continued scholarly growth, commitment to teaching. Salary & rank depend on experience and qualifications. Send letter, resume, 3 letters of recommendation, and transcripts to Chair Search Comm by 2/15/88.

Wesleyan University. Dept of Math, Middletown, CT 06457. Tenure track Asst Prof position, initial 4 yr appt to begin Fall 1988. Preferred specialty is Algebra, incl Algebraic Geometry, Group Theory, and Algebraic Number Theory; outstanding applicants from all fields welcome. Load: 6 hrs/week, undergrad and grad. Required: serious interest in teaching and ongoing research program. Send vita and 3 letters of recommendation to Search Comm by 1/31/88.

Yale University. Dept of Math, Box 2155 Yale Station, 12 Hillhouse Ave, New Haven, CT 06520. R.R. Coifman, Chair. Tenured position (Prof or Assoc Prof) in pure math in 1988. Required: distinguished research, recognition as successful grad and undergrad teacher. Send vita, copies of publications, names of 3 references (not letters) to Chair by 2/28/88.

Florida State University. Math Dept, Tallahasse, FL 32306-3027. Two tenure track positions to begin 8/88. Ralph D. McWilliams, Chair. Preference for analysis or applied math, but well qualified candidates in all areas encouraged to apply. Required: excellent research programs and excellent teaching ability. Salary competitive. Send resume and 3 letters of recommendation to Chair by 1/12/88.

Rollins College. Dept of Math Sciences, Winter Park, FL 32789. David Kurtz, Chair. Tenure track position, preferably Asst Prof, to begin 9/88. Area of specialization open. Required: PhD, strong commitment to undergrad teaching, continued professional activity. Dept offers majors in both math & CS; ability to teach both is a plus. Dept has strong interest in instructional use of computers, esp computer algebra systems. Load: 8-10 hrs per week. Send resume, transcripts, and 3 letters of recommendation (at least 1 commenting one teaching) to Chair by 2/15/88. Indicate availability for interviews at AMS-MAA meetings in Atlanta.

Emory University. Dept of Math & CS, Atlanta, GA 30322. Three positions in math to begin 9/1/88. Tenure track Asst Prof, or higher for exceptional candidate. Required: PhD in math and strong record (or promise) of research. Preferred: Geometric Analysis, Numerical Analysis, Combinatorics, Applied Math (Differential Eqs). Other areas considered. Dept has 20 permanent members w/ several active research groups. Grad program offers PhD in math and master's degrees in math & CS. Load: 6 hrs per week, incl grad and undergrad. Salaries competitive and commensurate with experience. Send vita and names of references to Peter Winkler; have references fowarded. Screening begins 2/1/88.

Boise State University. Dept of Math, Boise, ID 83725. Charles Kerr, Chair. Tenure track position to begin 8/22/88, rank and salary depend on qualifications. Required: PhD. Duties: teaching normal range of undergrad math courses, avg 12 hours per semester. All areas of math encouraged to apply. Dept offers BS in math with CS option, and in math for secondary education. Send letter, resume, grad transcripts, and 3 letters of reference to Chair. Screening begins 2/1/88, continues until position filled.

Eastern Illinois University. Dept of Math, Charleston, IL 61920. Tenure track positions for Fall 1988. Required: ABD, commitment to teaching and scholarly activities. Load: 9-12 hrs, release time for research possible. Screening begins 1/25/88, continues until filled. Contact John LeDuc.

Illinois State University. Dept of Math, Normal, IL 61761. Two tenure track positions. Required: PhD by 8/88; research interest in areas of Analysis, Graph Theory, or Algebra; strong research record or potential; sufficient background to teach undergrad math in a variety of areas. Send vita, 3 letters of recommendation, and official transcripts to Jane O. Swafford by 2/1/88. State law mandates oral proficiency in the English language.

Illinois State University. Dept of Math, Normal, IL 61761. At least one tenure track position in Math Ed to begin 8/88. Required: PhD or EdD in Math Ed; background in elementary ed w/ research interests in geometry or diagnosis preferred; sufficient background to teach the full range of math ed, calculus, and selected undergrad math courses; demonstrated competence in teaching & research. Send vita, 3 letters of recommendation, and official transcripts to Jane O. Swafford by 2/1/88. State law mandates oral proficiency in the English language.

Lake Forest College. Dept of Math & CS, Lake Forest, IL 60045. Edward W. Pakel, Chair. Continuing appt in math at Asst Prof level to begin Fall '88. Required: PhD, commitment to excellent teaching in a quality liberal arts atmosphere, active interest in math research. Load: 3 courses per semester. Send vita and have 3 letters of reference and graduate transcript sent to Chair by 2/15/88.

Loyola University. Dept Math Sci, Chicago, IL 60626. At least one anticipated tenure track and several 1 yr positions to begin 8/88. Required: PhD, active research program in any area, commitment to quality teaching. Preferred: interest in CS and/or statistics program. Visitors interested in working with dept faculty may apply for at least 1 of the temp positions. Interviews begin in 1/88, continue until positions filled. Send detailed vita and 3 letters of recommendation to R.J. Lucas.

Saint Xavier College. Math/CS, 3700 W 103rd St, Chicago, IL 60655. Aurnas Dagys, Chair. Math Ed (tenure track). PhD in math ed or math preferred; ABD may be considered. College teaching experience preferred. Should be able to teach grad & undergrad math ed courses (Elementary Methods and Content and Secondary Methods), also math and/or CS. Send letter, resume, and 3 letters of recommendation. Applications accepted until position filled.

Western Illinois University. Dept of Math, Macomb, IL 61455. Larry Morley, Chair. One or more tenure track Asst/Assoc Prof positions to begin 8/22/88, subject to budget approval. Visiting positions may also be available. Required: PhD in math sciences, strong commitment to excellent teaching, established record or high potential in research. Load: 8-10 semester hours. Competitive salary and benefits. Selection begins 11/15/87. Send vitae, photocopies of grad transcripts, and at least 3 letters of recommendation to Chair.

Indiana State University. Dept of Math & CS, Terre Haute, In 47809. Donald F. Reynolds, Chair. tenure track Asst Prof positions to begin 9/88. Required: PhD and potential for teaching & research excellence. Preferred: Applied Math/Numerical Analysis and CS Education. Ability to teach Statistics desirable. Dept has 24 f-t members, offers BA & BS in math & CS, MA & MS in math. College has extensive computing facilities. Send letter, vita, and names of 3 references to Chair. Applications after 2/12/88 cannot be guaranteed consideration.

Indiana University-Purdue University at Indianapolis. Dept of Math Sciences. 1125 E 38th St, PO Box 647, Indianapolis, IN 46223. Bart Ng, Chair. Two tenure track positions to begin 8/88. Required: PhD, research record, excellent potential. Some preference to Computational and Applied Math, Applied Geometry, Functional Analysis, Operator Algebras; strong applicants from other areas of pure & applied math considered. Dept offers BS, MS, and PhD. Load: 2 courses per semester. Excellent benefits and competitive salary. Send resume and 3 letters of application to Chair by 1/15/87. Late applications considered until position filled.

Purdue University. Dept of Math, West Lafayette, IN 47907. Joseph Lipman, Head. Possible position at Assoc Prof/Prof level to begin 8/88. Excellent research credentials required. Send resume and 3 letters of recommendation.

Purdue University. Dept of Math, West Lafayette, IN 47907. Joseph Lipman, Head. Several regular or research Asst Prof positions to begin 8/88. Exceptional research promise and excellence in teaching required. Send resume and 3 letters of recommendation.

Valparaiso University. Dept of Math & CS, Valparaiso, IN 46383. William Marion, Chair. Possible tenure track position to begin Fall '88 in a growing and dynamic undergrad math program. Required: PhD in Math with expertise in (1) Analysis and/or Math Logic or (2) Operations Research and/or Math Modeling or (3) Secondary Education. Salary competitive. Rank depends on qualifications. Valparaiso is a private university in the Lutheran tradition. Send letter and resume to Chair. Closing date 3/1/88.

Iowa State University. Dept of Math, Ames, IA 50011. K.A. Heimes, Chair. One or more tenure track positions, Asst Prof or above, to begin 8/21/88. Number of positions and salary depend on qualifications and funding availability. Preferred: Applied Math and Numerical Analysis. Other areas of interest: Discrete Math, Math Ed, Partial Differential Eqs, Stochastics/Biomathematics. Required: PhD or equivalent, good communication skills, potential for excellence in teaching and research. For senior positions: Applied Math or Numerical Analysis and interest in long-term interactions with interdisciplinary projects. Preferred: knowledge of asymptotic and numerical techniques applied to nonlinear and time-dependent phenomena in continuum theories of fluids and solids. Send letter of application, vitae, and 3 letters of reference to Chair. Applications for sr positions should be received by 12/1/87 and jr 1/15/88. Late appl considered until position(s) filled.

University of Iowa. Dept of CS, Iowa City, IA 52242. Jr or sr tenure track positions. Required: PhD in CS or closely related field, strong research commitment, interest in both grad and undergrad teaching. Visiting positions may also be open. All areas welcome, but especially Software Engineering, Parallel and Distributed Systems, and AI. Dept has active programs in software engineering of embedded and real-time systems, parallel systems, languages, vision and robotics systems, and systems models, with affiliations to industry. 18 faculty offer MS, PhD, and undergrad major. Own well-equipped research laboratory has two f-t staff. Dept actively encourages applications from women & minorities, is dedicated to goal of diversity. Applications from couples considered. Send resume, names of 3 references, and copies of recent publications or technical reports to Chair of the Faculty Recruiting Comm.

University of Iowa. Dept of Math, Iowa City, IA 52242. William A. Kirk, Chair. Authorization anticipated for at least one jr tenure track position and possibly one at a distinguished sr level. Some visiting positions also anticipated. All areas considered, women & minorities esp encouraged to apply. Hiring plan/long-term goals under development, currently call for: Numerical Analysis, Differential Geometry, Harmonic Analysis, Stochastic Analysis, and Topology. Required: PhD in math or equivalent, ability to teach effectively at both grad and undergrad levels. Visiting appts will reflect ability to interact w/ faculty's current research projects. Send vita and have 3 letters sent to Chair.

University of Northern IA. Dept of Math & CS, Cedar Falls, IA 50614. David Duncan, Head. One or two tenure track Asst or Assoc Prof positions in CS. Required: commitment to and demonstrated success in teaching; strong academic record; scholarly activity or promise and a master's in CS, PhD preferred; at least one person must be able to teach COBOL and related courses. Dept has 26 f-t faculty (8 in CS) and over 400 majors. Dept has 2 MicroVAXs, several PC's and microcomputers; college has Zenith and Apple microcomputers and access to 2 Harris machines. Salary & benefits fully competitive. For complete announcement, contact Head. Applications must be received by 3/4/88 for full consideration. Immigration status of non-US citizens must be stated in application. Women, minorities. and members of other protected classes encouraged to apply.

Kansas State University. Dept of Math, Cardwell Hall 137, Manhattan, KS 66506. Louis Pigno, Head. Subject to budget approval, tenure track Asst Prof position to begin 8/18/88. All fields considered, preference to Harmonic Analysis. Required: strong research credentials, commitment to excellence in teaching, PhD in math or dissertation accepted with only formalities to be completed. Send application, detailed resume w/ description of research, and 3 letters of recommendation to Head by 2/1/88.

Northern Kentucky University. Dept of Math Sciences, Highland Heights, KY 41076. Two tenure track positions to begin 8/88, one in CS and one in Statistics. Required: PhD. Duties: 12 hrs/semester with emphasis on quality undergrad teaching, continuing scholarly activity, and service to dept and university. Dept has 25 f-t & 14 p-t faculty and 335 majors. Apply to Charles Frank, Chair of Search Comm. Review begins 2/15/88, continues until positions filled.

University of Louisville. Dept of Math, Louisville, KY .40292. Dept Chair. Seek established mathematician with active research program, substantial scholarly achievement, teaching and administrative experience, and interest in both undergrad & grad program development. PhD in math required. Research areas compatible with those already in Department desired, not required. Experience directing PhD theses desirable, not essential. Appt at Assoc Prof or Prof level, depending on qualifications. Send application, vitae, and at least 3 letters of recommendation to Search Comm Chair by 1/4/87.

University of Louisville. Dept of Math, Louisville, KY 40292. George R. Barnes, Asst Chair. Two tenure track asst professorships. Required: active research program in analysis, probability, statistics, algebra, or their applications; PhD in math science by 8/88; teaching experience in some form strongly preferred. Send letter of application, vitae, at least 3 letters of recommendation, and official transcript to Asst Chair. Consideration begins 1/1/87 and continues until positions filled. Interviews at AMS Meeting in Atlanta.

Colby College. Math Dept, Waterville, ME 04901. H.T. Hayslett, Chair. Tenure track position to begin 9/1/88. Required: PhD in one of the math sciences and advanced degree in CS. Duties: teaching CS and math courses, directing independent studies in CS, and assisting in direction of dept's CS concentration. Salary & rank commensurate with experience. College has VAX8200 running the ULTRIX operating system and several hundred Macintosh micros. Send resume, graduate transcript (unofficial OK), and 3 letters of reference (1 on teaching ability) to Chair.

Colby College. Dept of Math Waterville, ME 04901. H.T. Hayslett, Chair. Chair/Carter Professor of Math. Begins 9/1/88. Required: PhD in math science, distinguished teaching and scholarship, demonstrated dept & college leadership, commitment to liberal arts undergrad education. Duties: general oversight of math program (incl CS and statistics) with 700 students annually; leadership of dept (9 FTE), incl mentoring faculty, strengthening major & reforming curriculum (ongoing), communicating between math & other disciplines, representing dept & discipline inside & outside college. Salary depends on qualifications & experience; Colby is ranked 1* for all ranks in 86-87 AAUP Annual Report on the Economic Status of the Profession. Review closed when sufficient # of candidates identified, not before 1/15/88. Send letter and dossier to Chair by 1/15/88. Nominations welcome. Minorites and women encouraged to apply.

Towson State University. Math Dept, Baltimore, MD 21204. Tenure track Asst Prof position in Math Ed to begin Fall 88. Load: 12 hrs/semester undergrad courses. Required: PhD in Math Ed, commitment to teaching and research. Preferred: 3 yrs teaching/research experience in elementary and/or early childhood ed. Salary: mid-20s to mid-30s. Minorities encouraged to apply. Send resume, 3 letters of recommendation, and transcripts by 2/1/88 to Florence Fischer.

Towson State University. Math Dept, Baltimore, MD 21204. Two tenure track Asst Prof positions in math to begin Fall 88, contingent on state funding. Load: 12 hrs/semester undergrad courses. Required: PhD, commitment to teaching and research. Preferred: 3 years teaching/research experience. Preferred for 1 position: Discrete Math or Statistics. Salary: mid-20s to mid-30s. Send resume, 3 letters of recommendation, and transcripts by 2/1/88 to Ohoe Kim.

University of Maryland, Baltimore County. Dept of Math & Stat, Catonsville, MD 21228. James M. Greenberg, Chair. Tenure and tenure track positions in applied math to begin 9/1/88. Required: PhD and research and teaching experience commensurate w/ position. Preferred areas: Combinatorics, Control & Communication, Operations Research, Scientific Computing, and Applied Analysies. Dept currently has 25 faculty. Applications should be received at early date, no later than 1/15/88. Send vitae, reprints and/or preprints, names of at least 3 references, and summary of recent research activity to Chair.

University of Maryland, Baltimore County. Dept of Math & Stat, Catonsville, MD 21228. James M. Greenberg, Chair. Tenure and tenure track positions in statistics to begin 9/1/88. Required: PhD, strong teaching ability, demonstrable research potential in either mathematical or applied statistics. Dept offers MS & PhD programs in applied math and stats, and undergrad major in math. Dept currently has 25 faculty. Applications should be received at early date, no later than 1/15/88. Send vitae, reprints and/or preprints, names of at least 3 references, and summary of recent research activity to Chair.

University of Maryland, College Park. Dept of Math, College Park, MD 20742. Applications invited for possible tenure or tenure track positions to begin in August 1988. Rank and salary depend on qualifications. Joint appointments with other units are possible. Exceptionally strong research program necessary. Deadline for full consideration is February 1, 1988. Vita, description of research, and at least 3 letters of recommendations should be sent to Prof. Nelson G. Markley, Chair.

Amherst College. Dept of Math, Amherst, MA 01002. Daniel Velleman, Chair. Tenure track Asst Prof position in math to begin 1988-89 academic year. Duties: 2 undergrad courses per year, with shared staff responsibility for basic courses. Required: PhD by 9/88. Applications by 2/15/88 assured full consideration. Send vita, undergrad & grad transcripts, and 3 letters of reference to Chair. Bitnet: DJVELLEM@AMHERST.

Amherst College. Dept of Math, Amherst, MA 01002. Daniel Velleman, Chair. Anticipated tenure track position in CS, preferably Asst Prof, to begin 8/88. Amherst C is a competitive, private, liberal arts college which emphasizes scholarship and excellence in teaching. Required: PhD, preferably in CS. Applications by 2/15/88 assured full consideration. Send vita, undergrad & grad transcripts, and 3 letters of reference to Chair. Bitnet: DJVELLEM@AMHERST.

Brandeis University. Dept of Math, Waltham, MA 02254. Pending University funding, several visiting and Asst Prof positions in pure math to begin 9/88. Load: 6 hrs/wk. Required: PhD and demonstrated excellence in teaching and research. Send vitae and letters of recommendation by 1/15/88 to Edgar Brown, Jr., Hiring Comm Chair.

Clark University. Dept of Math & CS, Worcester, MA 01610. 3-yr visiting positions. Required: good teaching and strong research credentials. Preferred: Theoretical CS, Differential Eqs, Automorphic Forms, Knot Theory, Topos Theory, Representation Theory of Algebraic Groups, and AI, but applications from all math science areas welcome. Send vita and 3 letters of recommendation to David Joyce, Search Comm Chair. Applications by 2/15/87 receive full consideration. Minorities & women encouraged to apply.

Southeastern Massachusetts University. Dept of Math, North Dartmouth, MA 02747. Rufus A. Winsor, Chair. Tenure track position to begin 9/88. Required: PhD, excellence in teaching. Research potential/experience desired. Candidate will join an established program with traditional and computer-oriented degrees & will have opportunity to participate in developing math courses for growing undergrad & grad programs of CS Dept. Send resume, transcript, and 3 letters of reference to Chair by 2/28/88.

University of Massachusetts at Amherst. Dept of Math & Stat, Lederle Graduate Research Tower, Amherst, MA 01003. Several anticipated tenure track Asst Prof positions to start 9/1/88. Exceptional candidates may be considered for higher rank if funding permits. Required: strong research potential & commitment to both undergrad and grad teaching. Priority to research interests that interact broadly with dept strengths: e.g., Algebraic Geometry & Number Theory, Applied Math & Scientific Computation, Complex Manifolds & Hodge Theory, Differential Geometry & Global Analysis; Probability & Statistics. Salary commensurate with qualifications & experience. Send vita and have 3 letters of recommendation sent to Hiring Comm.

Worcester Polytechnic Institute. Dept Math Sci, 100 Institute Rd, Worcester, MA 01609. Samuel M. Rankin, Chair. Several tenure track positions at all levels for Fall 1988. Possibility of position beginning Spring 1988. Required: strong research record or potential and evidence of quality teaching. Fields of interest are Numerical Analysis, Computational Fluid Mechanics, Nonlinear PDE, Optimization, Control Theory, Dynamical Aystems, Applied Discrete Math, Stats/Applied Prob. WPI, the 3rd oldest college of science & engineering in US, offers degrees through PhD. Dept offers undergrad & masters degrees in Applied Math. Worcester is 2nd largest city in New England, 40 mi west of Boston. Send vitae to Chair. Applications accepted until positions filled.

Central Michigan University. Dept of Math, Mt Pleasant, MI 48859. 3 tenure track Asst Prof positions. #1 requires: PhD (or near PhD) in Math Ed, teaching experience in K-12, ability to teach undergrad math courses and do research in math ed. #2 requires: PhD in math, research interest in Combinatorial Designs (preferred) or Approximation Theory/Applied Math. #3 requires PhD in Statistics. All 3 require promise of excellence in teaching and research. Salaries competitive; benefits incl TIAA, medical, dental, group life. Send resume, transcripts. and 3 letters of recommendation to R.J. Fleming.

Eastern Michigan University. Dept of Math, Ypsilanti, MI 48197. Don R. Lick, Head. Tenure track Asst or Assoc Prof position in Math Ed. Duties: teaching undergrad & grad content and methods courses (which support dept's Math Ed & university's certificate programs) Required: PhD or EdD in Math Ed, substantial amount of grad math beyond earned bachelors in math, teaching certificate and a fine record of successful teaching. Send letter & 3 letters of reference to Head.

Michigan State University. Dept of Math, East Lansing, MI 48824-1027. Kyung Whan Kwun, Chair. Several tenure track Asst, Assoc, and possibly Full Prof positions in all fields w/ emphasis on numerical analysis, differential geometry, and math ed. Excellence in teaching and research essential. Send resume and 3 letters of recommendation to Chair. Applications before 1/3/88 receive more attention.

Michigan State University. Dept of Math, East Lansing, MI 48824-1027. Kyung Whan Kwun, Chair. Two postdoctoral fellowships, 2 yr appt. Duties: 1 course per term, remaining time for research. Normally offered to persons (regardless of age) with PhD of less than 2 yrs. Also some instructor positions. Send resume and 3 letters of recommendation to Chair. Applications before 1/3/88 receive more attention.

Michigan State University. Dept of Stat & Prob, East Lansing, MI 48824-1027. Tenure track Asst or Assoc Prof position to begin Fall 1988. Full Prof may be offered subject to funding. Required: PhD in stat or prob and strong commitment to excellence in research and teaching, strong research for candidates above Asst Prof. Send resume and 3 letters of recommendation to Search Comm.

Oakland University. Dept Math Sci, Rochester, MI 48063. Applications and nominations for position of Chairperson. Required: PhD in math sci; minimum of 10 yrs post-PhD academic experience in math sci, or comparable activity; substantial research record & active commitment to research; experience in various academic or professional leadership positions. Dept has 30 f-t faculty and 20 p-t faculty & grad assts. Send nominations and applications (letter, vita, and names, addresses, and phone #s of at least 3 references) to James H. McKay, Chairperson Search Comm, before 2/15/87 for full consideration.

Oakland University. Dept Math Sci, Rochester, MI 48063. E.G. Malm, Chair. One yr visitng position to begin Fall 1988. Visiting positions also anticipated in future years. Level depends on qualifications. Required: PhD with excellent record or strong potential in research. Preference to research interests coinciding with those of dept. Load: 2 courses per semester. OU is a state-supported university w/ 12,000 students 30 miles from Detroit. Dept strongly committed to research, offers master's degrees in math sciences, incl statistics. Send resume and 2 letters of reference to Chair. Full attention to appl before 1/30/88, late appl considered if position not filled.

Oakland University. Dept Math Sci, Rochester, MI 48309-4401. E.G. Malm, Chair. Tenure track and visiting statistics positions to begin Fall 1988. Level depends on qualifications. Required: PhD and strong commitment to quality research and excellent teaching. Active involvement w/ local industry, esp Ford Motor Co, provides many consulting opportunities. Load: 2 courses. Dept offers BS and MS degrees in statistics. Send resume, transcript, and 2 letters of reference to Chair. Full attention to appl before 1/30/88, late appl considered if position not filled.

Oakland University. Dept Math Sci, Rochester, MI 48063. E.G. Malm, Chair. One or more tenure track positions to begin Fall 1988. Required: PhD with demonstrated record or strong potential in research. Preference to research interests coinciding with those of dept. Load: 2 courses per semester. OU is a state-supported university w/ 12,000 students 30 miles from Detroit. Dept strongly committed to research, offers master's degrees in math sciences, incl statistics. Send resume and 2 letters of reference to Chair. Full attention to appl before 1/30/88, late appl considered if position not filled.

University of Michigan, Dearborn. Dept of Math & Stat, Dearborn, MI 48128. Tenure track Asst or Assoc Prof position to begin 9/88. PhD in CS preferred; MS in CS and PhD in Math acceptable. Load: 9 hrs/term. Send resume, grad transcript, and 3 letters of recommedation to F. Massey. Women & minorities specifically encouraged to apply.

University of Michigan-Flint. Dept of Math, Flint, MI 48502-2186, (313-762-3244). Tenure track Asst Prof position to begin 9/1/88. Required: PhD in math. Dept of 9 with interests in Algebra, Algebraic Geometry, Classical Analysis, Complex Analysis, Number Theory, Logic. Send vita to K.E. Schilling before 2/1/88. Late applications considered until position filled. Women & minorities encouraged to apply.

University of Michigan-Flint. Ed Dept, Flint, MI 48502-2186. Science and Math Ed Asst Prof tenure track position to begin 9/88. Duties: teach undergrad Math & Science Ed courses in an urban-oriented teacher ed program. Related assignments incl curriculum coordination, supervising student teachers. Required: PhD in Science and/or Math Ed by 12/31/88, elementary a/o middle school teaching experience, evidence of scholarly potential, experience teaching Science and/or Math Ed courses. Consideration given to candidates qualified to teach Math Ed only. Send letter, vita, transcripts, and names, addresses, & phone #s of 3 references to Gene Sullivan, Chair, Search Comm, by 2/19/88.

Carleton College. Dept of Math & CS, Northfield, MN 55057. David Appleyard, Chair. Two tenure track positions to begin 88-89. Ph.D. required. Six courses a year in math, CS, and/or statistics. Excellent teaching ability essential; research encouraged. Interviewing at MAA/AMS meeting in Jan. Deadline Jan 18; applications accepted until position filled. Applications specifically invited from women and minorities. Send letter of application, resume, graduate transcript, and 3 recent letters of recommendation to Chair.

Macalester College. Math/CS, St Paul, MN 55105. John Schue, Chair. Two tenure track positions in math (subject to administrative approval) to begin 9/88. Required: PhD in math and interest in teaching and research in 4-yr liberal arts college. Load: 6-9 hrs/wk. Competitive salary, good benefits, urban residential location. Send resume and three references to Chair by 2/1/88.

Mankato State University. Dept of Math, Astronomy, & Statistics, Mankato, MN 56001. F.T. Hannick, Chairperson. Tenure track positions. Rank & salary depend on qualifications. Required: PhD, strong interest in teaching freshman through graduate levels, evidence of successful postsecondary teaching. Preferred: specialties complementing current faculty in areas of Applied Math, Math Ed, Numerical Analysis, and Statistics. Possibility for joint appt with CS. Duties: teach courses in math/stats (at most 36 quarter hrs per academic yr), assist w/ student advising, serve on dept committees, and conduct research. Send letter, vita, research & teaching interests, and 3 letters of reference to Chairperson. Open until filled.

St Cloud State University. Dept of Math & Stat, St Cloud, MN 56301. Gail Earles, Chairperson. 3 or more tenure track Asst or Assoc Prof positions to begin 9/6/88. One position in Math Ed, other open. Required: commitment to undergrad education, excellent teaching credentials, record of or strong potential for scholarly and professional activity. PhD preferred but ABD encouraged to apply. Send resume, grad transcripts, and 3 letters of reference to Chairperson. Applications accepted until position filled, first screening 2/1/87.

University of Minnesota, Duluth. CS Dept, Duluth, MN Two Asst, Assoc, or Full Prof positions (tenure available at sr ranks) for Fall 1988. Duties: 2 grad or undergrad CS courses per qtr or grad thesis supervision, conduct research. Required: PhD in CS or closely related area together w/ master's degree or two yrs experience in CS (additional requirements for sr ranks); demonstrated evidence of effective teaching & communication skills appropriate to a faculty position. Send letter of application, resume, official transcripts, and 3 letters of reference to Keith Pierce by 1/31/87.

University of Minnesota, Minneapolis. School of Math, 127 Vincent Hall, 206 Church St SE, Minneapolis, MN 55455. Richard McGehee, Head. Dunham Jackson Instructorship. Three year appt from Fall 1988 to Spring 1991 with reduced teaching load of 1 course per quarter. Required: PhD no earlier than 1/87, outstanding research and teaching abiliites. Preference to research interests compatible with those of School. Summer School teaching available summers 1989 and 1990. Salary competitive. Contact Head. Screening begins 12/1/87. Women & minorities specifically encouraged to apply.

University of Minnesota, Minneapolis. School of Math, 127 Vincent Hall, 206 Church St SE, Minneapolis, MN 55455. Richard McGehee, Head. Several visiting positions at all levels from Lecturer to Full Prof, for one quarter to one year in 1988-89. Required: strong research and teaching abilities. Preference to research interests compatible with those of School. Salary competitive. Contact Head. Screening begins 12/1/87. Women & minorities specifically encouraged to apply.

University of Minnesota, Minneapolis. School of Math, 127 Vincent Hall, 206 Church St SE, Minneapolis, MN 55455. Richard McGehee, Head. One or more tenure track positions to begin Fall 1988 may be available. Required: outstanding research and teaching abilities. Appl at all levels invited, preference to Asst Prof or beginning Assoc Prof. Preference to research interests compatible with those of School; Several Complex Variables of particular interest. Salary competitive. Contact Head. Screening begins 12/1/87. Women & minorities specifically encouraged to apply.

Washington University in St Louis. Dept of Math, Campus Box 1146, St Louis, MO 63130. R.H. McDowell, Chair. Two or more positions to begin Fall 1988. Rank & salary depend on qualifications. Requried: outstanding research ability in a field represented by dept, evidence of excellence in teaching. Send letter & vita and have 3 letters of reference to Chair. Applications by 1/15/88 receive full consideration.

University of Nebraska, Lincoln. Dept of Math & Stat, Lincoln, NE 68588-0323. (1) Two tenure track Asst Prof positions. Required: PhD, potential for excellent teaching, strong research in area compatible w/ dept research interests. (2) One tenure track Assoc or beginning Full Prof position in statistics. Required: PhD and established, strong research program w/ good teaching, commitment to strengthening existing PhD program. Positions begin Fall 1988. Send vita and 3 letters of reference to Chair, Search Comm, by 1/25/88, or until suitable candidate applies. Applications from women & minorities especially encoruaged.

Dartmouth College. Dept of Math & CS, Hanover, NH 03755. John Wesley Young Research Instructorship. Two yr post-doctoral appt for new or recent PhD's whose interests overlap with those of a dept member. Teaching: 4 10-wk courses spread over 2 or 3 quarters. Nine-month salary: $27,000; $6000 summer research stipend. Send letter of application, resume, graduate transcript, thesis abstract (and description of other interests if appropriate), and 3 or preferably 4 letters of recommendation to Recruiting Comm. Applications by 1/31 receive first consideration.

New Mexico State University. Dept Math Sci, Box 30001, Las Cruces, NM 88003. Carol L. Walker, Head. Visiting positions and possible tenure track Asst Prof positions in pure & applied math, numerical analysis, stats, computer vision. Start 8/22/88. Salary competitive. Required: PhD (or equivalent) and strong commitment to teaching & research. Applications kept on file through hiring period & positions filled as openings occur. Send vita and 3 reference letters to Head.

Bard College. Dept of Math, Annandale-on-Hudson, NY 12504. Tenure track position to begin Fall 1988. Bard is a Liberal Arts College with a young and expanding dept seeking someone with a strong interest in building an innovative math program in a liberal arts context. Required: PhD by Fall '88, commitment to teaching and continued mathematical activity. Salary and rank depend on experience. Send resume, statement of teaching and research interests, and 3 letters of recommendation (at least 1 concerning teaching) to Ethan Bloch, Math Search Comm, Box 91. Deadline 1/15/88; late applications considered until position filled.

Cornell University. Biometrics Unit, College of Agriculture and Life Sciences, 337 Warren Hall, Ithaca, NY 14853. Asst or Assoc Prof of Biological Statistics. Duties: conduct research in statistics, biometry, or applied probability; share in statistical consulting and teaching responsibilities of Unit. Unit offers BS, MS, and PhD in Biometry and Statistics and provides undergrad teaching and statistical consulting services to Cornell faculty, staff, and grad students. Required: PhD in statistics, biometry, or applied probability; sound tratning in statistical theory. Preferred: consulting experience and/or research interests connected to biology or agriculture. Send resume, transcript (for Asst Prof), and 3 letters of recommendation to C.E. McCulloch by 1/15/87.

Marymount College. Dept of Math & CS, Tarrytown, NY 10591. Doris Appleby, Chair. Tenure track specialist in remedial math to begin 9/88 (subject to budget approval). Duties: 9 hrs teaching through calculus each semester and supervision of developmental program. Required: PhD, or near completion. Send graduate transcript and 3 reference letters to Chair by 3/1/88.

Rensselaer Polytechnic Institute. Dept Math Sci, Troy, NY 12180. J.G. Ecker, Chair. Seek extremely high quality applicants for several tenure track positions at all levels in Applied Math, incl Mathematical Programming, to begin 9/88 or earlier. PhD & very strong research potential required for jr appts; demonstrated outstanding record for sr appts. Also anticipate 2-3 Visiting and Postdoctoral appts at all levels.

SUNY at Albany. Dept of Math & Stat, Albany, NY 12222. Joe W. Jenkins, Chair. Several positions for Fall 1988 anticipated. (1) Tenure track positions: dept seeks research interests in areas represented in dept. Outstanding research accomplishments required. (2) A Malcolm F. Smiley Instructorship: 3 yr position w/ reduced teaching load of 3 courses a yr; exceptional research promise required. All candidates must have a strong commitment to good teaching. Send vita and have at least 3 letters of reference sent to Chair by 1/18/88. Late applications considered until positions filled. Applications from women, minority persons, handicapped persons, and special disabled or Vietnam era veterans especially welcomed.

SUNY College at Brockport. Dept of Math & CS, Brockport, NY 14420. K. Nakano, Chairperson (716-395-2194). Tenure track Asst Prof in Math to begin 9/88. Required: PhD in math with expertise in Discrete Math, Probability, Statistics, Applied Math, or Operations Research; strong commitment to teaching at undergrad and masters levels. For details contact Chairperson. Send letter & resume and have 3 letters of reference sent to Office of Faculty/Staff Relations by 1/15/88.

SUNY College at Brockport. Dept of Math & CS, Brockport, NY 14420. K. Nakano, Chairperson (716-395-2194). Tenure track CS position to begin 9/88. Required: strong commitment to CS education, PhD in CS or related area, master's level expertise in CS. Preferred specializations: Operating Systems, Networking, Computer Graphics. For details contact Chairperson. Send letter & resume and have 3 letters of reference sent to Office of Faculty/Staff Relations by 1/15/88.

SUNY College at Potsdam. Dept of Math, Potsdam, NY 13676. Tenure track f-t Asst Prof position to begin 9/1/88. Duties: at most 12 semester hrs of undergrad (lower & upper) and beginning grad courses. Required: PhD in any area of math (ABD's receive consideration), excellent teaching skills or excellent promise as a teacher. Pending approval, also 1-2 temp 1 yr leave replacement appts 1988-89. Send letter and resume to C.L. Smith, Chair, Search Comm.

SUNY Plattsburgh. Dept of Math, Box 1494-181, Plattsburgh, NY 12901. Tenure track (f-t) position at any rank to begin 9/88. Qualified ethnic minorites encouraged to apply. Duties: undergrad teaching, research, service to College. Required: PhD in math or statistics. SUNY Plattsburgh is a public 4-yr college w/ 5600 undergrads and 110 math majors. Send letter, resume, and 3 current letters of reference to Chair, Search Comm. Review starts 1/20/88, applications accepted until position filled.

SUNY Stony Brook. W. Averell Harriman School for Management and Policy and Dept of Applied Math & Statistics, Stony Brook, NY 11794-3775. Tenure track position (joint appt, rank open) to begin Fall 1988. Preferred: research interest in some aspect of stochiastic models in operations research. Teaching capacities should incl production and operations management. Harriman School offers grad programs in management of public, nonprofit, and business enterprises. Dept of Applied Math & Statistics has tracks in Operations Research, Applied Math, and Statistics. Send detailed resume, names and addresses of 3 references, and copies of written research to M.J. Sobel, SUNY Stony Brook. Materials received after 1/20/88 may not be considered.

University of Rochester. Math Dept, Rochester, NY 14627. Samuel Gitler, Chair. Several tenure track positions at all levels to begin 9/88. Required: significant research accomplishments or exceptional research promise, evidence of good teaching ability. Initial appt 4 yrs. No field restriction. Send vita, summary of research plans, and available preprints or reprints, and have at least 3 reference letters sent to Chair.

North Carolina School of Science and Mathematics. Durham, NC 27705. Chair, Dept of Math & CS. Required: successful teaching experience, strong curriculum development background, nationally recognized record of leadership and commitment to excellence in teaching, at least a masters degree and ten years of experience. Success in obtaining federal and/or foundation grant support desirable. Preference to candidates with earned PhD in math or math ed. Duties: administering dept, providing leadership in developing the high school math & CS curriculum, supervising the planning and conducting of workshops for teachers from other schools, furthering the school's development as a national model, and a teaching load of 3 courses. 12 month position begins 7/1/88. Faculty has 11 people with at least a masters degree and a broad range of expertise in math and educational use of computers. Student-faculty ratio 11:1. School nationally recognized for innovative programs & is model for other states. Send letter of application to Personnel Officer, PO Box 2418.

University of North Carolina, Chapel Hill. Dept of Math, Box 3250 Phillips Hall, Chapel Hill, NC 27514. Tenure track positions to begin Fall 1988. Rank and salary dependent on qualifications and budget considerations. Required: PhD, exceptionally strong research program, commitment to excellent teaching. Preferred: strong component of computational and applied math in research and teaching. Send 4 letters of recommendation, vitae, and abstract of current research program to Chair. Women and minorities encouraged to identify themselves voluntarily. Completed applications before 1/15/88 assured of full consideration.

University of North Carolina, Chapel Hill. Depts of Math & Stat, Chapel Hill, NC 27514. One tenure track Asst Prof position to begin Fall 1988. Joint appt in math and stat in any area of common interest. Search provisional, contingent on availability of funds. Send vitae, 4 letters of reference, and abstract of current research program to Math-Stat Search Comm, Dept of Stat. Applications by 1/15/88 assured of full consideration.

Kenyon College. Math Dept, Gambier, OH 43022. Two tenure track positions to begin 1988-89. One Asst Prof or beginning Assoc Prof, other Asst Prof. Required: PhD by 8/88, broad background in math, strong commitment to undergrad teaching. For one position, preference for prob/stats. Some background in CS or Numerical Analysis or Combinatorics or Modeling is an asset. Load: 3 courses per semester. Write to Stephen Slack or call 614-427-5267 promptly for more information. Candidates considered until position filled. Interviews at Jan AMS/MAA meeting in Atlanta.

Kenyon College. Math Dept, Gambier, OH 43022. Two year sabbatical replacement position to begin 1988-89. Inst or Asst Prof. Required: Masters in math by 8/88, PhD preferred; broad background in math; strong commitment to undergrad teaching. Background in CS or Numerical Analysis or Combinatorics or Modeling is an asset. Load: 3 courses per semester. Write to Stephen Slack or call 614-427-5267 promptly for more information. Candidates considered until position filled. Interviews at Jan AMS/MAA meeting in Atlanta.

Miami University. Dept of Math & Stat, Oxford, OH 45056. John Skillings, Acting Chair. Authorization of following positions to begin 8/88 anticipated: (1) Asst Prof, tenure track at Oxford campus. Required: PhD in stats, genuine interest and promise in teaching stats, research ability. Interest in consulting desirable. Duties: teaching 8-9 hrs per semester, scholarship, and service. (2) Asst Prof, tenure track at Middletown campus (a 2 yr regional campus). Required: PhD in math, math ed, or stats. Duties: teaching 12 hrs per semester, service, and scholarship. Teaching experience desirable. (3) Instructor at Middletown campus. Required: Masters in math, math ed, or stats. Duties: teaching 12 hrs per semester and service. Send vita, graduate transcript, and 3 reference letters to Chair.

Oberlin College. Dept of Math, Oberlin, OH 44074. F-t continuing faculty position to begin 7/88. Authorized for 4-yr term, position will be Asst Prof or higher. Duties: at least 1 advanced course in Algebra, other introductory and intermediate courses (incl opportunity to teach in the Quantitative Proficiency Program currently under development and the Senior Honors Program) for a total of 5 courses/year; participation in full range of faculty responsibilities, incl academic advising, committees, and sustained scholarly research. Required: PhD by 9/88, interest and potential excellence in undergrad teaching. Salary commensurate with qualifications and experience. Send letter, vita, academic transcripts, and at least 3 letters of reference to Michael Henle, Acting Chair, by 2/1/88. Late applications considered until position filled.

Ohio State University. Dept of Math, 231 W 18th Ave, Columbus, OH 43210 (614-292-7173). Joseph Ferrar, Chair. Nominations and applications for a Chair in Numerical Analysis and Scientific Computation. Funded in part by the Eminent Scholar program of the State of Ohio, includes appt as Prof in Dept of Math, created to attract an internationally recognized scholar with a distinguished record of research and teaching. Required: strong and broad interests impacting pure, applied, and computational math. Duties: provide leadership for the research programs in applied math. The University has committed substantial resources to the support of the Eminent Scholar's research, incl access to a CRAY X-MP on campus. Send nominations, applications, and requests for info to Chair.

University of Cincinnati. Dept Math Sci, Cincinnati, OH 45221-0025. Asst Prof positions anticipated pending budget approval. In addition to the Otto Szasz Visiting Professorship, 1-2 more visiting positions. Charles Phelps Taft Postdoctoral Fellowship, filled by college-wide competition, also available. Send applications incl. 3 letters of reference to C.W. Groetsch.

Xavier University. Dept of Math, Cincinnati, OH 45207. D.C. Trunnell, Chair. Tenure track Asst Prof position to begin 9/88. Required: PhD and strong commitment to teaching a wide variety of undergrad courses in a Jesuit liberal arts institution. Duties incl advising majors, assisting in course and curriculum revision, continuing scholarly development. Ability to teach Discrete Math desirable, but all areas encouraged to apply. Send resume, transcripts, and 3 letters of reference to Chair.

University of Oklahoma. Dept of Math, Norman, OK 73019. Anticipated tenured or tenure-track positions to begin Fall 1988. Some visiting positions expected. Required: demonstrated excellence in research and teaching. Strong candidates in all areas considered, preference to research interests enhancing faculty: Algebra, Algebraic Geometry, Differential Geometry, Modern Analysis, Number Theory. Rank depends on experience. Salary competitive. Send vita and have at least 3 letters sent to Darryl McCullough, Search Comm Chair. Closing dates: 12/15/87 and every two weeks thereafter.

Bryn Mawr College. Dept of Math, Bryn Mawr, PA 19010. Position at rank up to Prof. Tenure or tenure track as appropriate, to begin 9/88. Required: strong research record and commitment to excellence in teaching. All fields considered, preference for Algebra, Geometry, or Applied Math. Women & minorities especially encouraged to apply. Selection after 2/15/87. Send inquiries or application to F. Cunningham, Jr.

Bryn Mawr College. Dept of Math, Bryn Mawr, PA 19010. Tenure track Asst Prof position with responsibilities in CS to begin 9/88. Required: research in math or CS, ability and desire to teach in both fields, PhD in math or CS by 9/88. Women & minorities especially encouraged to apply. Send application and 3 letters of recommendation to F. Cunningham, Jr. Closing date 2/15/87.

Bryn Mawr College. Dept of Math, Bryn Mawr, PA 19010. Non-tenure track renewable 1-3 yr position to start 9/88. Duties: teaching introductory math courses and administration, incl coordinating placement, advising, and noncredit courses. PhD preferred but not required. Rank & salary depend on qualifications. Women & minorities encouraged to apply. Send application and 3 letters of recommendation to F. Cunningham, Jr. Closing date 3/15/87.

Gettysburg College. Dept of CS/Math, Gettysburg, PA 17325. Tenure track Asst Prof position to begin 9/88. Required: masters in CS, PhD in math, excellence in teaching, ongoing research. Load: 2 CS courses, 1 math per semester. Opportunity to help develop evolving CS program. Salary competitive. Extensive computing facilities incl a Burroughs 5920 & microcomputer laboratory. Dept has CS major. Send resume and 3 letters of reference to L. Carl Leinbach. Review begins 2/15/88. Women and minorities especially urged to apply.

Indiana University of Pennsylvania. Dept of Math, Indiana, PA 15705. Tenure track position at Asst/Assoc Prof rank to begin 9/88. Duties: teach undergrad and grad courses, w/ emphasis on operations research or applied math; provide leadership in implementation of newly designed MS program in applied math; give direction to a grad internship program and to grad student projects in applied math; participate in other academic & professional activities of dept & discipline. Required: PhD in applied math or PhD in math w/ experience in operations research or applied stats. Teaching and/or field experience preferred, but not required. Send letter of application, resume, transcripts, and 3 letters of reference to Search Comm A. Review begins on 1/10/88, continues until position filled.

Millersville University of Pennsylvania. Dept of Math & CS, Millersville, PA 17551. F-t tenure track position to begin 9/88. Required: PhD in math or statistics, strong commitment to teaching and scholarship, US citizenship or permanent visa. Load: 24 semester hours per year; released time for research available on competitive basis. Teaching excellence is a primary consideration. Asst Prof level expected; rank & salary depend on qualifications & experience. Salary competitive, excellent benefits. All fields considered. Preferred: Operations Research, Probability, Statistics, Applied and Discrete Math. Dept has 26 f-t faculty, 175 math majors, 300 CS majors. Send vita, transcripts, and 3 letters of recommendation (at least one attesting to teaching effectiveness) to Ronald N. Umble, Search Comm Chair, AWM0188.

Penn State-Harrisburg. Division of Science, Engineering, and Technology, The Capital College, Middletown, PA 17057. William A. Welsh, Jr., Head. Tenure track position in Statistics and Math to begin 8/88. Rank & salary depend on qualifications. PhD in statistics or math preferred. Duties incl undergrad & grad teaching and research. Harrisburg is the only senior college and graduate center of the University's 22 campuses; enrollment incl 3100 jr, sr, & grad students. Send resume, transcripts, and references to Head c/o Robert H. Hamill, Business Office, Box-AWM. Women & minorities encouraged to apply.

Westminster College. Dept of Math & CS, New Wilmington, PA 16172. Tenure track position to begin Fall 1988. Rank and salary open. Required: PhD in CS or PhD in related area and Masters or equivalent in CS; commitment to excellence in teaching; interest in maintaining modern curriculum in CS; sincere interest in integrating CS program with liberal arts. Westminster is a liberal arts college with 4-1-4 program. Send vita with 3 letters of reference to Barbara T. Faires. Closing date 3/1/88 or until filled.

College of Charleston. Math Dept, Charleston, SC 29424. W.L. Golightly, Chair. At least three tenure track Asst Prof positions to begin Fall 1988. Required: PhD in math sci, commitment to undergrad teaching, potential for continuing research. Load: 9 hrs/wk. Salary competitive. Send resume and have 3 letters of recommendation sent to Chair.

University of South Carolina. Dept of Math, Columbia, SC 29208. Colin Bennett, Chair. Anticipated tenure track positions at all levels. All areas considered, especially Applied and Computational Math. Required: PhD or equivalent, commitment to excellence in research and in both undergrad & grad teaching. Research strongly supported through funding for visitors and travel & excellent library and computer facilities. Dept operates a VAX which will access a planned DEC high performance computing complex by mid-1988. Send detailed resume (containing a summary of research accomplishments and goals) and 4 letters of recommendation to Chair.

South Dakota State University. Math Dept, Box 2220, Brookings, SD 57007. Kenneth L. Yocom, Head. Tenure track Asst Prof position to begin 8/88. Required: PhD in math sci, demonstrated skills in teaching and research. All specialties considered, prefer algebraist who could contribute to MS program. Duties: teaching 12 hrs per semester (primarily undergrad math), service, scholarly activities. 2nd tenure track Asst Prof position possible, field open. Closing date: 2/15/88, or until position filled. Send letter, vita, grad transcripts, have 3 letters of recommendation (at least one pertaining to teaching) sent to Head.

Memphis State University. Dept Math Sci, Memphis, TN 38152. Ralph Faudree, Chair. Anticipated tenure track positions for 1988. Dept offers degrees at all levels incl PhD, provides a very favorable research environment (library & computing facilities -- incl a symbolic Intel Hypercube -- teaching load, travel opportunities, etc.). Preferred CS research areas: Algorithms, Parallel and Distributive Processing, AI/Cognitive Science, Software Development, Network Design & Analysis, and Data Communications. Preferred statistics: Time Series, Biostatistics, Engineering Statistics, Stochastic Models, and Applied Statistics. Preferred math: Approximation Theory, Ergodic Theory/Dynamical Systems, Graph Theory, and Combinatorics. Required: PhD by 9/1/88, strong potential excellence in teaching and research, Immigration Reform Act criteria. Selection begins 1/21/88, applications accepted until position filled. Women and minorities strongly urged to apply. Send a resume and direct 3 letters of reference to Chair.

Rice University. Dept of Math, PO Box 1892, Houston, TX 77251. One or more research/teaching positions, Asst Prof or higher, in Analysis, Geometry, or Topology. Position open until filled. Also possible G.C. Evans Instructorship (2 or 3 yr appt) for promising research mathematician w/ interest in dept's active research areas. Inquire to Appointments Comm.

University of Texas at Arlington. Dept of Math, Arlington, TX 76019. Several positions to begin 9/88. Primarily Asst Prof, higher ranks considered. Required: excellent research and teaching credentials. Preferred: Computational Geometry, Algebraic Topology, Differential Geometry, Partial Differential Eqs, Math Ed, Statistics, and Applied Math. Send resume and 3 letters of recommendation to Chien-Pai Han.

University of Texas at Austin. Dept of Math, Austin, TX 78712. A number of positions to begin Fall 1988: Instruct (customarily new PhD) and Asst Prof (customarily at least 2 yrs beyond PhD). Strong research credentials required. Send vita, detailed summary of research interests, and at least 3 letters of recommendation to Recruiting Comm ASAP.

University of Vermont. Dept of Math & Stat, Burlington, VT 05405. D.E. Moser, Chair. Visiting Asst Prof, 1 yr to begin 9/1/88, to teach 2 undergrad courses each semester. Preferred: research interest in Approximation Theory, Algebraic Number Theory, Combinatorics, or Harmonic Analysis. Required: PhD and strong teaching credentials. Send resume, transcripts, and 3 letters of recommendation. Women & minorities especially invited to apply.

University of Vermont. Dept of Math & Stat, Burlington, VT 05405. D.E. Moser, Chair. Anticipated 1 yr Lecturer position. Duties incl 12 hrs/semester teaching & participation in dept affairs. Required: MS or PhD and strong recommendations for teaching. Send resume, transcripts, and 3 letters of recommendation. Women & minorities especially invited to apply.

College of William and Mary in Virginia. Dept of Math, Williamsburg, VA 23185. One or more tenure track positions anticipated, Asst Prof or above, to begin 8/16/88. Required: PhD in math, capability for strong sustained research, commitment to effective teaching. Encouraged: research interests in Matrix Analysis or a related area. Send letter, vita, and names of at least 3 references to Chair, Math Search Comm. Screening begins 2/15/88, applications accepted until position(s) filled.

Office of Naval Research. 800 N Quincy St, Arlington, VA 22217-5000. Civil Service position in math science. Salary: $38727 - $69976, depending on qualifications. Duties: plan and manage research & development programs in discrete math with particular emphasis on combinatorics and graph theory. Required: PhD in math and 1 yr professional experience, or equivalent. Send Standard Form 171 and publications list to be received by 2/19/88 to Civilian Personnel Division, Code 01242P, Attn: Announcement #87-103 (AWM). Info & forms: 202-696-4705.

Office of Naval Research. 800 N Quincy St, Arlington, VA 22217-5000. Civil Service position in math science. Salary: $38727 - $69976, depending on qualifications. Duties: plan and manage research & development programs in boundary value and inverse problems for ordinary and partial differential equations. Required: PhD in math and 1 yr professional experience, or equivalent. Send Standard Form 171 and publications list to be received by 2/19/88 to Civilian Personnel Division, Code 01242P, Attn: Announcement #87-102 (AWM). Info & forms: 202-696-4705.

Evergreen State College. Olympia, WA 98505. Two 3-yr renewable positions in math. Required: broad training in mathematical analysis, interest in teaching a wide variety of math subjects, interest in connecting math with the liberal arts and sciences, certification of teachers and CS; serious commitment to teaching in a non-competitive environment; masters degree (PhD preferred); one position requires substative multicultural expertise or experience. Evergreen is a public, liberal arts college emphasizing intense interdisciplinary study through team teaching (grad & undergrad). No rank or tenure. Salary is a non-competitive open scale based on experience. Send resume, 2 letters of recommendation from colleagues, a statement of educational philosophy, a syllabus exhibiting your approach to teaching, and, for those with teaching experience, 2 letters from students, and any available standardized teaching evaluation forms to The Hiring Dean. Review begins 1/15/88, continues until positions filled. Application materials should address teaching ability, collaborative ability, disciplinary and interdivisional competence, excellence in undergraduate teaching, and abilities to work with people of diverse ages, abilities, ethnicity, and socioeconomic backgrounds. Applications from candidates with multicultural expertise or experience preferred. Preference to applications that enhance effort to employ members of protected classes.

University of Washington. Dept of Math, GN-50, Seattle, WA 98195. (1) Several tenure track positions to begin Fall 1988. Required: strong teaching and research records. Asst Prof, but in exceptional cases a more sr appt possible. (2) Several 3 yr appts starting Fall 88 for recent PhDs of any age with strong research & teaching potential. Salaries competitive, standard benefits. Send vita, publications list, and 4 letters of recommendation to Chair, Appts Comm.

Washington State University. Dept of Elementary & Secondary Education, Pullman, WA 99164-2122. Anticipated joint tenure track position in Math and Education to begin 8/88. Required: PhD in Math Ed or related field, strong math background, excellence in teaching and Math Ed research. Have vita and 3 references sent to C.S. Johnson, Chair Math Ed Search Comm. Review begins 2/15/88, continues until position filled. Protected group members encouraged to apply & identify status.

Washington State University. Dept of Pure & Applied Math, Pullman, WA 99164-2930. Tenure track academic yr position in statistics. 1/2 time in Dept of Math, 1/2 time in Program in Statistics. Duties: teaching 1-2 courses per semester, research, some consulting. Required: PhD in Statistics or related field. Specialization open. Preferred: Statistical Computing, Response Surface Design, Quality Control, some other area of engineering application. Asst Prof, but outstanding sr applicants also considered. Minorities, women, Vietnam-era or disabled veterans, people of disability, and/or persons age 40-70 encouraged to apply and identify status. Closing date 2/1/88. Send vita and 3 letters of reference to Michael Jacroux, Chair, Statistics Search Comm.

Washington State University. Dept of Pure & Applied Math, Pullman, WA 99164-2930. At least one tenure track position to begin 8/88. Required: demonstrated research competence in Computational Math, Numerical Analysis, or Operations Research/Combinatorial Optimization; ability to supervise doctoral dissertations; PhD; competence in teaching relevant grad & undergrad courses. Asst Prof, but outstanding sr applicants also considered. Protected group members encouraged to apply and identify status. Applications accepted through 2/1/88, or until position filled. Send vita and 3 letters of reference to William A Webb, Chair, Search Comm.

Western Washington University. Dept of Math, Bellingham, WA 98225. Thomas T. Read, Chair. Tenure track & visiting positions for Fall 1988. Required: PhD in math, active research interacting w/ current dept research, good teaching. Preferred: (1) ODE or PDE, Linear DE, Spectral Theory; (2) Math Ed (elementary teaching experience preferred). Rank & salary open; substantial research record required for appt above Asst Prof. Send letter, vita, transcript, and 3 letters of recommendation to Chair by /88. Late applications considered if position open. Positions subject to continuing funding.

University of Wisconsin - Eau Claire. Dept of Math, Eau Claire, WI 54702-4004. Marshall E. Wick, Chair. One or more tenure track positions. Field open. For one position, some preference to interest & experience in teaching upper-level undergrad courses in geometry. PhD strongly preferred; tenure without PhD unlikely. Load: 12 hrs. Primarily undergrad institution with grad program for teachers actively encourages research & scholarly activities. Required: potential for excellence in teaching. 1 or 2 yr initial appt. Closing date: 2/15/88 or positions filled. Send letter, resume, grad & undergrad transcripts, and 3 letters of recommendation to Chair.

University of Wisconsin - Oshkosh. Dept of Math, Oshkosh, WI 54901. One or more entry level tenure track positions to begin 9/88. Primary responsibility undergrad teaching; normal load 12 credits per semester. Scholarly activity required and, where appropriate, pursuit of extramural funding. Required: good teaching, PhD by 9/88. Field open. Some preference to interest in teaching geometry and/or math to prospective teachers. Send letter, vita, a complete set of transcripts, and 3 letters of recommendation to Norbert J. Kuenzi. Screening begins 1/22/88.

ASSOCIATION FOR WOMEN IN MATHEMATICS
Box 178 Wellesley College, Wellesley, MA 02181
617-235-0320 x. 2643

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Association for Women in Mathematics
Box 178 Wellesley College
Wellesley, MA   02181

January-February 1988

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