

ASSOCIATION FOR WOMEN IN MATHEMATICS
NEWSLETTER

Volume 7, Number 3

May-June 1977

PRESIDENT'S REPORT

NCTM Conference.

The AWM sponsored a panel discussion at the annual meeting of the National Council of Teachers of Mathematics on April 22 in Cincinnati. I presented a general description of the AWM goals and projects, Alice Schafer discussed the history of the AWM, and Ruth Afflack talked about ways of increasing participation of girls and women in math studies and math-based fields. A very lively discussion followed. People in the audience shared their experiences and interests and many expressed enthusiasm for the AWM. The session went one-half hour overtime!

New people/positions on the AWM executive committee.

After much discussion, the executive committee has decided to replace the proposed position of president-elect by several positions of vice-president. The new president will then be selected from the current vice-presidents. For the current year, I will continue as president.

Judy Green (Rutgers, Camden, N.J.) and Judy Roitman (University of Kansas, Lawrence; on fall leave at IAS, Princeton, N.J.) have accepted the positions of vice-presidents of the AWM. Judy Wason (Wellesley College, Wellesley, Mass.) has accepted the position of treasurer, starting in the fall; and Ann Leggett (University of Texas, Austin) has accepted the position of editor of the newsletter, also starting in the fall. Congratulations and good luck to Judy, Judy, Judy, and Ann.

AWM Summer Meeting.

Our summer meeting will be in conjunction with the joint mathematical meetings in Seattle, Washington. For full details, see the announcement in this newsletter. Hope to see you there.

Lenore Blum
Math Department, Mills College
Oakland, Calif. 94613

AWM Council

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The enthusiastic response to the expanding role of the AWM, as indicated by the large number of nominations and diversity of areas represented, has been very gratifying. In order to best represent and serve all these interest areas, the executive committee has decided to form the AWM Council. The duties of a Council member will be to initiate and co-ordinate activity in specific areas and to periodically write reports to the AWM newsletter. Any AWM member who would like to become a member of the Council can do so by submitting a brief statement to be published in the newsletter indicating her interest area. Council membership will then reflect current AWM interests and serve to identify AWM members active in these areas. The executive committee will then become part of the council, and future executive committees will be selected from the Council.

This report is followed by a partial list of new Council members. Additional Council members will be identified in subsequent newsletters.

AWM Council

The following is the first group of members of the newly formed AWM Council. Additional members will be listed in subsequent Newsletters:

Name: Ruth Afflack Area Representing: Mathematics Education
Address: Department of Mathematics
California State University
Long Beach, CA 90840

Institutional Affiliation: California State University
Position: Associate Professor of Mathematics

Statement: I have been a member of the Association for Women in Mathematics since its inception in 1971 and have been active in the Southern California regional group. Presently I am replacing Susan Montgomery as Western Representative on the Executive Board, while she is on sabbatical.

I have a Masters Degree in Mathematics from the University of California, Santa Barbara and have taught in the Mathematics Department at the California State University, Long Beach for 11 years. My specialization is Mathematics Education.

From my experience in teaching mathematics courses for elementary teachers and in supervising secondary student teachers in mathematics, I recognized a need for creative ideas in the teaching of mathematics. This led to my development of the course "Math Ideas for Teachers", which has been a regular offering of the CSULB Mathematics Department for the last three years.

I have also served as a mathematics consultant and have conducted in-service workshops for elementary and secondary teachers, and have taught in the S.E.E.D. in Watts. I am a member of the Long Beach, Los Angeles and Greater San Diego Math Teachers Associations, the California Math Council and the National Council of Teachers of Mathematics. I have spoken at numerous conventions of these organizations.

More recently I have been involved with the problems women experience regarding mathematics. Our Southern California AWM presented a panel discussion for high school teachers at the California Math Council convention concerning why female students do not take more mathematics. I also participated in a panel on math avoidance given by the California Bay Area AWM members at the National Women's Studies Conference.

Name: Bettye Anne Case Area Representing: Alternates to Academic
Address: Mathematics Department Employment
Tallahassee Community College
Tallahassee, FL 32304

Institutional Affiliation: Tallahassee Community College
Position: Instructor

Statement: More consideration might well be given to alternative employment for traditionally trained mathematicians. (Several large groups are immediately obvious as needing such employment: those who came along before affirmative action; those who have never been academically employed; those caught in revolving doors...) An excellent step in this direction was the excellent panel of women in industry at the San Antonio meeting. This "consideration" might be in the form of information on gaining such employment, succeeding (happily, hopefully) at it - and staying mathematically alive. Helpful to people with such employment would be a positive attempt on the part of women colleagues at research institutions to be sure they have such helps extended as Bers has recommended all research institutions extend to all under-un-and alternatively-employed mathematicians.

Name: Judith E. Jacobs Area Representing: Teacher Education
Address: 2705 Livingstone Lane #204
Vienna, Virginia 22180

Institutional Affiliation: George Mason University
Position: Associate Professor of Mathematics Education

Statement: I am concerned with changing the views of teachers and counselors regarding the appropriateness of mathematics as a field of endeavor for young women.

(Note: Judith is putting together a strand of four one hour sessions on Women and Mathematics for the 56th Annual Meeting of the National Council of Teachers of Mathematics which will be held in San Diego from April 12-15, 1978. The sessions will be: I What Research Says About Sex-Related Differences

- II The Nature of the Problem
- III Some Ways to Success
- IV Where Do We Go From Here?)

Name: Harriet H. Kagiwada Area Representing: Applied Mathematics
Address: 3117 Malcolm Avenue
Los Angeles, CA 90034

Institutional Affiliation: Department of Commerce, National Oceanic and Atmospheric Administration,
National Environmental Satellite Service

Position: Project Leader, Project Trim (Temperature Retrieval by Imbedding Methods)

Statement: I am an applied mathematician with over 15 years of experience in analysis, computation, and applications of mathematics in the physical, biological and social sciences. I have written four books and over a hundred scientific papers in integral equations, boundary value problems, optimization, atmospheric sciences, and other applications. I wish to advance the role of women in mathematics and the role of mathematics for women.

Name: Patricia C. Kenschaft Area Representing: 4-year State Colleges; ERA
Address: 56 Gordonhurst Avenue
Upper Montclair, NJ 07043

Institutional Affiliation: Montclair State College
Position: Professor

Statement: As a writer of math texts for non-majors, I try to display both the excitement and the usefulness of math to the general educated public. While collecting material for these books, I try to educate myself and other members of the mathematical community about the many ways that math can be used to solve the problems of the modern world. A majority of my students are women and many are from minority groups, so combating mathphobia while imparting knowledge is a part of my daily life. If I become a member of the AWM Council, I will use my position to continue my efforts to promote communication between the world of mathematicians and the "real world" and to extend the mathematical community to include more women and members of minority groups.

(Note: Pat drafted the AWM resolution urging the remaining state legislatures to ratify the Equal Rights Amendment. Also, as directed by the AWM open executive committee meeting in St. Louis, she enlisted our support in ERAmerica, the "Umbrella" of organizations that have endorsed the ERA. More than 100 organizations are listed by ERAmerica including the AAUP, the American Association of University Women, the ACLU, the American Medical Women's Association, and the Association for Women in Science.)

Name: Bertha Williams Mather
Address: 2304 S. Colonial Drive
Melbourne, FL 32901

Area Representing: Retired Women

Institutional Affiliation: The Pennsylvania State University
Position: Assistant Professor of Mathematics

Statement: My career as a feminist mathematician began in 1932 at Columbia University where I took a course in The Education of Women by Willestine Goodsell. I survived many years of discrimination including the impossibility of getting a job, or even of being considered a job applicant when I married, low pay later when I did get a job, neglect when promotions were distributed, and finally departmental refusal to allow dissemination of information obtained by my research into the grades and performance of Penn State math majors where women were found to excell.

I am a member of AMS, MAA, AWM, AAUP, FL Academy of Sciences, AAUW, LWV. I was secretary-treasurer of the Allegheny Mountain Section of MAA. I am treasurer of the 300 member Melbourne branch of AAUW, and of the Brevard County Coalition for Equality.

Since retirement I have read papers at the Florida Section of MAA and at the Florida Academy of Science. I attended the International Congress of Mathematicians at Vancouver. I have tutored young mothers for the Graduate Record Exam. I am program chairman for the local group of retired teachers. My most important retirement activity has been the promotion of the ratification of the equal rights amendment by the Florida male legislators. I hope to succeed.

Name: Teri Perl
Address: 525 Lincoln Ave.
Palo Alto, CA 94301

Area Representing: History of Women in Mathematics

Institutional Affiliation: Stanford University
Position: PhD Candidate in Mathematics Education

Statement: My special interest is the history of women in mathematics. I would be coordinating the AWM project to develop and disperse materials and information in this area.

(Note: Teri has just published an article, "The Ladies' Diary...Circa 1700", in The Mathematics Teacher, April, 1977, Vol. 70, No. 4.)

Name: Karen Rappaport
Address: 29 Marina Key
Secaucus, NJ 07094

Area Representing: Community Colleges (2 yr)

Institutional Affiliation: Essex County College, Newark, NJ
Position: Assistant Professor

Statement: The two year college with its differing student body and educational emphasis has been neglected by most mathematical organizations. Little effort has been made to reach the women, especially older and minority groups, who comprise a large proportion of the student body. AWM should be involved in providing a forum for faculty at these institutions to exchange ideas and insights, as well as providing support for their efforts. As a member of the mathematics department of a two year community college for the last 8 years I feel the need to promote such an endeavor.

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AWM Correspondence Committee:

Dorothy K, Preston
Mathematics Department
Meredith College
Raleigh, NC 27611

Marjorie Fitting
Mathematics Department
San Jose State University
San Jose, CA 95192

Lynn Dolores Williams
Department of Mathematics
Louisiana State University
Baton Rouge, LA 70808

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AWM SUMMER MEETING

University of Washington
Seattle, Washington

Open executive committee meeting: Monday, August 15, 4 p.m.
409 Guggenheim Hall

AWM panel: "Alternatives to academic employment"
Monday, August 15, 7:30 p.m.
120 Kane Hall

AWM table: throughout joint meetings, in the registration area.
Come by to volunteer or just to visit.

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GRACE CHISHOLM YOUNG

by Sylvia Wiegand

(Ed. note: Sylvia Wiegand received her Ph.D. in mathematics from the University of Wisconsin in 1972. She is Grace Chisholm Young's grandchild. Her father (L.C.Young), aunt (R.C.H. Tanner), and husband (Roger Wiegand) are also mathematicians. Both Sylvia and her husband are employed at the University of Nebraska, Lincoln. Her son, David Chisholm Wiegand, is two years old.)

Grace Chisholm was one of the first women to receive a Ph.D. Grace studied under Felix Klein and received the Ph.D. magna cum laude from Gottingen in 1895 at age 27.

Grace had been educated at home by her mother and a governess; nevertheless she managed to pass the Cambridge Senior Examination in 1885 at the age of seventeen. Grace's brother went to Oxford, but at that time women rarely went to a university. Girton College, associated with Cambridge University, was the first institution in England dedicated to educating women at the university level, and it had only been in existence since 1869. At first Grace was encouraged to spend her time helping the poor and otherwise making herself "useful". However she had great initiative and desire for learning, and she entered Girton in 1889; she was awarded the Sir Francis Goldschmid Scholarship, which her father matched in value. In the Cambridge Tripos Part I examination in 1892 Grace scored the equivalent of a first class, and then in response to a challenge, she took the Oxford examination unofficially and obtained the highest mark for all students at Oxford that year. Grace went to Gottingen to continue her studies because it would have been impossible in England.

A letter written by Grace to her old college friends at Girton describes the situation at Gottingen:

Professor Klein's attitude is this, he will not countenance the admission of any woman who has not already done good work, and can bring him proof of the same in the form of degrees or their equivalent, or letters from professors of standing and further he will not take any steps till he has assured himself by a personal interview of the solidity of her claims. Prof. Klein's view is moderate. There are members of the Faculty here who are more eagerly in favor of the admission of women and others who disapprove altogether.

On his fiftieth birthday, Klein was honored in Turin where Grace was then studying. At dinner he was seated next to Grace, said to be his favorite pupil, and he whispered to her: "Ah, I envy you. You are in the happy age of productivity. When everyone begins to speak well of you, you are on the downward road."

The year after Grace earned the Ph.D., she married William Henry Young, an Englishman who had been her tutor at Girton before she had gone to Gottingen. They both became internationally known mathematicians in their time and their results are still widely quoted today. Together they produced 220 mathematical articles and several books.

For several years after their marriage, Will continued to tutor at Cambridge, where he earned an ScD in 1903 at the age of 40. Later he held professorships at Liverpool, Calcutta and Aberystwyth, Wales. Will served as president of the London Mathematical Society from 1922-1924, and he was president of the International Union of Mathematicians in 1929. Among other things, he is famous for his discovery (independent of Lebesgue) of the integral, and his work on Fourier series and cluster sets.

The pattern of their life together was that Will travelled to and from their family home to earn a living, while Grace brought up the six children and followed her other interests, and both of them worked intensely on mathematics. Among Grace's other interests were medicine, languages and music. She completed all the requirements for a medical degree except the internship (her medical practice was therefore limited to the family). Grace knew six languages and taught them to the children when they were young. To the children she also communicated her love of music; each of the children played some instrument and the family gave informal concerts together.

A few years after the marriage, Grace and Will changed their roles. Previously Grace had been the researcher of the pair, but she became so impressed by his creativity, that she unofficially became his scribe. She wrote up his papers for publication, often filling in proofs, correcting mistakes, and so on. When they were together and in their correspondence, these papers were discussed extensively. In short, Grace helped a great deal with papers signed by Will, but, more than that, he would probably have accomplished very little without her, and he realized it. Will certainly had a profusion of ideas and a great intelligence but he would not have had the time nor the temperament to carry them through. An illustration of the kind of help she gave him is given by this footnote to his paper "On integration with respect to a function of bounded variation", in the Proceedings of the London Mathematical Society (1910):

Various circumstances have prevented me from composing the present paper myself. The substance of it only was given to my wife, who has kindly put it into form. The careful elaboration of the argument is due to her.

Also a letter written to Professor Lida Barrett by their daughter, Rosalind Cecily, demonstrates Grace's assistance to Will:

Another famous partnership, that of George Eliot and Lewis, can be taken as in many respects the counterpart of that of my parents. There it was the man who took the brunt of life off the woman's shoulders and spent his creative energies in fostering her genius. This my mother clearly appreciated.

When all is said, it remains that my father had ideas and a wide grasp of subjects, but was by nature undecided; his mind worked only when stimulated by the reactions of a sympathetic audience. My mother had decision and initiative and the stamina to carry an undertaking to its conclusion. Her skill in understanding and in responding, and her pleasure in exercising this skill led her naturally into the position she filled so uniquely. If she had not had that skill, my father's genius would probably have been abortive, and would not have eclipsed hers and the name she had already made for herself.

While Will was in India, Grace began publishing under her own name again, and she did her best work.

Grace's dissertation was on "The algebraic groups of spherical trigonometry". Some parts of her thesis are mentioned in Klein's book, Elementary Mathematics from an advanced standpoint, Volume 1, page 179. To each spherical triangle on the unit sphere, Klein associates a point of 12-space as follows:



Corresponds to $(\cos a, \cos b, \cos c, \cos \alpha, \cos \beta, \cos \gamma, \sin a, \dots, \sin \gamma) \in \mathbb{R}_{12}$

If M_3 is the image of the set of all spherical-triangles, then M_3 is a three dimensional algebraic set of \mathbb{R}_{12} . Klein found nine identities satisfied by M_3 , but they didn't determine it. He asked several questions about M_3 , and then went on to say:

One could gain familiarity with these things by consulting investigations which have been made in exactly the same direction but in which the questions have been put somewhat differently. These appear in the Gottingen dissertation, 1894, of Miss Chisholm (now Mrs. Young), who by the way, was the first woman to pass the normal examination in Prussia for the doctor's degree.

Klein describes Grace's work briefly: she considered an image of the spherical triangles in \mathbb{R}_6 and completely characterized this M_3 .

Grace's most important independent work appears in a group of papers appearing from 1914-1916, in which she studied derivatives of real functions. Recall that the upper right Dini derivate is defined $D^+f(t_0) = \limsup_{h \rightarrow 0^+} \frac{f(t_0+h) - f(t_0)}{h}$ and $D_+f(t_0)$. $D^-f(t_0)$, $D_-f(t_0)$ are defined similarly.

The theorem now known as the Denjoy-Saks-Young theorem gives a complete description of what possibilities there are for these derivatives:

Theorem: Except at a set of measure zero, there are three possible dispositions of the derivatives of a function $f(x)$, either
(i) they are all equal and the function is differentiable, or
(ii) the upper derivatives on each side are $+\infty$, or
(iii) the upper derivative on one side is $+\infty$, the lower derivative on the other side is $-\infty$ and the two remaining extreme derivatives are finite and equal.

According to Reisz and Nagy, the theorem was proved for continuous $f(x)$ by Denjoy and Grace independently, Grace proved it for measurable $f(x)$, then Saks generalized to all $f(x)$. During a recent conversation with Professor Lloyd Jackson at the University of Nebraska, he mentioned that this theorem was one of his favorites, and it was extremely useful to him in his work, because eliminating options (ii) and (iii) is sufficient to show that a function is differentiable.

In 1905 a geometry book was published in both names, but it was probably written by Grace, because the German edition was published under her name. In those days, the study of geometry was limited to theorems for the plane, but Grace's book was intended for elementary school children and in fact seven-year old son Frank helped her with some parts.

Will and Grace jointly published a book on the Theory of Sets of Points in 1906, which was the first of its kind. Set theory was not popular with most mathematicians at that time, but Georg Cantor was very enthusiastic about the book:

It was with great joy that I received the day before yesterday the copy you have most kindly sent me of your joint work with your husband, "The Theory of Sets of Points". My sincerest thanks to you both.

It is a pleasure for me to see with what diligence skill and success you have worked and I wish you, in your further researches in this field as well, the finest results, which, with such depth and acuteness of mind on both your parts, you cannot fail to attain.
(From the Preface to the Second Edition, by R.C.H. Tanner.)

The authors commented on the importance of set theory in the original preface to the book:

In subjects as wide apart as Projective Geometry, Theory of Functions of a Complex Variable, the Expansions of Astronomy, Calculus of Variations, Differential Equations, mistakes have in fact been made by mathematicians of standing, which even a slender grasp of the Theory of Sets would have enabled them to avoid.

Two joint papers with Will are referred to in Collingwood and Lohwater's book on The Theory of Cluster Sets. These papers and some signed by Will were important to the development of the theory of cluster sets and prime ends.

These titles of some other papers by Grace show her diversity of interests:

1. "On the curve $y = \frac{1}{x^2 \sin^2 \psi} - \frac{3}{2}$ and its connection with an astronomical problem", Monthly Notices, Royal Astron. Soc. 57 (1897), 379-387.
2. "On the form of a certain Jordan curve", Quarterly Journal 37 (1904), 87-91.
3. "On the solution of a pair of simultaneous Diophantine equations connected with the nuptial number of Plato", Proc. Lon. Math. Soc. (2) 23 (1925), 24-44.
4. "Pythagore, comment a-t-il trouve son Theoreme?" Enseignement math. 25 (1926), 248-255.

In addition to Grace's mathematical works she wrote two books for children which were lessons on elementary biology (they included cell structure seen under a microscope and contained the story of a family like the Youngs). She worked for five years on a sixteenth century historical novel (unpublished) called The Crown of England.

While discussing Grace's works, it seems appropriate to mention her six children. Unfortunately the oldest child, Frank, apparently the most precocious as a child, died in World War I in 1917 at age twenty. The second child, Rosalind (Cecily) Tanner, is a mathematician and historian; another daughter, Janet Michael, fulfilled her mother's dream of becoming a medical doctor; and Helen Marion Canu, the last daughter, studied mathematics at the graduate level. The last two sons, Laurence and Pat, became a mathematician and a chemist respectively. As I write this, Cecily, Janet, Laurence and Pat are all actively involved in their work and their own children and grandchildren.

To close I would like to quote a letter from Will to Grace which describes their situation as he saw it:

I hope you enjoy this working for me. On the whole I think it is, at present at any rate, quite as it should be, seeing that we are responsible only to ourselves as to division of laurels. The work is not of a character to cause conflicting claims. I am very happy that you are getting on with the ideas. I feel partly as if I were teaching you, and setting you problems which I could not quite do myself but could enable you to. Then again I think of myself as like Klein, furnishing the steam required - the initiative, the guidance. But I feel confident too that we are rising together to new heights. You do need a good deal of criticism when you are at your best, and in your best working vein.

The fact is that our papers ought to be published under our joint names, but if this were done neither of us get the benefit of it. No. Mine the laurels now and the knowledge. Yours the knowledge only. Everything under my name now, and later when the loaves and fishes are no more procurable in that way, everything or much under your name.

There is my programme. At present you can't undertake a public career. You have your children. I can and do. Every post which brings an answer from you to my last request or suggestion gives me a pleasurable excitement. Life here is more interesting with such stimulants. I am kept working and thinking, too, myself. Everything seems to say we are on the right track just now. But we must flood the societies with papers. They need not all of them be up to the continental standard, but they must show knowledge which others have not got and they must be numerous.

NOTES

Grace Chisholm Young died in 1944, before I was born so, unfortunately, we never met. Everything I have heard about her indicates she was a wonderful person, so extremely talented, but also kind and loved by everybody.

My father is Laurence Chisholm Young, the fifth child of Grace Chisholm and William Henry Young. Last year he retired from the University of Wisconsin, where he had been on the faculty of the Mathematics Department for twenty-eight years.

The presence of so many mathematicians in my family (and particularly women mathematicians) has been inspirational for me. Growing up with a tradition of mathematics for women made it seem a natural thing to do, and provided helpful role models that most women don't have. Now as I work on my own theorems, I imagine that Grace is looking over my shoulders with helpful suggestions!

The main source for my talk was an article by I. Grattan-Guinness in the Annals of Science 29, 1972, 105-186. This article includes many letters written by Grace as well as selections from some notes she wrote as a start on an autobiography. There are very appealing descriptions by Grace of her final oral, of getting official permission for the Ph.D., of her childhood, and of her children.

Grattan-Guinness also compiled a joint bibliography of W.H. and G.C. Young in Historia Mathematica 2 (1975), 43-58. He says he combines their publications because Grace collaborated so closely with Will on papers signed by Will. Another interesting article is M.L. Cartwright's obituary notice for Grace in the Journal of the London Mathematical Society 19 (1944), 185-192.

AMS NOMINATIONS BY PETITION

The following people need signatures in order to become nominees for AMS office. A brief description is given to help you decide whether you want to pass around petitions for them, and to help you convince other people to sign them if you so decide. A total of 50 signatures are needed for all offices except nominating committee, which needs 100. The exact form for petitions can be found in the June 1976 Notices of the AMS. They should be sent early in the summer to Everett Pitcher, AMS Secretary, with xerox copies to the respective candidates. It is especially important that signers write their names exactly as on the Notices mailing label; past signatures have been invalidated for not meeting this criterion.

Vice president: Lee Lorch, York University, York, Ontario, Canada. A biography of Lee appeared in the MAA Monthly last year. In sum, a good deal of his life and energy has been devoted to progressive causes, both within and outside of the mathematical community.

AMS Council: Lenore Blum, Mills College, Oakland, Calif. Current AWM president.

AMS Council: Murray Gerstenhaber, University of Pennsylvania, Philadelphia, Pa. A member of CAFTES (Committee on Academic Freedom, Tenure, and Employment Security), he is running for Council to ensure that CAFTES is not weakened.

Nominating Committee: Mary Gray, American University, Washington, D.C. One of the founders of the AWM, and a past president of it. Currently AMS vice-president; also active in AAUP.

In addition, the National Association of Mathematicians (the organization for black mathematicians) will be nominating someone to run as a petition candidate for nominating committee.

WOMEN HONORED

Judith Sally of Northwestern University, and Marina Ratner of the University of California, Berkeley, have been awarded Sloan Fellowships for the coming academic year.

In October, 1976, a symposium was held at Caltech in honor of Olga Taussky Todd, who is professor of mathematics there.

CALL FOR INFORMATION ON BLIND REFEREEING

(The article below was sent to us by Everett Pitcher, Secretary of the American Mathematical Society. It is appearing in the June AMS NOTICES, and we are including it in this issue of the AWM Newsletter at his request.)

During the past two years, the Proceedings has followed the procedure of "blind refereeing". When a paper is submitted, the referee receives a copy that does not contain the name or the institution of the author and makes his recommendation to the editor in ignorance of these two pieces of information (except insofar as these may be inferred from internal evidence).

The Council of April 16, 1977 agreed that the procedure of blind refereeing should be continued. At the same time, members of the Council are not uniformly convinced that the procedure is necessary or desirable or efficacious. The procedure is an obvious nuisance to editors and to referees in accomplishing certain desirable ends, such as an interchange of information with an author to improve an acceptable paper, particularly in the instance of an inexperienced author. Unless there is good evidence that the procedure of blind refereeing has positive values, there may well be a tendency and pressures to discontinue it.

At the Council meeting there were second or third hand reports, somewhat vague, of persons who had thought the reception of their papers quite different, depending on whether the paper bore the name of a prestigious institution and whether it was refereed blind. This notice is an appeal for direct, detailed, and factual statements from authors showing the real usefulness of blind refereeing. It was stated that there are individuals who are convinced by experience of the value of the process. Accounts of the experience would be very useful.

Please observe that this is not an opinion poll. The members of the Council have their own opinions and the Editors of the Proceedings also have the opinions of authors and referees. More opinions are not needed. What is sought is such things as case studies of papers submitted with and without blind refereeing, with comments of editors and reports of referees, that may reveal a relevant aspect of the refereeing process.

The Council, which authorized this request, is aware of the reluctance of someone with a rejected paper or with evidence suggestive of improper discrimination in the handling of a paper to come forward. Thus information that is volunteered will be handled in strict confidence. Anonymous communications of factual material will be considered, though they may be of less value than communications that are identified and so can be accompanied with files of correspondence.

To participate, one may communicate no later than December 31, 1977 with the Secretary

Everett Pitcher, Secretary
American Mathematical Society
Lehigh University
Christmas-Saucon Hall #14
Bethlehem, Pa. 18015

or with the Past President

Professor Lipman Bers
Department of Mathematics
Columbia University
New York, N.Y. 10027

NAMES CHANGED

At the open executive committee meeting of the AWM on January 28, 1977, the following resolution was unanimously adopted:

Resolved: that the present practice of the Mathematical Association of America of presenting, in official communications of the MAA, the names of female mathematicians in a different format from that used for male mathematicians (namely, the practice of using the first names of females but only the initials of males when listing, e.g., the members of MAA committees) is an instance of officially sanctioned sexism and ought to be discontinued immediately.

Mary B. Williams, a member of the Board of Governors of the MAA, officially informed the MAA of this AWM resolution. Henry Alder, MAA president, responded that "The MAA will henceforth list all names with full first names and middle initials as practiced by most or all other mathematical organizations and as listed in the Combined Membership List."

MAA VISITING LECTURERS

by Mary B. Williams, University of Delaware
Member, MAA Committee on Visiting Lecturers and Consultants

Those members of the AWM who would like to increase their students' exposure to women mathematicians should consider having their departments apply for the MAA Visiting Lecturer. (There are several women on the panel of lecturers.) Each year the MAA sends every mathematics department chairman a brochure describing the Visiting Lecturer Program, so your department should have the necessary information.

A brief description (from the brochure) of the program follows:

"MAA Visiting Lecturers are prepared not only to give formal lectures, but also to confer with students and faculty, singly and in groups. They will be glad to advise students on opportunities for graduate study and employment, to discuss teaching problems and curricular matters with members of the staff, and to throw what light they can on practices in comparable institutions. In short, they will cooperate with the department in all ways possible to further the aims of the mathematics program...."

"The Visiting Lecturer Program and Consultants Bureau are available to public and private colleges in the United States and Canada, including community colleges, two and four-year undergraduate colleges, and all colleges and universities which do not offer doctoral programs in mathematics."

Lecturing visits are funded by the MAA. The institutions visited are urged to make a contribution to the Visiting Lecturers Fund, but the fact that an institution cannot contribute a significant amount should not deter it from applying for a lecturer.

NSF STATISTICS

The following are taken from the January, 1977 NSF report: Women and Minorities in Science and Engineering, 77-304. The complete report is available for \$0.75 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

In 1974 there were 60,200 mathematical scientists - 45,200 male, 15,000 female. In that year there were 125,000 computer specialists - 101,000 male, 24,000 female. Few of these women had doctorates. The 1973 figures are: 1,000 female doctoral mathematicians, 100 female doctoral computer scientists:

In 1974, only 7,000 of the 15,000 female mathematicians were employed. Women computer scientists did better: 21,000 employed that year (out of 24,000). Doctoral degrees made things better. In 1973, 800 female doctoral mathematicians were employed (out of 1,000 - a jobless rate of 20%). Virtually all of the female computer specialists that year were employed.

The report does not say how much of the employment is out of the field or part-time. It notes, however, that taking all of science and engineering together, about 7% of the doctoral women were employed outside science in 1973 (compared to 5% of the men); and 16% of the employed doctoral women were working part time (2% for the men).

In 1973, .9% of male doctoral scientists and engineers were unemployed; the figure for women is 3.9%. And in 1974, while women were almost 40% of the employed labor force, they were only about 6% of the employed scientists and engineers.

In 1973 the median annual salary of doctoral scientists and engineers was \$20,900; for women doctoral scientists and engineers it was \$17,600. But the starting salaries in mathematics in the period from 1973 to 1976 were about equal. The biggest difference was 1974-75 when the average monthly starting salary for men was \$924 per month; for women, \$906 per month.

In the period from 1955-1973, about 1/3 of the bachelor's degrees in the mathematical sciences went to women, as did about 12% of the PhD's. And a study of people who were high school juniors in 1960 shows that by 1971 .08 of the women were working in science and engineering, compared to 5.5% of the men.

From the conclusion of the report: "The data presented indicate that there has been an underutilization of women in the sciences and engineering... those women who did prepare for and enter S/E professions were more likely than their male counterparts to find themselves working in the academic sector of that field's labor force or in the lower levels of the profession."

(Thanks to Truman Botts of the CBMS for drawing our attention to this NSF report.)

EARNED DEGREES IN THE MATHEMATICAL SCIENCES FOR 1975

Newsletter, Conference Board of the Mathematical Sciences
Jan.-Feb. 1977, Vol. 12 #1.

The 29 November 1976 issue of the Chronical of Higher Education presents (page 8) a tabulation of numbers of bachelor's, master's and doctor's degrees awarded to men and women in 1975 in the various academic fields, the source of the data being the serial publication Earned Degrees Conferred 1974-75 released by the National Center for Education Statistics earlier in the fall. Extracts of particular interest for the mathematical sciences are tabulated below.

| | Bachelor's <u>Men</u> | Degrees <u>Women</u> | Master's <u>Men</u> | Degrees <u>Women</u> | Doctor's <u>Men</u> | Degrees <u>Women</u> |
|--------------------------------|--------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|
| Computer, Information Sciences | 4,083 | 956 | 1,961 | 338 | 199 | 14 |
| Mathematics, general | 10,123 | 7,488 | 2,469 | 1,292 | 690 | 91 |
| Mathematics, applied | 355 | 134 | 87 | 23 | 32 | 3 |
| Mathematics, other | 23 | 10 | 14 | 4 | 1 | - |
| Mathematics Education | 818 | 1,121 | 372 | 388 | 50 | 14 |
| Operations Research | 267 | 12 | 453 | 36 | 71 | 2 |
| Statistics | 145 | 68 | 340 | 109 | 142 | 16 |
| Total | 15,814 | 9,789 | 5,696 | 2,190 | 1,185 | 140 |
| Total, All Disciplines | 508,424 | 423,239 | 162,115 | 113,536 | 26,819 | 7,267 |

*Newsletter, Conference Board of the Mathematical Sciences, Jan.-Feb. 1977, Vol. 12 #1.

Help Wanted: Projects and Directors

The AWM needs your ideas and time to initiate and carry out programs in new areas. And you may need the AWM to appeal on your behalf to the Sources of Money.

As announced in the last Newsletter, the AWM is entering the grants race. Proposals have already been submitted for funding of the Speakers' Bureau and distribution of the careers pamphlet written by Judy Roitman. These two projects are underway on a small scale and our proposals have been very specific about the expansion plans. In contrast, the envisioned project on the history of women in mathematics will depend on the background and interests of the researchers. Other projects are possible; the published list was limited by the imaginations of those of us responsible for it. We need help writing attractive, detailed proposals, and directing the projects.

If there is a project related to mathematics which you would like to undertake, please let us know. Since foundations generally do not award money directly to individuals, the AWM could serve as the non-profit institution which formally applies for the grant. We will help you identify possible sources of funding, provide some secretarial support for the application process, and lend the AWM's name for ideas approved by the Executive Committee. While the budget should include all major expenses, no "indirect costs" will be assessed. Remember that salary support is often available for the principal investigator(s).

We also welcome volunteers with experience to help with the drafting of proposals, and suggestions of which foundations might be sympathetic.

Send your ideas to

Ann Stehney
Treasurer-at-the-moment
and grant application clearinghouse

OF POSSIBLE INTEREST

Want to be an astronaut? Apply to NASA, Washington, D.C. 20546, by June 30. A B.A. or higher degree in mathematics is one way to meet the educational requirement, and you'd better be in good physical shape.

Want a job in Southern Connecticut? ICSW (Information and Counseling Service for Women) is a non-profit organization for highly skilled women in non-traditional areas. Their address is 301 Crown Street, P.O. Box 5557, New Haven, Conn. 06520. Phone: 436-8242.

The NSF's Office of Science and Society needs reviewers and consultants. Their programs are: public understanding of science; ethics and values in science and technology; and science for citizens. If you're interested, write to the Office of Science and Society, NSF, 1800 G St. N.W., Room W-664, Washington, D.C. 20550

Washington State University, Pullman, has an NSF-funded program called "mathematical career reentry for women." Designed for women with some graduate education in mathematics, the program prepares them for industry and government jobs in mathematics. The program lasts ten months. They also have a program, jointly with Clemson University, called service oriented options, which allows their Ph.D. students to concentrate and intern in applied mathematics; the internships stress modelling and communication with non-mathematicians.

Black Careers Magazine is designed for black high school students, their counsellors, and teachers. Its address is P.O. Box 8214, 40th St., Philadelphia, Pa. 19101.

New Victoria Publishers, Inc., 7 Bank Street, Lebanon, N.H. 03766, is following up their successful Sonya Kovalevsky t-shirt with one of Emmy Noether. The sizes are men's sizes S, M, and L; the t-shirts are Hanes 100% cotton, and the colors are blue and yellow. Please do not address requests for these shirts from the feminist collective by prefacing your letter: gentlemen.

Cryptologia is a new journal of cryptology. They are soliciting readers and writers, and would be eager for an article on women (or a woman) in cryptology. Write to Brian J. Winkel, Math Department, Albion College, Albion, Mich. 49224.

MAILINGS

If you're organizing a local AWM meeting or have some other AWM mailing you want to send out, we'll supply you with address lists organized by state and/or zip code intervals.

We don't give out mailing lists for any other purpose, such as e.g. employers wanting lists of women mathematicians.

EDITOR CHANGE

Starting with the fall of 1977, the editor of the newsletter will be Ann Leggett, Math Department, University of Texas, Austin, Texas 78712. All correspondence about copy, and all articles are to be sent to her. The Wellesley office will continue to do the job ads, keep track of address changes, etc. So all job ads, checks for job ads, membership forms and checks, address changes, etc. are to be sent there (AWM, c/o Wellesley College, Wellesley, Mass. 02181).

JOBS

The vacancies listed below appear in alphabetical order in an alphabetical listing of states. EO/AA means Equal Opportunity, Affirmative Action Employer.

University of Alabama, Dept. of Math has three positions open for Sept. '77. (1) Prof or Asso. Prof. with strong research and teaching qualifications, area open; can be considered for chairmanship in '78. (2) Assist. Prof with Ph.D., research and teaching potential, preferably in either ODE/PDE/Applied Analysis or in Elem Math/Math Ed. (3) Visiting Prof for 1977-78. Salary and fringe benefits competitive. Reply: Dr. A.C. Segal, Chairman, University of Alabama, Birmingham, Alabama 35294. EO/AA

California State Univ., Chico, Visiting Asso. or Full Prof. one semester or year; \$17,900-\$26,000 yr.; \$8,950-\$13,000/semester. Fall sem. Aug. 23, 1977 - Dec. 16, 1977; Spring sem. Jan. 23, 1978 - May 19, 1978. Teaching duties will probably include teaching one lower division course, one upper division and possibly a seminar for faculty and advanced students. Phone or write: Jimmie N. Jones, Chairman, Dept. of Math., California State Univ., Chico; Chico, CA 95929, Phone (916) 895-6111. EO/AA

California State Univ, Chico, Dept. of Math, Asst. Prof to fill temp., full-time position for academic year '77-'78, Aug. 23 - May 26. Ph.D and at least one year full-time experience in teaching at undergrad level preferred. M.A. or M.S. will be considered if experience or training makes them competitive with Ph.D. applicant. 12-unit teaching load: Intermediate Algebra, Trigonometry, Elem. Statistics, Calculus for non-science majors and Mathematics for the Elem. School teacher. Salary: \$14,000-\$15,000, May 15 deadline. Send resume or phone Jimmie N. Jones, Chairman, Dept. of Math, California State Univ., Chico; Chico, CA 95929, Phone (916) 895-6111. EO/AA

Indian Valley Colleges, President, min. qualifications: valid Calif. adm. credential authorizing service in a community college as a president, Masters degree, Ph.D. preferred, Adm. experience, not necessarily full-time, preferably in a community college. Salary estimate: \$35,000 or more. May 1 deadline for applicants. Call or write Personnel Office, Marin Community College District, Kentfield, CA 94904 EO/AA

Teledyne Systems Company (Aerospace/Electronic Co.), Programmers, should have experience in Real Time problem solutions for airborne type applications; assembly language in handling Input/Output such as Digital to Analog Converters; design, coding, validation, etc. in cross assemblers, cross compilers, emulators, translators for airborne mini computers; knowledge of hardware, analog to digital, discrete circuitry, logic, etc. Contact: Carolyn Stone, Director, Personnel Administration, Teledyne Systems Company, 19601 Nordhoff St., Northridge, CA 91324, Tel (213)886-2211, ext. 2468. EO/AA

California State College, Stanislaus, Academic Dean for Credentials and Graduate Programs, Salary \$28,332-\$34,260. Reports to the VP for Academic Affairs; coordinates credential programs in multiple subjects, single subject, adm services, school counseling, special ed., learning handicapped, speech, school psychology, as well as waiver programs in liberal studies and single subject academic areas; supervises the credentials office, fulfills other duties as assigned. Ph.D plus 5 years of univ or college teaching; proven adm. experience, etc. Send vitas and confidential letters to Chair, Search Committee for Academic Dean for Credentials and Graduate Programs, Office of the Vice President for Academic Affairs, California State College, Stanislaus, Turlock CA 95380. EO/AA

University of Delaware, two faculty positions in electrical engineering (digital system), Ph.D with emphasis in computer architecture and systems in switching theory. Duties: undergrad and graduate teaching, participation in current research programs and development of new programs. Available Fall 1977. Send resume to Dr. Peter J. Warter, Chairperson, Dept of Electrical Engineering, University of Delaware, Newark, DE 19711. EO/AA

Rollins College, Fla., Associate Registrar, June 1, 1977 with the possibility of promotion to Registrar June 1, 1978. Qualifications: Master's with prior experience as registrar or asst. registrar and experience with computerized student info. system. Ability and interest in orking with students and faculty. Responsibilities: registration, schedule preparation, record keeping and enrollment projections. Deadline April 22. Send resume to: Dr. Dwight L. Ling, Provost, Rollins College, Winter Park, Fla. 32789. EO/AA

Northeastern Illinois University, Dept. of Information Science, two faculty positions (1) Instructor (2) Asst. Prof. Salary commensurate with background and experience. Master's degree in Computer Science or related area minimum ed. requirement. Must be able and willing to teach elem. courses in Data Processing, as well as more advanced courses in compiler theory, systems programming, data base structure and design, information systems design, and operating systems theory, and be able to make substantial contributions toward the development of a graduate program in Information Science. Letters of application, accompanied by detailed resumes should be sent to Prof. William S. Barnes, Chairperson, Dept. of Information Science, Northeastern Illinois University, 5500 North St. Louis Ave. Chicago, Illinois 60625. EO/AA

Indiana University-Purdue University, Computer Technology Dept., 2 faculty positions (1) new-permanent (2) one-year leave replacement. Position one requires Ph.D at or near completion. DP-related business and/or teaching experience highly desirable. Areas of interest: MIS, DBMS, systems analysis, data communications, business systems; other related areas considered. Position two requires Ph.D. or Masters and teaching experience. Should be able to teach Intro. to DP and any two of FORTRAN, BASIC, RPG, COBOL. Responsibility: full-time teaching and research in the area of Computer and Information Systems with Purdue University with rank of Asst. Prof. Salary commensurate with qualifications. Reply to Dr. John T. Gorgone, Asso. Prof. and Chairman, Computer Technology Dept., Indiana University Purdue University at Fort Wayne, 2101 Coliseum Boulevard East, Fort Wayne, Indiana 46805. EO/AA

Ball State University, Dept of Math, two faculty positions (1) Elem. Math Ed. Ph.D in math ed, plus some experience working with elem school children. (2) Math Sciences Ph.D in some brach of math sciences. Teaching experience at college or university level desirable. Rank and salary based on education and experience. Send resume and three letters of recommendation before May 30, 1977 to Duane E. Deal, Chairman, Dept of Mathematical Science, Ball State University, Muncie, IN 47306. EO/AA

Kansas State University, Manhattan, Kansas. Visiting position, Spring semester 1977-78. (Jan. 15-May 31, 1978). Salary up to \$7,000 for semester. 8-9 hour teaching load. Closing date Aug. 1, 1977. John E. Maxfield, Head, Department of Mathematics, Kansas State University, Manhattan, KS 66506.

Kansas State University, Manhattan, Kansas. Visiting position, 1977. (Aug.20- May 31). Salary, approx. \$11,070. Harmonic Analysis. Eight hour teaching load. Closing date May 31, 1977. John E. Maxfield, Head, Dept of Mathematics, Kansas State University, Manhattan, KS 66506.

Concordia College, Dept of Math, Instructor or Asst. Prof. Ph.D. required. Math ed. background with strong math component required. Some computer science and programming preferred, secondary school teaching experience and sympathy with the aims and objective of a church related liberal arts college. Teach 3 courses per semester, serve as dept representative on the Science Teaching Advisory Committee, serve as contact person with local schools and teachers. Salary commensurate with ed and experience. Send resume and credentials by June 3 to Gerald V. Rowell, Chairman, Depat of Math and Computer Science, Concordia College, Moorehead, MN 56560. EO/AA

Concordia College, Assist. Director of Computer Services/Assist. Prof or Instructor of Math and Computer Science (Academic rank dependent on qualifications). Ph.D. preferred. Background in statistics numerical analysis, and academic computer applications. Teach 3 courses per year, courses include numerical analysis and assembler, serve as a programmer and programming consultant, lead workshops, administer the academic time-sharing facilities, act as liaison for two neighboring institutions. Salary commensurate with qualifications. Send three letters of recommendation and resume to Dr. David M. Gring, Assistant Academic Dean, Concordia College, Moorhead, MN 56560. EO/AA

University of Montana, Dept. of Math, Visiting Asst. Prof, one year. Ph.D required, specialties in probability, partial differential equations or operations research preferred. Duties include teaching 6-10 credit hrs of math courses per quarter. Contact William R. Ballard, Chairman, Univ. of Montana, Missoula, MT 59801. EO/AA

Ramapo College, Dept. of Math., Asst. Prof. A.B.D. or Ph.D in mathematics. Two years college teaching experience required. Some knowledge of personalized instruction preferred. Teach core undergraduate courses including computer courses and assist in development of college-wide remedial program. Ten month salaries, \$13,157-\$14,473. Submit resumes by May 9 to Affirmative Action Office, 505 Ramapo Valley Road, Mahwah, N.J. 07430

Douglass College, Instructor or lecturer one-year full time. Should be capable of teaching remedial mathematics, college algebra and trigonometry, freshman calculus. Contact Joanne Elliott, Chairperson Dept. of Math, Douglass College, New Brunswick, NJ 08903 EO/AA

Plymouth State College, Asst. Prof., to teach probability and statistics, applied math, and non-major math courses; Ph.D. and teaching exp. preferred. Send resumes to Math Dept Search Committee, Plymouth State College, Plymouth, NH 03264. Application deadline May 16, 1977. \$11,00-\$17,500. EO/AA

The Junior College of Albany, Computer Science, part-time faculty position. Teach one course in computer science each semester, fall and spring, with summer employment possible at a separate stipend. Salary is \$1050 per course or \$2100 per year. Master's with emphasis in computer science. College teaching experience and experience in business applications of computers desirable. Teach "Intro to Computer Science" which is the first of a number of computer science courses planned. Deadline for application June 1, 1977. Send vitae and letters to Prof. Donald H. Andersen, Math/Science Division, 140 New Scotland Ave., Albany, NY 12208. EO/AA

State University of New York at Buffalo, Dept. of Math, two asst. professorships (2 yr) and two visiting asst. professorships (1 yr). High research potential demanded, any field of pure or applied math. Write giving vita and references to Dr. Richard E. Vesley, Acting Chairman, Dept of Math, SUNY/Buffalo, 4246 Ridge Lea Rd., Amherst, NY 14226. EO/AA

State University College, Fredonia, NY, Dept of Math, Instructor or Asst. Prof with 12-hr teaching load. Knowledge of beginning computer courses desirable. Salary negotiable with generous fringe benefits. Send resume to Dr. Frank R. Olson, Chairperson, Dept. of Math., SUNY College, Fredonia, N.Y. 14063. EO/AA

University of Rochester, Dept. of Math., Asst. Prof., tenure-track position with initial two or three year term. Ph.D. and demonstrated ability, potential for teaching and research. Teaching load is 6/hr per semester. Salary negotiable. Send resume and letters of recommendation to Prof. Charles E. Watts, Chairman, Dept. of Mathematics, University of Rochester, Rochester, NY 14627. EO/AA

Oberlin College, Dept of Math, Teaching position, full-time one-year noncontinuing faculty position as instructor/asst. prof of math. 5 course load/year, finite math, calculus, linear algebra, multivariable calculus, and differential equations. Interested in applicants with expertise in computer science, supervise student independent reading and participate in dept's senior honors program. Completed or nearly completed Ph.D. required. Submit vita to Samuel Goldberg, Chairman, Dept. of Math, Oberlin College, Oberlin, Ohio 44074. Salary range \$12,000-\$14,500. EO/AA

Oregon State University, Dept. of Computer Science, Asst. Prof., one year. Duties include participation in under-grad and grad teaching, research, and graduate curriculum development. Candidates should be versed in areas of operating systems; data base management; software engineering. June 1 deadline for applications. Send resume to Curtis R. Cook, Chairman, Faculty Search Committee, Dept. of Computer Science, Oregon State University, Corvallis, OR 97331. EO/AA

Lehigh University, Research Adm., VP for Research, perform adm. research services as directed by the VP for Research: review, initiate and implement procedures for adm., financial and project control; develop and monitor budgets; prepare reports and brochures, assist faculty in grant/contract adm. Bachelor's degree or equivalent combination of ed. or experience. Two years adm experience in a research lab or university. Salary commensurate with ed and experience. Sent Resume to Thomas Dinsmore, Office of the VP for Research, Whitaker Lab #5, Lehigh University, Bethlehem, PA 18015. EO/AA

Bucknell University, Freas-Rooke Computing Center, two programmer/analyst positions, one in Administrative Systems area, one in Academic Services area. Requirements for both bachelors degree with some formal training in computer science. Experience with timesharing and batch systems, especially the CP-V operating system on the Honeywell/Xerox Sigma or 560 series computers preferred. In Adm. area exp. in COBOL and Fortran IV required. In academic area, knowledge of Fortran IV required. Send resumes to Dr. B.D. Gay, Freas-Rooke Computer Center, Bucknell University, Lewisburg, PA 17837. EO/AA

Kutztown State College, Dept of Math., teaching position in Computer Sciences/Mathematics, Sept 1, 1977 to May 31, 1978. Ph.D in Computer Science (or related area) and/or industrial experience strongly preferred; consideration also given to person with engineering background. Salary dependent upon academic qualifications and experience. Send vita and 3 references by May 16 to Edward W. Evans, Chairman, Math Dept., Kutztown State College, Kutztown, PA 19530. EO/AA

Carnegie-Mellon University, Faculty Development Officer, will have responsibility for developing three types of programs: programs to improve instruction throughout an entire dept. of the Univ.; programs to help teaching assistants learn better instructional practices; and programs to help individual faculty members improve their instructional skills. This is a three year renewable appointment beginning in June or July, 1977. Send resume to Dr. Edwin Fenton, Director, Carnegie-Mellon Education Center, Carnegie-Mellon Univ., Pittsburgh, PA 15213. EO/AA

Slippery Rock State College, Penn., Dean, School of Natural Sciences & Math, provide leadership in developing and strengthening programs in the disciplines of biology, chemistry, geology, mathematics, and physics; assist in development of academic policy and criteria; provide direction and supervision in matters of budget, personnel and research. Qualifications: PhD in one of the school's disciplines; demonstrated leadership and administrative ability. Start Aug. 22, 1977. Salary: \$26,641 to \$34,993. Submit vita by May 15, 1977 to Louis Razzano, Chairman, Search Committee, Slippery Rock State College, Slippery Rock, PA 16057 EO/AA

Rhode Island College, Instructor or Asst. Prof of Math for 1977-78 year (two positions). Salary min. \$9,800 for Instructor, min \$12,000 for Asst. Prof. MA or MS required for Instructor, Ph.D. for Asst. Prof. Interested in individuals who have broad mathematics background and capable of teaching math courses for non-math majors which emphasize the nature and appreciation of math. Write: Dr. Arthur F. Smith, Chairman, Dept. of Math, Providence, RI 02908 EO/AA

Rhode Island College, Instructor of Math for Fall Semester, 1977. Temporary one semester only. Salary \$9,800-\$11,000 (rate for academic year). M.A. or M.S. required, deadline May 1. Write: Dr. Arthur F. Smith, Chairperson, Dept. of Math, Providence, RI 02908 EO/AA

ElPaso Community College, Division Chair, Div of Math, Science & Technology. 12-month position responsible for providing educational leadership in the supervision, planning, development, implementation and evaluation of the following academic and vocational-technical disciplines: biology, chemistry, math, physics, air conditioning, auto mechanics, construction management, and drafting. Also, make recommendations regarding the employment, advancement and retention of faculty in the division, develop the preliminary division budget, class schedule and assign instructors; initiate, review and recommend revisions of curricula and courses, supervise the development of course outlines and syllabi; and coordinate the review and selection of textbooks and supplementary materials. The Division Chair will teach a minimum of six units during the calendar year. Masters's required, preferable in technical-vocational education. Salary commensurate with educational background and experience. Submit resume by May 20 to Personnel Dept. ElPaso Community College, 6601 Dyer St., El Paso, TX 79904. EO/AA

ElPaso Community College, Dean for Community Services and Continuing Education, Master's plus experience in the design and adm of community-based instructional programs or an equivalent combination of training and experience. Knowledge of current trends and emerging interests in the field of continuing ed is essential. Salary commensurate with the applicant's educational background and experience. Position is available immediately. Deadline May 20, 1977. Send resume, letters of recommendation and supporting credentials to Personnel Dept. El Paso Community College, 6601 Dyer St., El Paso, TX 79904.

ASSOCIATION FOR WOMEN IN MATHEMATICS
MEMBERSHIP APPLICATION

Name and
Address _____

Institutional affiliation, if any _____

Position _____

Make checks
payable to ASSOCIATION FOR WOMEN IN MATHEMATICS
and mail to Association for Women in Mathematics
c/o Department of Mathematics
Wellesley College
Wellesley, MA 02181

The AWM membership year is October 1 to
October 1. Dues may be pre-paid at the
current rate for up to 2 years.

Dues for October 1, 1976, to October 1, 1977:

- _____ Individual, \$8.00.
- _____ Family, \$10,000 (one newsletter sub-
scription).
- _____ Retired, student or unemployed \$3.00.

- _____ Contributing Membership (\$15.00 or
more per year)

- _____ Institutional, \$20.00 (includes two
free advertisements in Newsletter).

Contributions are welcome and tax deductible.

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May-June 1977