FILE

ASSOCIATION FOR WOMEN IN MATHEMATICS

NEWSLETTER

volume 5, number 1 January 1975

REPORT FROM THE EDITOR

The affirmative action backlash has become a matter of serious concern. HEW has recently issued some "clarifications" of its October 1972 guidelines, to the accompaniment of lots of fanfare regarding the preservation of quality in higher education. The new guidelines themselves are not bad--they give lots of examples where an obviously unqualified woman or minority group member is not to be hired in preference to a qualified white man. However, as Washington Post columnist William Raspberry put it: no one "has ever advocated the preferential hiring of idiots. The problem is how to choose among competents." Here the new guidelines fail to address the issue.

There are essentially two concerns. One is the identification of the hiring of women and minorities with the lowering of quality. I do not accept this assumption. The second is that the new guidelines reemphasize that it is up to the colleges and universities to determine who is best qualified. This would imply that once efforts are made to find women and minority candidates, no effort need be made to hire. Colleges and universities are to go ahead in their same way determining who is "best qualified" where best qualified has in the past been based on all sorts of stereotyped assumptions regarding, e.g., the ability of women to do mathematics, the likelihood of their dropping out after a few years. In particular, if hiring is based on how "good" a candidate's degree-granting institution is, there will be an adverse effect on women, who have been underrepresented in such institutions. There are two safeguards.

First, qualifications must be shown to be job-related. On a statistical basis the"quality" of the Ph.D. granting institution can undoubtedly be shown to be a predictor of success as a mathematician; but then so can being a white male. Theoretically, then, where a candidate got a degree should not necessarily determine whether she or he is hired; the job-related notion is a very thorny issue. For example, it is difficult to claim that possession of a Ph.D. is a job-related qualification for teaching in a school without a graduate program. Where HEW errs is in assuming that there are objective qualifications for faculty positions which can be written down and used to judge the candidates, once we have expanded the pool by various affirmative action efforts, and moreover that the standards will be applied in a nondiscriminatory fashion. They have not in the past. One more remark before we leave the issue of qualifications: one qualification for any teaching job is the ability to deal effectively with students, to help them realize their potential. I contend that anyone who feels that women, or blacks, do not make good mathematicians, or that women should concentrate on raising families, is not qualified for a faculty position. I do not hold that only women relate well to women students, nor blacks to blacks, but I do believe that hiring committees should be as concerned about qualifications along these lines as the more traditional ones.

Second, if a finding of discrimination is made, then there must be preferential hiring, although how this is to be accomplished is not specified--does it mean hiring the unqualified or what?

Does it mean that if somehow in the maze of faculty hiring one is actually able to prove discrimination then one must go out and hire the first woman to come along? Does it mean that one must then set aside specific positions for women and blacks? Some institutions have done this in the past, but the clarified guidelines specifically prohibit such a practice if there has not been a finding of discrimination. The best we can hope for is that if an institution has been found to discriminate, it will in the future be scrutinized more closely.

To show the difficulty in proving discrimination, consider the University of California at Berkeley situation. Funds have been released to them in spite of their failure to come up with a really satisfactory affirmative action plan. The League of Associated Women has specifically requested that the math department's hiring be included in HEW's ongoing investigation. Later in the newsletter is a letter describing last year's fiasco.

We have some evidence of backlash in the AMS, witness MacLane's campaign literature in the recent Council election and the failure of the Council to pass an anti-discrimination resolution. Speaking of the Council--it meets in the Diplomat Room of the Shoreham in Washington at 2:00 p.m. on 22 January. It is open to all AMS members and I urge you to come. One issue which will be on the agenda is the opening of election to the office of president and Board of Trustees to petition candidates; at the moment these are positions for which there is on the ballot always only one candidate. To paraphrase Goldwater, we get neither a choice nor an echo. There is plenty of precedent; the most recently elected presidents of AAUP and of the American Chemical Society were petition candidates. Moreover, most organizations at least have two officially nominated candidates (e.g., AAUP, AAAS). Each of the last three years petition candidates backed by AWM have been elected AMS Council members-at-large (the most recent winner is Judy Green).

To continue with the issue of backlash: The House Special Subcommittee on Education, chaired by Congressman O'Hara of Michigan, may be introducing some legislation on affirmative action. Some of the chairman's recent public statements have given women's groups cause for concern so Committee W of AAUP has arranged a meeting with him for early January with the hope of getting him to back vigorous enforcement of existing legislation and not to gut it by bringing in "backlash" bills. His main interest at the moment is Federally mandated internal grievance procedures to handle alleged discrimination in colleges and universities. Although he will remain as chairman, there will be a reshuffling of the committee as a result of the fall elections, so if your Congressman ends up on it, please write expressing your concerns.

This is the last issue I shall edit; in the spring and summer I shall be in England. If you are passing through London, give me a call at 262- 32. My address will be 26 Westbourne Terrace, London W2. I hope to see many of you at the AMS-MAA-AWM meeting in Washington January 22-27.

Mary Gray

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Keep after - Cover on Jones

THE ISSUE OF AGE

Some of you will recall that AWM raised the issue of age discrimination when the announcement for travel grants to the Vancouver ICM said that 60 percent would go to mathematicians under 35. The National Research Council refused to change (a suggestion was that 60 percent go to those who had held a Ph.D. 5 years or less), and at one point said that not very many

over 35 with Ph.D.'s under 5 years old had applied anyway (self-fulfilling prophecy which they refused to see as a reason for changing the rules, not a reason against). The AAAS passed a resolution against age requirements in grants, which the AMS endorsed at the October Council meeting.

We now have a breakdown on the ICM travel grants. There were 810 applicants, 9 percent of whom were women. Of the 77 grants made and used, 30 went to invited speakers (13 younger men, 16 older men, 1 older woman) and 47 to others (42 younger men and 5 younger women). Younger is defined to be ≤ 35.

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Annual Meeting, AWM, January 24, 1975
Washington D.C.
Shoreham Hotel, 10 a.m.

Panel discussion: Action Programs

Lenore Blum (Mills College), An Action Program in Progress

Maita Levine (Univ of Cincinnati), Reasons Qualified Women Avoid Mathematics: The Role of the Educator in Developing Mathematical Confidence and Interest

Edith H. Luchins (Rensselaer), Why Are There Not More Women Mathematicians?

Carolyn T. MacDonald (UMKC), Metamorphosis of Women in Mathematics

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IN MEMORIAM

Grace Lonergan Lorch d. October 1974

Ms Lorch was the focus of national attention in 1957 after she rescued a black girl from an angry crowd protesting the integration of public schools in Little Rock, Arkansas. Gov. Orville Faubus had defied Federal court orders to integrate Arkansas public schools and had called up the National Guard to prevent black students from entering Central High School. On the opening day of classes one of the black students was surrounded at a bus stop by a mob which threatened and pushed her, but Ms Lorch protected the girl from the crowd and escorted her home.

Although she received many letters of support from people across the country and was the subject of praise in columns and editorials, she was also criticized and harassed by others. She was called before a Senate subcommittee, headed by Sen. James Eastland (D-Miss), which was investigating "possible" Communist activity in the South.

Ms Lorch was a teacher at the Charles Taylor School in Dorchester, Mass., from 1938-1943. She was the first woman teacher to challenge a School Committee regulation, dating to the 1880's, which required a woman teacher to resign upon marriage. When she married in December 1943, her husband was an Army private, but the School Committee demanded her immediate resignation and quickly dismissed her when she refused. When she was dismissed, the wartime shortage of teachers made it impossible to hire a replacement. Ms Lorch, unwilling to see her second-grade pupils suffer, continued to teach them until the end of the school year while being paid at the substitute teacher rate, approximately a third of the salary she had been receiving for teaching the very same children before her marriage.

Ms Lorch was a past president of the Boston Teachers Union and a past secretary of the Women's Trade Union League. Her husband, Lee Lorch of York University, is an AWM member.

Florence Black d. September 1974

Ms Black taught for many years before her 1960 retirement at the University of Kansas. Generations were introduced to calculus by her. Although she retired before I came to Kansas as a graduate student, she and a colleague, Wealthy Babcock, were legends on campus--always on the front row for KU basketball games.

Ms Babcock has since also retired; they were both terrific teachers (and taught 50 percent more than their male colleagues). The KU math library was named for Ms Babcock, with whom I at least always identified the library; I hope that there will be some recognition of Ms Black's contributions.

A personal sidelight--I received my Ph.D. from Kansas in 1964; the last woman before that to get a Ph.D. in math from Kansas was Ms Babcock 40 years before. There are currently no women on the Kansas math faculty.

Mary Gray

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UC BERKELEY

Reproduced below is a letter of 18 April 1974 from Moe Hirsch, professor of mathematics, to the faculty of his department regarding recruiting and affirmative action.

Gentlemen:

Because of the clash between our traditional hiring procedures and the new requirements of Affirmative Action, our recruitment program is in serious trouble: offers already made are blocked by the Dean; a formal investigation of our procedures has been requested; more than one person has talked of legal action against our department. I think it's high time we all knew what is happening and did something about it. I make some proposals at the end of this letter.

It is a plain fact that for the past 20 years (probably longer) no woman or American-born minority person has come to Berkeley to take a regular position in the Math. Department. Our hiring procedures have not changed much in that time, but society has changed greatly. New political forces are exerting strong pressures for Affirmative Action. These have been transmitted through the federal government to the University, and then through the Dean's office to the Math. Department. They are now directly affecting our recruiting.

In January we made written offers of Assistant Professorships to two white males, including the usual statement that only the Dean can make an official offer. One man subsequently resigned his current position.

The Dean, however, blocked approval of these offers and directed us to produce more evidence of Affirmative Action. An attempt was made to get new applications for these positions, especially from women and minority mathematicians.

On March 21, Committee XY(on which I serve)met to consider the new applications. As expected, the offers to ___ and ___ were reconfirmed.

At the time of this meeting I felt strongly, as did many of you, that we were going through a charade in order that the University could produce evidence--on paper--of Affirmative Action. What is a charade to some, however, may be a serious infringement of the rights of others. In hindsight I believe that the whole procedure, from the solicitation of new applications to the consideration of individuals on March 21, contained very serious improprieties. Some of these are highlighted in the following case.

One woman mathematician has objected strongly to the way in which she and others were considered for these positions: she had not been asked to apply, although Committee XY was told the opposite; her file was seriously incomplete, containing no recent evaluation of her work; Committee members did not see all of her existing file. She has sent a letter to Dean Moore (with copies to XY members) about these and other complaints, charging that her civil rights have been violated and asking for an investigation by an outside agency.

Although more incidents could be adduced, this one sufficiently indicates that our efforts at Affirmative Action are counterproductive. The offers to ___ and ___ are still held up and we are no closer to making Affirmative Action appointments.

There are two different causes for this state of affairs. One is that too few of us want any Affirmative Action; many, in fact, consider it bad policy ("You mean we should hire inferior mathematicians?").

A second cause is the Dean's insistence that we recruit only within narrowly specified fields. This virtually rules out the possibility of hiring women or minority mathematicians since there are relatively very few of them.

We cannot avoid the issue of Affirmative Action; we are legally bound to it. Nor can we just pay lip service to it; that is essentially what we did in this year's recruiting, and it is not enough. Personally I think we sorely need some real Affirmative Action--not just "papering the files" but something to change the all-male, all-white (except for a few foreign-born Orientals) character of our Department.

I propose that (1) the Department commit itself, as formally as possible, to appointing 3 women or minority mathematicians to regular positions before December 31; and (2) these appointments be made before any others, except that (3) the Dean should go ahead with the ___ and ___ appointments. There are many excellent appointments we could make to fulfill (1) provided we don't restrict the field too narrowly. (Such restriction is a very recent phenomenon, whose only purpose is to give the University a defense against Affirmative Action law suits.) Our original attempt at Affirmative Action in connection with ___ and ___ is now hopelessly compromised; I think (1) and (2) would be more effective and certainly more honest.

Editor's note: (3) has been done.

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LEGAL REMEDIES

We have had many requests for information on how to file complaints, etc. See October 1973 issue of this newsletter for a summary of relevant legislation. See also "A Guide to Federal Laws Prohibiting Sex Discrimination" available from Supt of Documents, Govt Printing Office, Washington D.C. 20402. An update on Title IX--revisions based on the solicited comments are to be forthcoming shortly. Unfortunately, the regulations are subject to Congressional review. Senator Bayh (D-Ind) got through an amendment to an unrelated bill which exempts from Title IX the Boy and Girl Scouts and other similar organizations, which could be dangerous if broadly interpreted. Meanwhile, remember that Title IX applies to students (now women graduate students have a legal basis for refusing to be the exclusive pourers at departmental teas). Remember also that the AMS has a Committe on Academic Freedom, Tenure and Employment Security to which you can take your complaints and that the Legal Aid Committee can make loans (or possibly grants) for legal costs in cases referred to them by the Academic Freedom committee. Contact Paul Mostert, Univ of Kansas.
Note, the publication mentioned above costs $1.40.

KNOWLEDGE
by Marion Cohen

They say that a little knowledge is a dangerous thing, the implication being that a lot of knowledge is safer,
But I'd say that anyone with a lot of knowledge you'd better pray for.
Yep, if a little knowledge is dangerous, a lot of knowledge is fatal,
And I envy the baby in the cradle.
Because the more you know, the more you know how much you don't know,
So that he who possesses much knowledge also possesses a shriveled up ego.
For instance, yesterday I was glancing through the American Math. Society's Bulletin,
And I felt about ready to pull it in,
Because one of the articles is entitled Branched and Folded Parametrizations of the Sphere, and another is Motion of Links in the 3-Sphere,
And the titles are what I leas' fear.
The articles themselves involve notions
Like generalized axes and stationary motions.
And there's this other article called A Degree for Nonacyclic Multiple-Valued Transformations,
And another called The Hadamard Three-Circles Theorem for Partial Differential Equations,
And yet another called Self-Orthogonal Latin Square's of all Orders $N \neq 2, 3, 6$,
And I feel like I've been hit by a ton of bricks.

True, I work on problems like Can one think of a free pseudo-order type map as a kind of inverse limit?
Still, if confronted with the author of The Subscript of K_n, Projective Dimension, and the Vanishing of lim(n), I'd feel a little timed.
And I'd hate to meet her in a dark alley, a cocktail party, a math seminar, or a job interview.
Wouldn't you?
And sure, I've written papers entitled The Range of Values of a Distribution at a Point and Binary Operations on Z^+.
But if tested on Dynamical Systems, Filtrations and Entropy, I'd get a D^+.
Likewise, the subject of "Continuous Differentiability of the Free Boundary for Weak Solutions of" the problem of Stefan,
I'd get an F in.

Now, if I were in a different kind of mood, I'd be writing all about how it's called a bulletin because it contains a lot of bull,
And that its articles were published because their authors have a lot of pull.
And if I were giddy enough, I might even add that it's also called a
b bulletin because its every contributor should be shot with a bullet--
But, in my present mood, I just can't seem to pull it.
These articles are honest and true and fine;
They don't seem to have any applications--but then, neither do mine.
And they pose problems and solve them, yet.
('Though in the reverse order, I bet.)
And they're so long, and I usually can't get past the first page--
And I'm supposed to be a math sage.
They always said that every field is so broad,
But I can't help but feel awed.

No matter how much I know, there's always so much left that I don't know,
And no matter how long I live, I won't know.
And this wouldn't be so bad, except that other people know.
That's the thing that bothers me so.
Yep, I don't really give a hoot about not knowing whether there's such a thing as people on other planets or life after death, or a god.
Those things make me curious, but not awed.
I don't mind any ignorance in which I have company.
What I mind is when someone else has the jump on me.
So that when Richard Homs, Bruce Scranton, and Joseph Ward know how to best approximate an operator in complex Hilbert space by compact operators, and I don't,
Or when Osvaldo Marrero will be able to tell whether or not a pseudo $(k,1,\lambda)$-design can be imbedded in a $(k,1,\lambda)$-design, and I won't,
Or when I notice that R.K. Brayton, Donald Coppersmith and A.J. Hoffman's article has a bibliography of twenty entries,
None of which are elementary,
In fact they're all by people I never heard of, and many have titles that don't even ring a bell,
Why, I feel as little as Tinker-bell.

Oh, philosophers are always so fond of contemplating how much there is to know,
And they seem to think that's a good thing, but I say not so.
For what's the point of so much knowledge if I can't know it?!
(I'm a frustrated philosopher, as wellas a frustrated poet.)
Yep, knowledge is the enemy of creativity -- at least for me.
I get more discouraged, the more I see.
I think, Gee, so much has been done already, what difference does it make what I do?
And have I ever written anything new?
What you don't know can hurt you, but it's less likely to than what you do know.
And I don't think high-school students should take Calculus and Differential Equations, like this guy Bruno.
Also, curiosity didn't kill the cat;
Satisfying the curiosity accomplished that.

So anyone who fancies that he has a quest for knowledge,
And decided to take English Lit. of the 17th century in college,
And writes a term paper on The Similarities Among the Works of Carson McCullers, William Saroyan, and J.D. Salinger,
Or signs up for Math Honors and comes on like Edward the Challenger,
And believes that the spice of life is variety,
And hopes to someday write articles for journals like The Bulletin of the American Math Society,
And especially all you graduating seniors who plan to go on for a Ph.D.,
Consider me.

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WOMEN - AND MATHEMATICS, PHYSICS AND TECHNOLOGY?
WOMEN - AND RESEARCH?
Part III

by Else Hoyrup, Mathematics Institute,
Copenhagen University

The attitude of grils toward arithmetic and mathematics.

Traditionally, many Danish girls also have a poor relationship with mathematics.[2] A study by the Social Research Institute

("Sex distinctions among school pupils") shows, however, that the particular difficulties girls experience with mathematics appear for the first time at puberty (more precisely, in the 8th and 9th classes), while earlier there are no differences between the attitudes or performance of boys and girls in regard to arithmetic and mathematics.

As mentioned earlier, the relatively few girls who enter the mathematics line in the gymnasium (or who study mathematics at a university) perform about as well as their male counterparts in mathematics according to teachers' testimony. (But a smaller proportion of the women become researchers--this fact will be considered in more detail in the last section of this article.) Still, at this point I cannot refrain from mentioning that there are male mathematics and physics teachers in the elementary schools and the gymnasium who think that girls are almost by definition unsuited for mathematics and physics, and who do what they can in their teaching to turn their prejudice into fact. There also are boys who become resentful when a girl turns out to be the best student in a math or physics class. And there are university lecturers who are more interested in the looks of their female students than in their ability in the subject.

As for arithmetic, which many girls are good at and enjoy, it is something which women often must use in their adult jobs: in shops, as bookkeepers, and elsewhere. Even though today there may be calculators available, still the importance of a sense for numbers has far from disappeared. (Perhaps it is more important than ever, in a time when "a computer can made as many mistakes in 2 seconds as 200 people could make in 20 years.")

The difference between the attitudes of most girls toward arithmetic and towards more abstract mathematics is partly due to the different degree of usefulness of these subjects in the usual women's occupations, and is partly because learning arithmetic requires the memorizing and routine application of rules, while mathematics depends on abstract and varied manipulation of concepts. The traditional upbringing of girls emphasizes that they should keep within the bounds of restrictive rules, and that <u>they have no use for abstract thinking</u> (!) (See section 5)

Furthermore, the (somewhat) more advanced mathematics is connected with physics and to some extent with technology in its capacity as a tool for these subjects. This phenomenon interacts with the different upbringing which boys and girls receive in which, for instance, their <u>spatial</u> sense is not trained to the same extent. And the spatial sense is important not only in physics and engineering but also in mathematics, especially in geometry.

Just how upbringing affects the development of spatial conception will be explored in the next section. Here we shall just mention in conclusion that especially during puberty, when girls are <u>becoming women, a</u> general retardation of the intellectual

[2]There are also a great many boys who have trouble with mathematics. This may cause the boys greater immediate psychological difficulties than the girls, since the boys, <u>because of their sex</u> (!), are expected to be capable in mathematics. But the girls who are led to give up easily may in the long run suffer more, since their chances for professional training will be restricted.

development of most girls takes place. (See section 6) It is just at this point when the school has traditionally introduced the new, intellectually-demanding subjects of physics and abstract mathematics. Arithmetic, on the other hand, is begun in the first grade--a time when girls generally adjust better to school than do boys, because the first school years are apparently better suited for the more politely brought-up girls than for more actively and experimentally brought-up boys. At the point when the children start to become adults, however, the demands of school change character, and now the boys' upbringing gives an advantage to those who have the chance to continue their education in the higher classes and the gymnasium, while the upbringing of the girls hinders them in most of their work except for the learning of languages.

In the coming years, as the new mathematical curriculum becomes compulsory throughout the public school system, it will be exciting to see whether having introduced mathematics (as opposed to only arithmetic) from the first grade will help avoid a negative attitude toward mathematics among girls. But changes in the school system will not by themselves be enough to reform the attitude of girls toward mathematics, since the attitude of the adult world toward the economic function of women will not change from one day to the next. Besides, it will take some years before the effects of changes in the schools are felt in the higher educational system, and then more years will pass before we can have, for example, many women engineers working in Denmark.

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LETTER

To the editor:

I would like to suggest to other AWM members a practice which I try to cultivate to help encourage bright young women to go into mathematics. I keep a lookout for newspaper articles or other announcements about high school girls who have done well in mathematics competitions, science fairs, etc. When I spot one, I write her a short note (usually care of her high school) congratulating her, urging her to continue in mathematics, and offering to answer any questions she might have about a career in mathematics. This doesn't take much effort and can make a difference, as witness the following quote from a letter I recently received from a young girl who was a high scorer in a local math competition two years ago and will be entering college next fall: "I have always loved mathematics, but it was only after receiving your letter that I began to consider mathematics more seriously, possibly as a career."

Martha K. Smith (Univ. of Texas)

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PUBLICATIONS OF INTEREST

The First Sex by Elizabeth Gould Davis. Originally appeared in hardcover in 1971, now reissued by Penguin in paperback ($1.95). The central theme is that the mythic origin of the human race was a golden age of gynocracy.

Precious Women by Dorothy Anne Liot Backer. Basic Books $10.95. Les precieuses were a group of noble Frenchwomen in the early 17th century banded together to fight the battle of the sexes under the guise of subtle conversation; they may have been the first women to join forces in consciousness of feminine powerlessness.

JOBS

University of Alabama, Huntsville. Asst prof in computer science. Ph.D. in comp sci, engineering or math and adequate computer related industrial experience. Contact Dr. Pei Hsia, UA, Huntsville, AL 35807. (205)895-6088. Deadline 20 February.

Webster College. Asst or assoc prof in math. Ph.D. in math or math ed; at least 3 years teaching experience at college level, including teaching courses designed for secondary and elementary school teachers; elementary and secondary school teaching experience. $11,000-13,000. 12-hour teaching load, primarily a teaching institution. Contact Edward T. Sakurai, Math Dept, WC, Webster Groves MO 63119. Deadline 15 January.

University of Washington. Several asst professorships in math. Contact R.M. Blumenthal, Chr, Dept of Math, (206)543-1150. Statistician, data technician in biostat dept. 2 years training in graduate level biostat. Contact Paula Kanarek, Biostat, (206)543-1044 Assoc administrative coordinator of biomath group, master's required. Contact Richard Kronmal, Chr, Biomathematics Group, Dept of Biostat, (206)543-1044. UW, Seattle WA 98195.

SUNY at Plattsburgh. Possibly 1 or 2 one-yr positions to replace faculty on sabbatical for 1975-76. Ph.D. in math, interests in undergraduate teaching and research. Contact Lonnie Fairchild, Dept of Math, SUNY College at Plattsburgh 12901. Deadline 1 February.

Penn State University. Programmer/analyst. Contact Anne V. Hancock, Employment Div., 117 Willard Bldg, University Park PA 16802.

University of Texas, El Paso. Coordinator of Teacher Education (assoc prof). Doctorate, at least 3 years public school teaching experience, university teaching and administrative experience in areas of "student teaching" and "competency-based teacher education." $15,000-17,000. Contact Dr. Norma G. Hernandez, Dean of College of Education, UT, El Paso TX 79968.

HEW. Social Science Research Analyst (GS-13), Office of Child Development. Contact Edith M. Henderson, Rm 4322, HEW North Bldg, 330 Independence Ave SW, Washington 20201. (202)245-6851. Deadline 20 January.

Mansfield State College. Dean, School of Teacher Education. Earned doctorate, successful teaching and/or administrative experience at public school and college level. $25,900-33,000. Contact Donald C. Darnton, VP for Academic Affairs MSC, Mansfield PA 16933. Deadline 15 February.

SUNY at Purchase. Asst prof in math. Contact Curtis A. Williams, Dean, Natural Sciences, College at Purchase, Purchase NY 10577.

University of Connecticut. Asst or assoc prof, one, possibly two positions. Ph.D. required, teaching experience at college level desirable, documented research record with promise of continued growth essential. Contact John V. Ryff, Head, Dept of Math, UC, Storrs CT 06268.

San Diego State University. Lecturer in Women's Studies Program, $11,880-14,448. Also parttime positions in program. Contact Mary Elizabeth Shutler, Dept of Anthropology. SDSU, San Diego CA 92182.

Clemson University. 4 asst or assoc prof. Ph.D. required. Specialties: comp sci, OR or stat. Contact John Kenelly, Head, Dept of Mathematical Sciences, CU, Clemson SC 29631.

Massachusetts State College System. Presidents for Salem State and Worcester State. Contact Dr. Janet G. Murphy, Staff to the Presidential Search Committee, Massachusetts State College System, 53 State Street, Boston MA 02109.

Dartmouth College. John Wesley Young Instructorship in Mathematics. Research interests in algebra, algebraic and geometric topology, analysis, probability, combinatorics, comp sci, logic or statistics. 6 hr teaching load including at least one course in specialty. $11,500 plus $2,000 summer research stipend. 2-yr appointment. Contact Richard H. Crowell, Hr. Attn: Recruiting, Dept of Math, DC, Hanover NH 03755. Deadline 15 February.

Michigan Technological University. Instructorships (1 yr temporary appts, possibly renewable for a second year), master's required. 12-15 hr teaching load in lower division math., stat or comp sci. Asst professorships (1 yr renewable appts, possibly leading to tenure). Ph.D., applied stat, comp sci or applied math (biomath preferred). 12 hr teaching load, continuing research required. Contact Dr. Zane C. Motteler, Head, Math Dept, MTU, Houghton MI 49931. (906)487-2068.

University of Delaware. Continuing Education Program Specialist. Master's required, adult and continuing education experience desirable. Contact Arthur W. McDaniel, assoc director, Div. of Continuing Education, UD, Newark DE 19711 (302)783-2741.

Bucknell University. Asst prof in comp sci. Ph.D. in comp sci or related field required. Undergraduate and graduate teaching, course development, advising. Contact Dr. Ben Douglas Gay, Comp Sci Program, Freas-Rooke Computer Center, BU, Lewisburg PA 17837. (717)524-3091.

Columbia University. Position in comp sci, rank open. Systems programming, data base management systems, data languages and processors specialties preferred. Contact Omar Wing, Chr, Dept of Electrical Engineering and Comp Sci, CU, New York NY 10027.

REA Magnet Wire Company. Various positions for those with backgrounds in math, stat, comp sci. Contact Robert N. Peterson, Corporate Personnel Manager, REQ Magnet Wire Company, Inc., 3600 East Pontiac St, Fort Wayne IN 46806.

Delaware Postsecondary Education Commission. Executive Director. Broad knowledge of the principles and practices of educational administration and a knowledge of educational delivery systems and services with particular emphasis at the post-secondary level are required. Master's or doctorate required. Contact Dr. E. Arthur Trabant, Chairperson, Search Committee, Univ of Delaware, Newark DE 19711.

Millikin University. Instructor or asst prof of math. $9,000-11,000. Ph.D. or ABD in math, interest in undergraduate teaching, some experience preferred. Contact Dr. Malcolm H. Forbes, Dean, College of Arts and Sciences, Millikin Univ, Decatur IL 62522. (217)424-6205.

x University of Massachusetts, Boston. Asst or assoc prof. Primary interest is for Applied Statistics and/or computing, but particularly strong candidates in other fields will also be considered. A new program in management is projected, so there may be openings for which experience in this area will be valuable. Strong mathematical and teaching ability is required. Contact Robert Seeley, Math Dept (College I), UM, Boston MA 02125.

Smith College. One asst prof position open for Ph.D. with strong interest in teaching undergraduates. Send three letters of reference. Contact James Hedlund, Dept of Math, Smith College, Northampton MA 01060.

University of Delaware. Mathematician with Ph.D. as chairperson of department. Prospective candidates must have research interest, sound teaching experience, and aptitude for administrative duties. Contact Richard N. Hill, Chairman, Search Committee for Chairperson, Dept of Math, UD, Newark, DE 19711. (302)738-2651.

University of New Hampshire. Asst prof in analysis, statistics, or topology. Teaching (grad/udergrad) and research. Contact M. Evans Munroe, Math Dept, Kingsbury, UNH, Durham NH 03824. Deadline 1 February.

Kansas State University. 2 and possibly three visiting positions at the asst prof level. Harmonic analysis, number theory, algebra, differential geometry. 6-9 hr teaching load. P.D., teaching, research important. Contact R.B. Burckel, Acting Head, Dept of Math, KSU, Manhattan KS 66502.

Cape Cod Community College. Instructor. Master's, some college-level teaching experience, working knowledge of FORTRAN required. $9,308-12,755. Contact Chr, Div of Mathematics, CCCC, West Barnstable, MA 02668.

California State University, Sacramento. Position in management information science, rank open. Doctorate in management information systems and/or management science utilizing computer applications. ABD my be considered. Contact Metwall B. Amer, Chr, Dept of Acctg & Mgmt Info Sci,CSU, Sacramento CA 95819.

University of Arkansas. Asst prof in math 6-9 hr teaching load. D.E. or algebra. Ph.D. or equivalent. Asst prof in comp sci. Ph.D. required. To assist in the development of B.S. and M.S. degree programs in comp sci. Contact James E. Scroggs, Chr, Dept of Math, UA, Fayetteville AR 72701. (501)575-3351.

University of Missouri, Kansas City. Dean of the College of Arts and Sciences. Doctorate required, administrative experience desirable. Contact Dr. Wesley J. Dale, Provost, UMKC, 5100 Rockhill Road, Kansas City MO 64110.

University of Maine at Portland-Gorham. Asst prof in math. Ph.D. or degree within one year in statistics or allied branch of math, experience in comp sci. Some college teaching/industrial experience preferred. $11,000-12,500. 12-hr teaching load. Contact Maurice J. Chabot, Search Committee Chairman, Dept of Math, UMPG, Portland ME 04103. Deadline 15 February.

CUNY-John Jay College of Criminal Justice. Asst prof. Contact Ruth Lefkowitz, Dept of Math, John Jay College, New York 10010.

Miami University. Asst Provost for Instruction. Earned doctorate, successful teaching and administrative experience in higher education are desired. Contact John L. Thompson, Chairman, Search Committee, 101 Roudebush Hall, MU, Oxford, OH 45056.

University of California, Davis. Asst prof with specialization in statistics. Requirements: teaching competence, research ability, and interest in applications and statistical consulting. Contact Kurt Kreith, Chr, Dept of Math, UC, Davis CA 95616.

Tyler State College. Asst prof to teach 12 semester hrs of math and/or physics. Ph.D. in math and graduate work in physics. $12,000-15,000. Contact Chr of Math Dept, TSC, 100 E. Berta St., Tyler TX 75701. Deadline 15 February.

Massachusetts Board of Regional Community Colleges. Systems design and development coordinator. Thorough knowledge of data processing, programming, hardware and software. Salary to $23,000. Contact Daniel M. Asquino, Director, Computers and Management Information Services, MBRCC, 177 Milk St, Boston MA 02109.

SUNY at Buffalo. VP for Academic Affairs. Contact Hilda Korner, Director, President's Committee on the Recruitment and Promotion of Women, 192 Hayes Hall, Buffalo NY 14214.

Stanford Research Institute. Research Engineer/Programmer, BS, experience in assembly-language coding. System Programmer/Research Engineer. MS of PhD in comp sci, 3-5 years experience in sophisticated systems software design and programming. Programmer, BS in Math, Physics or EE. Contact Jim McDonald, SRI, 333 Ravenswood Ave., Menlo Park CA 94025, (415)326-6200, ext 3272.

Kent State University. Dept of Math Chairperson. Contact Robert H. Lohman, Secretary, Chairman Search Committee, Dept of Math, KSU, Kent OH 44242. Deadline 1 March.

Filled X Lowell Technological Institute. Applied mathematics, Ph.D. or equivalent. Position to start January 1975. Contact I.J. Weinberg, Dept of Math, LTI, Lowell MA 01854.*

Wellesley College. Asst prof, 2-year appt, Ph.D. required. Do not apply if already taught more than 2 years without Ph.D. or taught 3 or more years after Ph.D. Salary: approximately $12,700. Contact Torsten Norvig, Chr, Dept of Math, Wellesley College, WellesleyMA 02181.

Austin College. Asst prof, Ph.D. required (ABD considered for instructor). Innovative programs in interdisciplinary and team-taught courses. Contact Dr. Dan T. Bedsole, Provost and Dean of the Faculty, AC, Sherman TX 75090.

Allegheny College. Ph.D. or ABD in math, very little chance for tenure, but position may last for six years. Graduate training in stat and comp sci and interest in undergraduate teaching in these fields. Contact Charles A. Cable, Chr, Dept of Chemistry, AC, Meadville PA 16335.

University of Connecticut. Women's Studies Program Director. Contact Dr. Mara Mayor, UC, Trout Brook Drive, West Hartford CT 06117. (position at Storrs campus). Deadline 15 February.

Syracuse University. Position in systems and information science. Ph.D. required, rank and salary open. Contact John C. Reynolds, 313 Link Hall, SU, Syracuse NY 13210. Deadline 1 February.

Association of Governing Boards of Universities and Colleges. To organize national task forces consisting of trustees and presidents of colleges and universities, to develop background papers and resource materials on various issues in institutional governance. Contact Richard T. Ingram, Associate Director, AGB, One Dupont Circle, Washington DC 20036.

University of Iowa. Systems analyst. Contact Dr. Arthur L. Gillis, Asst VP, 105 Jessup Hall, UI, Iowa City, Iowa 52242.

National Research Council. Educational Staff Associate for Committee on Minorities in Engineering. Position open 15 January. Contact Melvin Thompson, Executive Director, Committee on Minorities in Engineering, NRC Assembly of Engineering, 2101 Constitution Ave NW, Washington DC 20418.

Institute for Services to Education. Vice President. Earned doctorate or comparable experience. Extensive administrative or management experience in institutions or programs with a focus on the educational advancement of minorities.

University of South Carolina, Aiken. To teach economic statistics and data processing. Contact William C. Sanders, Coordinator, Dept Of Bus Ad, USC, Aiken SC 29801.

University of Cincinnati. Asst or assoc prof in comp sci. Contact Faculty Search Committee, Elec. Eng. Dept, UC, Cincinnati OH 45221.

*This position may already be filled.

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