

ASSOCIATION FOR WOMEN IN MATHEMATICS  
NEWSLETTER

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September, 1974

Report of the President

AWM presented two panels at the International Congress of Mathematicians held in Vancouver at the end of August. One of the panels was on the status of the woman mathematician around the world and the other on the woman mathematician and employment in North America. Participants on the "international" panel were Sheila Brenner, University of Liverpool; Michele Vergne, University of Paris; Bhama Srinivasan, Clark University, who reported on the role of the woman mathematician in India; and Xuan Hoang, University of North Vietnam. Mary Gray, who organized this panel, and acted as moderator, reports on the discussion by the panelists in a later part of the Newsletter. On the "North American" panel were Judy Green, Rutgers University, Camden; Rebekka Struik, University of Colorado; Judith Roitman, Wellesley College; Lenore Blum, Mills College. I acted as moderator for this panel. Mary Gray opened the discussions by observing that no woman was on the Organizing Committee for the Congress and that only two women (Rudin, Lelong) were giving an invited address at the Congress. AWM must work to see that for the next Congress to be held in Helsinki in 1978 women are on the Organizing Committee and that women are invited to speak on their research. Judy Green who, in conjunction with the Philadelphia area AWM, now runs the employment register for AWM, spoke on some of the problems of operating the register: the fact that not all women who are looking for employment notify her of their availability, the fact that some women who have registered with her fail to notify her when they find employment; both of these preceding two factors make it difficult to do a meaningful statistical study of the employment or non employment of women mathematicians; and finally, the problem associated with answering requests from institutions for a list of women mathematicians eligible for a given position. From its experience AWM has concluded that most such requests are from mathematics departments seeking to satisfy some sort of affirmative action procedures in their institutions rather than making a determined effort to employ women mathematicians. Therefore, AWM has decided not to send a list of names of women seeking employment to institutions but instead to send to women on the employment register a list of openings which they can look into if they like. The next panelist, Rebekka Struik, is on the Affirmative Action Committee at the University of Colorado. She spoke of some of the problems she has faced as the only woman on that Committee trying to get the University to employ more women. (One of the problems all women face in this connection is that whereas they are very anxious that such a Committee succeed in having the institution employ more women, they realize that the chances of this happening are very slim indeed unless women already employed by the institutions are willing to put in a lot of time working on the committees. Since most universities employ few women these faculty members are particularly overworked, giving up time that could be devoted to their own research. Judith Roitman, who has just finished the work for the Ph.D. degree at the University of California at Berkeley, spoke about Berkeley's "search" for women and minority assistant professors this year, which turned up nary a one. She also spoke about some of her experiences in looking for a job for this fall. Lenore Blum talked about a grant she has received from the San Francisco Foundation which will be used this year at Mills for training women undergraduates for careers in fields using mathematics. One of the emphases will be on the training of students who in the past would probably not have taken college mathematics courses at all. (Lenore will speak in more detail about this project at the January 1975 meeting in Washington, D.C.) Lenore urged women to contact AWM if they have grievances about procedures

and questions used when they were applying for positions, about hiring policies which affected them, and about a lack of affirmative action procedures at their universities. She urged AWM to engage in legal action on behalf of women mathematicians who have been discriminated against in their professions. (As you already know, AWM has urged women to send information and details concerning their grievances to me. We are keeping a file on such cases and will notify appropriate government agencies about them when the individual involved and AWM think it is the time to do so. Also, as you know, AWM is trying to obtain outside funds to help finance various activities of AWM one of them being to engage in legal action.)

A few days after the panel discussions the Vancouver "Sun" and the Vancouver "Province" interviewed panelists Judith Roitman and Rebekka Struik and Harriet Lord, St. Joseph College, Philadelphia. Articles on the interviews appeared in both newspapers on August 30. Whereas there were quite a few misquotes and inaccuracies, the overall tenor of both articles was sympathetic to the problems faced by the woman mathematician.

The Executive Committee of AWM also met in Vancouver. All members were present: Evelyn Boorman, University of Michigan; Lenore Blum, Mills College; Mary Gray, American University; Judy Green, Rutgers University, Camden; and Judith Roitman, Wellesley College. Judy Green is replacing Judith Elkins on the Committee and taking over the latter's job of running the Employment Register. (Thank you, Judy Elkins, for your hard work in setting up the Register originally and for making it a going concern!) Judy Roitman, as reported in the last Newsletter, is retiring as West Coast Representative on the Committee and is being replaced by Lenore Blum. The Executive Committee decided that one of the first priorities for AWM for 1974-75 is to try to raise funds from outside sources. We would like to have sufficient funds to pay for the printing and distribution of the Newsletter, to help defray travel expenses for speakers at meetings, to help support women graduate students in mathematics, to support some programs designed to encourage women to pursue mathematics as a career, and to pay for legal actions undertaken by AWM. Suggestions for and help in fund raising are welcome.

We now have our Speakers Bureau in operation. (See the President's Report in the August Newsletter.) If you are a woman mathematician willing to give a talk (or talks), ranging anywhere from one intended for a high school group to a research talk, please send me your name, topics of talks, and groups for which they are appropriate. Similarly, those wishing names of women speakers should write to me for suggestions.

As probably all of you in the United States are aware, the Department of Health, Education, and Welfare has proposed the addition of a new part (Part 86) to the Departmental Regulation to effectuate Title IX of the Education Amendments of 1972. Title IX rules out discrimination on the basis of sex in education programs and activities receiving or benefiting from Federal financial assistance. HEW drafted the Title IX regulations (Federal Register, vol. 39, no. 120, June 20, 1974) and held a series of public briefings around the country on the proposed regulations. The regulations are open for written comment until October 15. After that date HEW will evaluate the comments and make any changes it deems appropriate. Mary Gray is writing to HEW in her capacity as Chairman of Committee W of the National AAUP. I am also writing. (Our letters will be printed in the Newsletter if space allows.) If there are any changes in the guidelines you would like to see made, please write to HEW.

The Winter meeting of AWM will be held on Friday, January 24, 10 a.m. - noon, in Washington, D.C., in conjunction with the AMS and MAA which will be meeting in Washington. The next sectional meeting of AWM will be at Wesleyan University, Middletown, Connecticut, noon - 2 p.m., Saturday, October 26. This meeting will

be in conjunction with the AMS which will be meeting there on that day. Stephanie Troyer, University of Hartford, and Dorothy Shaffer, Fairfield University, are in charge of the program. The meeting in Middletown will replace the usual fall meeting of the Boston Area AWM. We hope to see all of you from the New England area there.

Alice T. Schafer, Wellesley College, Wellesley, MA 02181  
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#### LETTERS

The following letter is from two graduate students at one of the campuses of the University of California.

As if the employment situation were not bad enough, a new threat looms, and the purpose of this communique is to give an example of how this threat came about and to alert concerned people. The threat is the tapping of a new labor source for academic teaching duties which would essentially be unpaid labor and therefore, in our opinion, be devastating competition.

We are math graduate students at one of the few institutions in the U.S. which is expanding undergraduate enrollment. In addition the school is heavily science oriented, and so with one third the enrollment of UC Berkeley (for example), our school nevertheless has a higher enrollment for first year calculus. There is thus a strong need for TA's to lead the sections. This, coupled with the shrinking number of talented people entering mathematics, forces the department to award TA's to students it does not believe are capable of completing its program for the Ph.D. In spite of this hypocritical encouragement of more or less doomed graduate students, section sizes for calculus range in size from forty to sixty students.

A possible answer to this problem presented itself when an ambitious and (apparently) capable junior persuaded a few professors (including the chairman) to let him be a TA in his senior year FOR NO MONEY and instead be "paid" with four units of upper division academic credit towards his bachelor's degree. (This practice is already widespread in the biology and engineering departments here.)

The math faculty and graduate students were never informed nor consulted. The course was quietly approved and the student was enrolled. The graduate students learned of the course and informed the faculty; the graduate students made it clear they were unhappy and one (tenured) professor supported their position publicly. When it became clear to the chairman that department harmony might be endangered, however, he pressured the undergraduate into withdrawing. The course has not been cancelled however, and it remains in the catalogue.

The threats of seniors leading sections are not merely to the future availability of support for graduate students. The clear need here is for more faculty positions. By letting seniors teach, even only extremely well qualified ones (at first), the administration will be faced in the future with the choice of creating new faculty positions or expanding the (free) seniors teaching program. When money gets tight, the choice will be obvious. Expensive, well-qualified professors cannot compete for jobs with people who work for free.

Letting seniors teach is an easy solution to the need here for more faculty. (Expanding the graduate program beyond its current inflated size in order to get more TA's seems ludicrous as well as cruel.) The math department must face up to the administration, but it cannot do it alone. It needs the support of the physics and

engineering departments who otherwise might jump at the chance to teach their own students calculus. Nevertheless, we feel the responsible course of action is clear.

We hope people around the country who read this will keep watch so as not to let even one senior start the irreversible flood.

The Newsletter has received a number of replies to the Goodman letter in the last issue. One example should suffice:

Dear Professor Goodman:

I have read in the newsletter of the Association for Women in Mathematics the reply you wrote to Professor Schafer concerning the sexist features of "Finite Mathematics" by Goodman and Ratti, and I would like to discuss some of its points.

First, regarding grammar: If the pronoun "he" is being used generically then why is the congressman's secretary in Problem 13, p. 86 referred to as "she"? Why is every reference to personal appearance made specific to a woman? There are no read-headed "he's" in your book. The point isn't how to handle the ambiguous grammatical case, but how stereotypes are being reinforced by the lack of any ambiguity--"he" is a senator; "she" is a beautiful (but dumb) blonde.

Secondly, if a book were being criticized on the grounds of racism (deliberate or otherwise--e.g., if the only references to Blacks were in the context of porters, janitors, maids, good-sense-of-rhythm and other stereotypes) would you suggest that the discussion be put in its proper setting by bringing up the victims of starvation and political persecution? Is the plight of the Blacks in America not worth bothering about because they are worse off in South Africa?

In point of fact, the severe problems you refer to are not unrelated to those of sexual stereotyping. Overpopulation has a lot to do with how the role of women is perceived; and a drop in the birth rate may well be a result of women obtaining satisfactions in other than traditional roles. Likewise, pollution at least in our society is not unrelated to the fact that women's second primary role is seen as consumption. Political persecution and war are at least partly the product of a power-oriented mentality which in many cultures (and certainly our own) is closely related to stereotyped notions of masculinity and potency; this is not likely to change as long as textbook writers continue to reinforce these stereotypes. (By the way, if you read your news sources more carefully you would discover that women also get imprisoned for their political views.)

Louise Hay, University of Illinois,  
Chicago Circle

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McGraw-Hill has followed Scott, Foresman in formulating guidelines for its authors to avoid sexism. A segment of Prentice-Hall's "Words into Type" is devoted to the problem and a forthcoming edition of the New York Times Style Book will also deal with terms relating to women.

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Copies of this newsletter are on file at the Women's History Research Library, 2325 Oak St. Berkeley, CA 94708.

## Some Contributions of Women to Research in Finite Group Theory

In the last twenty years there has been an explosion of research in finite group theory. New infinite classes of finite simple groups were discovered in the late 1950's. Feit and Thompson proved that all groups of odd order are solvable. New techniques in character theory of finite groups, in the theory of solvable finite groups, in geometric and combinatorial ways of looking at groups and in "local group theory"--(the study of normalizers of  $p$  sub-groups of finite simple groups) have been extensively developed. These new techniques have in turn led to the discovery of new finite simple groups which do not fit in any infinite family, and hence are called "sporadic" groups. There are now about 25 sporadic groups--five discovered by Matthieu in the nineteenth century and the others discovered since 1960.

One of these methods, the study of "local" subgroups, has resulted in a number of results about what possible Sylow 2-subgroups a finite simple group may have, and what possible structure the centralizer of an involution (element of order 2) may have. Along these lines, we have a result by Anne MacWilliams (Patterson) which imposed a very strong condition on the structure of a Sylow 2-subgroup of a finite simple group [4]. The description in (volume 43, number 2071) Mathematical Reviews calls this result "A significant contribution to the program of classification of simple groups." Another "local" result by Pamela A. Ferguson [3] concerns "CC" groups. A group  $M$  is CC if  $M$  contains the centralizer of each of its non-identity elements. Ferguson shows that under certain conditions if a finite group  $G$  contains a CC group  $M$  then  $G$  must be isomorphic to a Frobenius group or to the simple group  $PSL(2, 3^n)$ .

Another area where local methods are often used is that of investigating the type of automorphisms a finite simple group can have. Thompson showed that a group admitting a fixed point free automorphism of prime order is nilpotent, and Elizabeth Ralston extended this to show that a group admitting a fixed point free automorphism of order  $rs$  where  $r$  &  $s$  are distinct primes, is solvable [7]. It is not known whether a non-solvable group can admit a fixed-point-free automorphism.

Along the lines of automorphisms of simple groups, Anne Duncan has given an explicit description of the graph automorphism of  $B_2(2^n)$  [2].

In the area of geometric descriptions of finite simple groups, several women have made recent contributions. Harriet Pollatsek has investigated the groups generated by transvections over the field of two elements [5]. Transvections are certain elements which fix a hyperplane pointwise in the vector space under consideration. Pollatsek completely describes the linear groups over  $\mathbb{F}_2$  generated by transvections and containing no normal subgroups of a certain type. She used information on co-homology groups of linear groups over  $\mathbb{F}_2$ , which she calculated in another paper [6]. Pollatsek's work is related to Fischer's results on 3-transpositions since transvections over  $\mathbb{F}_2$  are 3-transpositions; Fischer's work has led to the discovery of several very large sporadic groups.

Pollatsek has been invited to speak in the Boston group theory seminar twice, and has been invited to give a expository address to the MAA Northeastern Section this fall in Massachusetts.

The objects analogous to transvections in orthogonal space over fields of odd characteristic are called Siegel transformations. The author of this article, B. Stark, has written a series of 3 papers on groups generated by Siegel transformations [17, 18, 19]. These Siegel transformations proved useful to Stark in the permutation-group problem of finding rank 3 subgroups of orthogonal groups [20].

A rank 3 permutation group is a transitive group where the stabilizer of a point has 3 orbits. Higman & Sims used the properties of these groups to find a new finite simple group. Margaret Smith studied the Higman Sims group [9, 10] and in addition was able to limit the conditions under which a given group  $G_p$  may be the subgroup stabilizing a point "p" in a rank 3 permutation group  $G^p$  [8].

In the area of solvable finite groups Susan Dancs found information about maximal abelian subgroups of certain finite p-groups & used it to construct groups with "small" maximal abelian subgroup [1]. Gabrielle Dickenson Stoy found bounds for the number of isomorphism classes of solvable groups of order n under either of two hypotheses: (1) these groups have abelian Sylow subgroups or (2) the exponents of primes in the order of G are bounded by some integer [21].

In some areas close to finite group theory, several women have produced a lot of work over many years. For example, in infinite groups a great deal has been written by women such as Hanna Neumann, Sheila Oates MacDonald, and Ruth Rebecca Struik. In coding theory Vera Pless and F. Jessie MacWilliams have published many papers. But in finite group theory very few women have been publishing papers for more than seven years. In fact the only one I know of is Bhama Srinivasan whose work is in character theory. Srinivasan's first paper, [11], published in 1960, was about the representation mod p of a finite group G such that  $1 \triangleleft H \triangleleft K \triangleleft G$ , the order of H is prime to p,  $|K/H|$  is a power of p and  $|G/H|$  is of order prime to p and cyclic. She then determined the principal characters of  $SL(2, p^n)$  [13] and gave a short proof of a result of Green on group rings over fields of characteristic p. [12]. In the Math. Reviews (36, #3897) her article [14] is described as follows: "The author has carried out a substantial computation, determining in detail the complex irreducible characters of the symplectic group  $G = Sp(4, q)$  of degree 4 over the Galois field  $F = GF(q)$  of characteristic p."

After this enormous project Srinivasan found another method to compute the Steinberg characters of finite simple groups of Lie type [15]. Then she constructed an isometry from the space of class functions on H, (the normalizer  $N_G(T)$  of a torus T in a finite group G of Lie type) to G in such a way that generalized characters are mapped to generalized characters [16].

At the San Francisco A.M.S. meeting, Srinivasan was invited to speak in the special session on representations of finite groups. She discussed her recent work on characters of unitary groups.

In addition Srinivasan has written about 50 reviews for the Math. Reviews in finite group theory. To the best of my knowledge, she is the only woman reviewer so far in this subject category. Srinivasan also, as far as I know, is the only woman in finite group theory who has a Ph.D. thesis student graduated.

When one considers that only 6% of the Ph.D.'s in the country in mathematics have been awarded to women, and that most (male or female) Ph.D.'s do no research beyond the thesis, it seems that the record of women in finite group theory research has been quite good. If you are a woman working in finite group theory, please send me reprints, reports of work in progress, etc., and I'll write a follow-up to this article in two or three years.

Betty Salzberg Stark

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## THE TWO CITY PROBLEM

by

Ruth Rebekka Struik

Dr. A and Dr. B have completed the work for their Ph.D.s and are looking for academic positions. Dr. A receives an offer from Harvard, and Dr. B receives an offer from a junior college in the Midwest, or Dr. A receives an offer from Harvard and Dr. B from Berkeley, or Dr. A receives an offer from a four-year college in the East and Dr. B from a similar college on the West Coast. Dr. A and Dr. B are married. What should they do? Does it make a difference if Dr. A is the husband and Dr. B the wife, or Dr. A is the wife and Dr. B is the husband?

Professional couples have been faced with this problem for a long time, even before the present job situation. The traditional answer has been for the wife to go where the husband has a position, and to fend for herself in that locality as best she can. There have been some couples who have decided to accept positions far apart, and work out the problems involved. This alternative is beginning to be discussed publicly, for example, an article in the New York Times of November 13, 1972, and another in Time of July 9, 1973, described couples in the academic world, where husband and wife have accepted jobs hundreds of miles apart. I feel that this alternative should be more widely discussed, and in order to write this article, I wrote to several mathematicians I knew who had tried this alternative, and asked for an account of their experiences.

Eventually I received five replies; three were received in the fall of 1972, and two more in the summer of 1973, when I sent out some further inquiries. A first draft of this article was written over the Christmas break in 1973, and comments solicited. What follows are extracts and summaries from the original letters and the reactions to the first draft. This is NOT meant to be an exhaustive or definitive treatise on this subject. It is intended to open discussion; hopefully readers of this Newsletter who have had experience and/or opinions will write and make further contributions.

Of the five replies, two were willing that I use their names; the other three either requested anonymity or expressed reservations about having their names used, and so I have decided not to give the names of those three couples in this account. In four of the five cases, the couples apparently are working out (or did work out) the problems involved in long-distance commuting; in the fifth case, the marriage is in serious straits. In the latter case, the husband feels strongly that long-distance commuting is only for those whose marriages are no longer viable.

Let me start off with the optimistic responses: B. H. Neumann, FAA, FRS, of the Institute of Advanced Studies at the Australian National University wrote me a moving letter of his life with Hanna Neumann, herself a distinguished mathematician who died in 1971. For almost half of their married life of nearly 33 years, they were "separated in space." The Second World War separated them for the first years of their marriage. From 1948 to 1958, they held academic positions 100 miles apart in England. He spent his vacations at home, and as many weekends as their incomes would permit. Vacations amounted to about half the year. After listing further separations, he wrote:



"This just lists our times of geographical separation, but our 5 children and 11 joint papers testify to the fact that this separation was geographical only; in all aspects that really matter, we were constantly close to each other. We had our differences, of course, even quarrels at times, but on fundamental issues we thought and acted alike, even our handwritings became increasingly similar. We would, when separated, write to each other almost daily, and make generous use of the telephone; but this is only the mechanics of communication; the essence was that we did communicate, easily and on many levels, and that we shared many of our joys and all our sorrows (of which there never were many)."

"This shows that it can be done. It is NOT easy, and you find very many husbands and wives who find even a week's separation hard to bear."

Alice Schafer, president of AWM, was kind enough to write me of her experiences in long-distance commuting. The long distance commuting occurred for three years, from '59 through '62. Her husband was at MIT during the academic year '59-'60, while the family (two boys, aged 11 and 12 plus two cats) remained in faculty housing in New London where she had been on the faculty of Connecticut College since 1954. Her husband took an apartment in Cambridge, and came home weekends. The next two years the family lived in Boston, and she commuted to Connecticut College--mostly by train. The mathematics department at Connecticut College was very cooperative; her classes were scheduled for Tuesday, Wednesday and Thursday, so she could leave Boston on Tuesday and return on Thursday night. Sometimes she would stay till Friday, so as to be present for meetings. She rented a room from the College at a nominal rate. Her advice about long-distance commuting is:

"...(1) do not be afraid to do it; it can be worked out; (2) do the same job that you would do if the position were next door and do not use commuting as an excuse to avoid doing a share of the departmental chores and the like. Actually my observation has been that people who commute are often more responsible than some of those who do not, missing fewer classes than many people who live nearby."

With the remaining couples, in one case both the husband and wife are mathematicians and the children are of elementary school age; in the other cases, the children are teen-agers or adult. In all three cases, the long-distance commuting is either still going on or happened in recent years.

In the case where the marriage is in difficulties, the husband is a mathematician, and the wife earned her Ph.D. in another department at her husband's institution during the sixties, while their two children were growing up. After receiving her Ph.D., she was unable to find an academic position within commuting distance of her husband's position. Eventually she obtained a position, across the continent from her husband, and for one year, commuted by jet. The teenaged children lived with their father. The next year, she accepted an offer at her husband's institution. About the year of long-distance commuting, she wrote me in November, 1972: "To say there were no strains in this would be a lie. I found it fantastically exciting, but my husband and the children at first found it difficult. By the end of the year, even they got used to the idea, even though they were not happy with it." Among her problems were that "...the department was suspicious of the fact that I travelled in from so far, was living there alone, without

my husband..."

At the time the first draft of this article was sent out, this couple were no longer living together. The husband wrote a strongly worded letter: "...my experience is that the two-city 'solution' is workable only for couples whose marriage in the ordinary sense, is finished, ... this route has only been undertaken by women who were at best indifferent as to whether the marriage would continue." To women who are contemplating this step, his advice is "women, if you are indifferent to whether you continue in your marriage, why not do as these other women have done, and take a job in another city as a way of easing yourself out of it?"

A wife who wrote to me is the mother of school aged children. She married when she graduated from college, and her graduate career was spent in the same department where her husband (also a mathematician) was on the faculty. After she received her Ph.D., it was clear she could not get a position within daily commuting distance of her husband's position. She accepted a position far away. Her children stayed with the father; usually she left on Monday morning and returned Friday evening. She wrote:

"The kids would clearly prefer me to be home like other mothers but basically accept the situation and realize that it is a more or less permanent type of arrangement. Many people have expressed their negative feeling about our living situation in front of the children which made it harder for them at first and I now try to avoid discussing it in their presence with anyone I think might not be sympathetic."

"There are two reasons why I think the kids accepted it as well as they did. First it was fairly clear that there wouldn't be a job for me within daily commuting distance ... The second thing that made it easier was the fact that the children had never had me home as a full-time mother and my husband had been accepting increased responsibility in terms of time spent at home in charge of them. Also, while I was typing my dissertation, my husband started doing virtually all of the cooking and has just never stopped."

"... the main reason this arrangement has been so successful for us is that we have somehow avoided the really worst aspects of traditional role stereotypes. Unfortunately many of my husband's colleagues seem to have regarded my first year at \_\_\_\_\_ as a trial separation ..."

"... I was, before I got the job, unsure of my ability to live alone. I find that, at least on a part time basis with a family to go home to on weekends, I am much happier living by myself and because I now have my own existence, our marriage is much better."

In the case of the fifth couple who wrote me, the husband is a mathematician, but the wife is not. They hold positions across the continent from each other. The children have been teenagers and older while the commuting has taken place. The husband has taken leaves of a semester at a time in order to join his wife. When they are not living together, they try to see each other at least once a month. Commuting at such great distances has been very costly. Loneliness was particularly mentioned as a problem.

The husband commented about unwarranted assumptions of chairmen: "When a woman moves from a crummy job near her husband to a good job elsewhere, the husband may choose to avoid the commute

by moving with her, jobless. To some couples, this mode is even more unacceptable for psychosexual reasons. But chairmen should not assume that a woman can't be even offered a job unless her husband is offered one too. I know a department that decided to make a woman an offer (really wanted her, and she would have accepted) but the chairman after failing to line up a job for her husband, decided not to communicate the offer."

My own opinion, after having sent out these letters and having discussed this with friends, is that there are serious difficulties with long-distance commuting. It will undoubtedly put a strain on the marriage. On the other hand, a professionally trained person who accompanies his or her spouse, and cannot find professional work within commuting distance will very likely be unhappy. There is no easy answer to couples in this situation. I believe the possibility of long-distance commuting should be seriously considered, but couples who decide on this solution should be aware that it is not a panacea. One has to decide with which set of problems one would prefer to live.

Those of us who have friends who have chosen long-distance commuting should avoid critical comments, unless our opinions have been solicited.

When any of us are in a position to influence hiring in our departments, we should reiterate the comment made above about the jobs of husbands. When a married female applicant is being considered, it is she and/or her husband who "own" the problem of the husband's job, not the mathematics department. It is up to that couple to decide if they want to face the problems of long-distance commuting, and this option should not be excluded because the chairman does not approve of it. How often do departments worry about the wives of applicants before deciding whether to offer the husband a job?

I hope this article encourages comments both pro and con to this Newsletter.

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#### JOBS

Is anyone interested in conducting an affirmative action follow-up on the jobs listed in this Newsletter? It would involve a non-trivial amount of work, but would be very worthwhile. If you think you might be willing to take it on, please contact me.

Mary Gray, American University

Stanford Research Institute. Various positions in OR and management. Contact Jim McDonald, Ext 3272 or Harriet Wherry, Ext 4035. For research asst positions requiring only a bachelor's contact Liz Martin, Ext 3306. 333 Ravenswood Ave, Menlo Park CA 94025, 415-326-6200.

RCA. Various engineering and programming positions in D.C. area and elsewhere. Contact C.R. Steuernagel, RCA Cherry Hill, 201-2, Camden NJ 08101, 609-779-6225.

TIAA-CREF. Actuarial Trainee. One of preferably two actuarial exams passed. \$11,000-12,500. Contact Peggy Lewenthal, TIAA 730 Third Ave., New York 10017, 212-490-9000.

Employment note: Math GRE can count as an actuarial exam and the first four really require only undergraduate math and stat.

WEST CHESTER STATE COLLEGE. Asst prof or assoc prof, Ph.D. in math, applied math or OR. Contact Richard G. Branton, Chr, Dept of Math, WCSC, West Chester PA 19380. Deadline 30 November.

Univ of Maine, Orono. Asst prof, Ph.D. in math or comp sci, to teach undergrad and beginning grad courses in comp sci plus service courses. Contact John C. Mairhuber, Dept of Math, UM, Orono ME. 04473. \$13,000-15,000. Deadline 1 January 1975.

Internal Revenue Service. Various positions in Washington and regional offices. Contact Diane C. Herrmann, IRS, 1111 Constitution Ave, NW, Room 1508, Washington DC 20224, 202-964-6432.

Minnesota Metropolitan State College. VP for Administrative Services. \$24,500-28,000. Contact Carol A. Magee, Exec Secretary, Office of the Pres, MMSC, 121 Metro Sq, St. Paul MN 55101.

HEW. Program analyst, GS12/13. Experience in design and implementation systems required. Contact Thelma Williams, DOSP, Rm 4346, HEW North Bldg, 330 Independence Ave SW, Washington DC 20201, 202-245-7166.

University of Illinois. Junior position in mathematics of computation. Ph.D. in math or comp sci with strong background in the other. Knowledge of systems programming and interest in ed. tech. desirable. \$12,000+. Tenure track asst professorship. Contact Paul T. Bateman, Dept of Math, Univ of Ill, Urbana IL 61801, 217-333-3352.

University of California, San Diego. Ph.D. in math, extensive training in neurosciences with particular emphasis on electrophysiology and show waves of the electroencephalogram, substantial experience and a high level of skill in programming both large and minicomputers, knowledge of neuronal models and the statistical properties of electrophysiologic signals recorded from the brain, experience and ability to carry out an active research program in unit recording and slow wave recording. \$14,800-15,500, 41 percent time.

Editor's note: Does anyone share my suspicion that this is a phony search?

University of Pittsburgh. Asst prof, emphasis in testing/measurement. Appt to begin 1 January 1975. Contact Anthony J. Nitko, Chairperson, Search Comm, UP, 3939 O'Hara St, Pittsburgh PA 15260.

California State University, Fresno. Asst VP for Academic Affairs. One-year appt. \$21,384-29,748. Contact Academic Personnel Services Office, CSU, Fresno CA 93740, 209-487-1027.

ZONTA Fellowship Awards. For Graduate Study in Aerospace Sciences. Contact ZONTA INTERNATIONAL, 59 East Van Buren St, Chicago IL 60605. Deadline 1 January 1975.

Idaho State University. Affirmative Action Officer. \$15,000. Contact Vernon A. Lestrud, Exec Asst to the Pres, ISU, Box 8050, Pocatello ID 83209. Deadline 23 October.

California State College, Dominguez Hills. Dean, Academic Administration. Teaching and 3-years administrative experience, earned doctorate. \$25,656-31,188. Contact VP Academic Affairs, CSC, Dominguez Hills CA 90747. Deadline 1 November.

Old Dominion University. Assoc prof and dept chr, comp sci, position available 1 January 1975. Deadline for applications 15 November. Contact Dean John Weese, School of Engineering. Asst prof of math, specialty in applied stat. January or September 1975. Contact B.J. Gilpin, Chr, Dept of Math. ODU, Norfolk VA 23508.

William Rainey Harper College. Dean of Continuing Education. 1 November deadline. Contact W. Von Mayr, Director of Personnel, WRHC, Algonquin and Roselle Roads, Palatine IL 60067.

University of Southern California. Dean of the College of Continuing. Contact Frederick Williams, Dean of the Annenberg School of Communications, USC, Los Angeles CA 90007.

LaRoche College. Academic Dean. Contact Chairman, Search Comm, LaRoche College, Pittsburgh PA15237.

University of Louisville. Dean, Graduate School. Contact Thomas H. Crawford, Graduate Dean Search Comm, Dept of Chemistry, UL, Louisville KY 40208.

University of Texas, Arlington. Dean of the College of Liberal Arts. Contact W.A. Baker, Jr., VP for Academic Affairs, UTA, Arlington, TX 76019. Deadline 30 November 1974.

University of Maryland, College Park. Chancellor. Contact R. Lee Hornbake, Chr, Chancellor Search Comm, Center of Adult Ed, UM, College Park MD 20742. Deadline 4 November.

The Defiance College. President. Contact Edwin S. Charles, Secretary, Presidential Search Comm, P.O. Box 248, Defiance OH 43512.

St. Mary's College. Provost. Contact Renwick Jackson, President, St. Mary's College of Maryland, St. Mary's City MD 20686.

Hampden-Sydney College. Academic Dean. Ph.D., teaching and administrative experience, Ph.D., \$20,000-25,000. Contact Academic Dean Search Comm, Office of the President. HSC, Hampden-Sydney VA 23943.

Black Hills State College. VP for Academic Affairs. Position to be filled 30 January 1975. Contact Arthur Prosper, Chr, Search Comm, President's Office, Black Hills State College, Spearfish SD 57783.

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Women and Mathematics by Else Hoyrup will continue in the next issue of the Newsletter. We have had several comments critical of the alleged one-sidedness in remarking on the large percentage of scientists and engineers in the Soviet Union who are women, but not mentioning that those at the very top are as predominantly male there as in the U.S.

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FRGM AMERICAN MATHEMATICAL MONTHLY, 1912

According to the latest Annual register of the American Mathematical Society about 50 of the 668 members are women. It is interesting to observe that the American Mathematical Society has a much larger per cent of women members than the leading mathematical societies of Europe. According to the latest register of the German mathematical society (Deutschen Mathematik Vereinigung) only 5 of its 759 members are women; and only one of these 5 members is a German woman, while three of them are Americans and the remaining one is a Russian. The French mathematical society has also very few women members. The numbers of the women members of the Circolo Matematico di Palermo and of the London Mathematical Society are considerably larger but they are much smaller than in our own society.

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We are not running the AWM comments on Title IX, but urge you to write your own letter if you have not yet done so. I also want to ask for some help on behalf of Committee W of AAUP. First of all, if you don't have a Committee W in your local chapter, how about starting one? We have persuaded TIAA to look into developing a new plan paying equal monthly benefits to male and female retirees with the same employment records. Write, or better still get your college or university president to write, asking for details of the new plan. This is important. TIAA, 730 Third Ave, New York 10017. Finally, Rhodes time is here again. They have been excluded from the discrimination guidelines of Title IX; we hope to reverse this by enough adverse comment. Meanwhile, try to influence your own institution either not to participate or to nominate a woman.

Mary Gray

APPLICATION FOR MEMBERSHIP  
ASSOCIATION FOR WOMEN IN MATHEMATICS

New \_\_\_\_\_

Renewal \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ ZIP \_\_\_\_\_

Individual \_\_\_\_\_

(\$3.00)

Family \_\_\_\_\_

(\$4.00)

Institutional \_\_\_\_\_

Institutional affiliation, if any \_\_\_\_\_

Position \_\_\_\_\_

Make check payable to ASSOCIATION FOR WOMEN IN MATHEMATICS  
and mail to

Department of Mathematics  
The American University  
Washington D.C. 20016

AWM  
Department of Mathematics  
The American University  
Washington DC 20016

October 1974