Association for Women in Mathematics

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PRESIDENT'S REPORT

The Cincinnati meeting. I am happy to report that all the AWM events at Cincinnati were very well attended and were very successful. We had some anxious moments before and during the Emmy Noether Centennial Symposium on Thursday, January 14 since Uta Merzbach could not arrive on Wednesday due to the closing of Washington National Airport; she dramatically arrived just as Jeanne LaDuke was concluding her talk and proceeded to give her talk with admirable poise. Jeanne talked about the American mathematical scene in algebra (particularly the Dickson school at Chicago) prior to and during the time of Emmy Noether. Uta discussed the development of algebra in Germany during this period and traced the various influences that shaped Noether's work. I.N. Herstein was the moderator, and he pointed out that 1982 was the birth centenary of both Noether and Wedderburn. On Friday, January 15, Julia Robinson delivered the third AWM Emmy Noether Lecture. Her lecture was entitled "Functional Equations in Arithmetic," and she talked about various classes of functions on the set of natural numbers which can be defined by functional equations. She was introduced by Marian Pour-El.

The major items at the Executive Committee Meeting and the Business Meeting were as follows. (i) There were reports on the various AWM Committees. The Fundraising Committee consists of Mary Gray, Eleanor Palais (chair) and Alice Schafer. Ellie Palais has written a letter to several foundations and organizations in the country, requesting funds for AWM which could be used for various purposes, e.g. for travel money for conferences, for research support, etc. Jeanne LaDuke agreed to be on the Committee and to try to solicit funds in the Chicago area. Jeanne also reported on the Archives Committee which, she said, has two purposes: (a) to find and organize materials pertaining to AWM since it was founded, and (b) to establish a mechanism to preserve this material in the future. Pamela Ferguson's report on the NSF Committee said that the success ratio among women who applied for NSF summer research grants seems slightly higher than that of men. It is hoped that this will encourage more women to submit proposals. Also, the NSF would be pleased to have more women serve as reviewers of proposals. If you are interested in being considered as a reviewer, please send your name with a brief indication of your background and area of specialty to Pamela Ferguson, Math. Dept., University of Miami, Coral Gables, FL 33124. Evelyn Silvia reported on the Math Education Committee, which she chairs. The Committee will write a column from time to time in the WME Newsletter, and WME will reciprocate with columns in our newsletter. Evelyn has brought out a questionnaire inviting suggestions from AWM members, and this was distributed at the Business Meeting and at the AWM Table. A copy of the questionnaire is included at the end of the Newsletter. The AWM Membership Committee, consisting of Susan Landau and Debbie Franzblau, graduate students at MIT, has been working on recruiting more graduate students into AWM. If any of you would like to be on this Committee and work on recruitment of new members in general, please let me know. The Emmy Noether Lecture Committee, chaired by Jill Mesirov, will continue to work on arranging speakers every year at the January meeting. Tilla Milnor is a new member of

the Committee and replaces Vera Pless, who is now a member of the Executive Committee. Finally a new Committee on the AMS was established, and it will concern itself with issues coming up before the AMS Council which are of interest to AWM. At present the members are Bettye Anne Case and Mary Gray.
(ii) Travel difficulties have made it nearly impossible for the Executive Committee to convene in full strength at its meetings. The Committee resolved to appoint an alternate, who will receive information but not be a voting member, until December 31, 1982. Following a precedent, they agreed to appoint Linda Keen, who was a runner-up in the election for members whose terms expire on December 31, 1983, to this position. Linda has accepted the position.
(iii) It was noted that the changes in the Bylaws (see Nov.-Dec. Newsletter) have been approved. Thus we will have elections every other year, in odd years. It was agreed that the Executive Committee would set up a Nominating Committee, which will select candidates for the 1983 elections, at the Toronto meeting in August 1982. Also, members of the current Council will be asked whether they wish to continue being on the Council. It was agreed that one of the responsibilities of Council members would be to organize AWM regional meetings in their area.
(iv) Alice Schafer reported on the Emmy Noether Symposium and read a list of speakers and the times of their talks. There is one addition, Walter Feit, to the list of speakers that I mentioned in the Nov.-Dec. Newsletter. More details appear below.

Emmy Noether Symposium. We have now officially heard that the Symposium will be funded by the NSF. However, to our disappointment, no travel money will be available to AWM members. I hope that many of you will be able to come and participate in this exciting conference anyway. A limited number of dormitory rooms are available and will be inexpensive. Babysitting services are also available. The conference will start with a lecture by N. Jacobson on March 17 at 8 p.m. and will conclude with a talk by A. Borel at 3 p.m. on March 19. Local arrangements at Bryn Mawr seem to be going well, thanks to the efforts of Rhonda Hughes, F. Cunningham, and other members of the local committee. Full details appear in the February issue of the Notices of the AMS.

Other news. WME President Joanne Becker has written to me that WME will meet during the meeting of NCTM in Toronto April 14-17 1982. The Business Meeting will be on April 15, and there will be a panel discussion on April 16. If you are attending the meeting and would like to participate on behalf of AWM in the panel, please let me know.

I hope that you are surviving the long hard winter. I hope to see many of you at Bryn Mawr, when spring should be almost with us.

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AWM NOTES

Here are the results of the 1981 AWM elections:

President-Elect	Linda Rothschild
Members-at-Large	Joan Hutchinson Jeanne LaDuke Vera Pless
Proposed by-laws changes	Approved

Release of name on mailing list — Approved

The release of the mailing list has been approved, but individual members retain the right to withhold their names from release. If you do not want your name released when we give the mailing list to sister organizations, please write Margaret Munroe at the AWM office and tell her so.

In the January-February Newsletter, an article appeared about the AWIS meeting in Chicago in March. AWM is co-sponsoring the workshop. Nancy Johnson is representing AWM on the Organizing Committee.

LETTER TO THE EDITOR

I noted with interest the article "How I spend my summer vacations" by Susan Landau in the November-December 1981 Newsletter. The Hampshire College Summer Studies in Mathematics program which she describes has important implications for the continued encouragement of the study of higher order mathematics by talented high school youth. Ms. Landau noted, however, that the program suffers from a lack of participation by women.

By coincidence I ran across the July-August 1980 issue of the AWM Newsletter in which, at the bottom of the first page, Judy Roitman stated that as members of AWM we need to be more involved with talented high school students and that, "There seems to be a paucity of female staff at summer math workshops for high school kids."

I was involved this past summer with a mathematics/engineering program for talented local high school youth at Brookdale Community College, Lincroft, N.J. I was one of two instructors, the other male, who guided these students in practical applications and engineering problems for two weeks ending with a final independent project. This program, co-sponsored by a local Army post, had no lack of female participants because the one hundred applicants were carefully screened to provide equal proportions of female, minority, and white male participants. The program was especially targeted toward the female/minority front.

If more such programs could employ such a screening process, they would be freed of the traditional male bias and we would have many more women joining the ranks of the mathematically-able and scientifically-oriented.

Catherine Folio, Middletown, NJ

NEWS FROM WOMEN AND MATHEMATICS EDUCATION (WME)

As President of WME, I am pleased to write this first guest column for the AWM newsletter. AWM and WME have agreed to exchange columns for our respective newsletters as a means of fostering communication and cooperation between the two groups. Although we share some common members, many people who receive just one newsletter will benefit from news about the other group.

Much of WME's activity has focused on the National Council of Teachers of Mathematics. As the largest professional organization of math teachers, this group can have a great impact on efforts to increase the participation of young women in mathematics. Because of increased activity and pressure from NCTM members, and hopefully, partly as a result of WME exerting organized pressure, NCTM has taken some actions which we consider positive. Many of these actions arose from recommendations of a Task Force on Problems in Mathematics Education of Girls and Young Women.

1. In April 1980, NCTM published a special position statement on "The Mathematics Education of Girls and Young Women," which states the organization's commitment to sex equity in mathematics.
2. In September 1980, NCTM produced a four-page information resource to help schools assess the extent of mathematics avoidance by girls in their system, and to promote the study of mathematics.
3. NCTM is selling the videotape and workshop intervention program "Multiplying Options and Subtracting Bias," produced by Elizabeth Fennema and colleagues at the University of Wisconsin-Madison. Each of four 30-minute videotapes is directed to a specific audience: students (junior/senior high), parents, teachers, and guidance counselors.
   Note that WME is renting these tapes for $35 for one week ($25 for members). Contact: Judith Jacobs, Education Department, George Mason University, Fairfax, VA 22030. (703) 323-2421.
4. NCTM has applied for, and received, a $50,000 NSF grant to hold a series of conferences in 1982-84 focusing on the mathematics education of underrepresented groups. A core conference, to be held in Reston, VA in February, will involve 20 invited leaders in discussions of the state of the art in increasing the participation of members of underrepresented groups in the study of mathematics. Five invited speakers will discuss: females and mathematics, blacks and mathematics, Hispanics and mathematics, Native Americans and mathematics, and language and mathematics.

WME also has some resource materials which might be of interest to AWM members. The first is a five-page resource list, available free, which contains a list of materials and articles concerning women and mathematics. The second is an information packet, including the original articles, letters, and commentaries, on the Benbow/Stanley study of mathematically gifted youth which appeared in Science in December 1980. The latter packet is available for $1.00 (make checks payable to WME). Contact me if you would like either of these materials.

WME will hold its annual meeting in conjunction with the NCTM meeting in Toronto, April 14, 15, 16. Again, contact me if you are planning to attend and would like details.

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SPATIAL SEPARATION IN FAMILY LIFE: A MATHEMATICIAN'S CHOICE

by Marian Boykan Pour-El
reprinted from Mathematics Tomorrow edited by Lynn Arthur Steen

Marian Boykan Pour-El is Professor of Mathematics at the University of Minnesota. She received her Ph.D. from Harvard University in 1958. From 1962 to 1964 she was a member of the Institute for Advanced Study in Princeton, New Jersey. Her research interests are primarily in mathematical logic and theoretical computer science. She has delivered invited addresses to the American Mathematical Society and also to international congresses specializing in these fields. In addition, she has lectured on "living apart and the two-career family." At present she is a Trustee and Member of the Council of the Conference Board of the Mathematical Sciences, and a Member of the Council of the American Mathematical Society.

The media have recently been reporting some strange stories. Are we witnessing the next step in the Women's Movement? Married couples are living apart in order to practice their careers. The papers seem to assure us that these couples intend to do this for at most a year or two--and not at all if children are involved. Interviews with husband and wife reveal that both believe they must live apart if they are to succeed professionally; the job market is tight. I sometimes wonder whether these couples realize what might be in store for them.

For approximately twenty-three years, my husband and I have alternated periods of "living apart" with "living together" in order to pursue our careers. During that time we raised a daughter from a two-year-old toddler to a twenty-five-year-old college graduate. For this reason I have often been called upon to lecture and advise about "life apart" as a basis for a two-career family. Although I would prefer anonymity in this matter, I usually consent to give whatever help seems necessary. Contrary to the prevailing attitude, our family believes that our life was richer for having lived apart than it would have been had we lived together continuously. Furthermore our experiences indicate that continuous physical nearness need not always be a primary consideration in family life. If a mother's love for her grown children can extend undiminished over the miles, why cannot other aspects of family life survive and flourish under similar conditions?

In this account, the focus will be on four distinct aspects of this type of marriage-arrangement: long-term separation, short-term separation, commuting, and living together continuously. These are explained later, accompanied by glimpses of the lifestyle. Further details, including comments on the texture of this way of life, appear as reflections at the end. But let us first turn to some background material.

Background

Our lifestyle would never have begun without my deep commitment to professional life. Hence its background is really an account of career development. For me it is an account of growing up in the rough and tumble of New York City, with very little support from anyone.

The decision to seek a career was made when I was very young. I did not know exactly what career I wanted. But with the melodramatic flair characteristic of a young child, I wanted to "understand the universe, live completely, and contribute to society." I was aware that my father, a dentist, believed that a woman could not possibly be good in his profession. (My gentle father would have kept his thoughts to himself had he known of my plans.) I knew that my mother, while chatting with neighbors, had expressed a desire to see her son graduate from college. Her daughter would go only if there was excess money. Nonetheless, with the characteristic optimism of the very young, I expected to find a way to a career. I expected to succeed.

My early schooling left much to be desired. If grade school was mediocre and uninspired, junior high was considerably worse. Armed gangs roamed the halls threatening those who interfered with their pleasure. To avoid attack, girls were not permitted to leave the classroom alone. Our teachers spent so much time and energy protecting themselves from gang wrath that instruction and guidance were at a minimum. In order to climb out of this morass, I was forced to take matters into my own hands. I did this by choosing a high school carefully.

My choice was Hunter High, a free college-preparatory school for women. I would have preferred Bronx Science but girls were not admitted at that time. Upon graduation I entered Hunter College, a free college for women, as a physics and mathematics major. I did quite well in school both scholastically and socially. I gave to my classmates what they gave to me--companionship. It did not matter that my friends were oriented towards marriage and I towards a career. I considered it a measure of success in my college friendships that I was chosen to be a bridesmaid at their weddings in spite of our differing point of view. This confirmed my belief that one did not have to espouse the same opinions, to bend to the dictates of society, to get along and have friends. That valuable lesson in mental nonconformity has served me well throughout my life.

In 1949 I passed from an essentially all female environment to one which was almost totally male. This happened quite suddenly, when I accepted a fellowship from Harvard

Graduate School. Many amusing episodes about a woman placed in a male environment could be told. Here is one example. A few years after I arrived at Harvard a notice appeared on the bulletin board advertising an instructorship in mathematics at Yale. Inked in by hand by a member of the Harvard faculty were the words "For men only." As I was the only woman seriously attempting to obtain a Ph.D. in mathematics, my fellow students knew who was excluded. I would have had an excellent chance of obtaining the position had I been a man. As one of my friends happily expressed himself upon seeing the notice, "I am one up on you in this respect." What was my feeling about the matter? It was one of gratitude that the faculty had thought enough of me to ink in the addition. I had expended considerable effort at Harvard to overcome an inadequate mathematical background. This remark gave me a sense of achievement.

Little discriminatory acts such as professorial stag parties for graduate students --momentarily they forgot I existed--played a rather minor role in my life at Harvard. Of greater importance was the fact that, several years later, the Harvard faculty helped beyond the call of duty. I had disappeared from Harvard and, on my own, had written a Ph.D. thesis in mathematical logic. This was a specialty about which the Harvard faculty had little expertise. I had no thesis advisor, nor any thesis committee. Yet the Harvard faculty took it upon itself to have the thesis evaluated by authorities from outside. I was granted my Ph.D. in 1958, many years before the advent of the current Women's Liberation Movement. By that time I was married to a biochemist and had a young child; I was well-practiced in pursuing a non-traditional course.

A glimpse of the lifestyle

Our lifestyle evolved slowly, beginning as a temporary response to our professional needs. Although we had already committed ourselves to a two-career family before marriage, we never considered the possibility that we would not live together continuously. Our lifestyle, once begun, progressed on its own as we gained experience and understanding. We distinguished four separate components:

Long-term separation: apart for several months at a time, together for several weeks at a time.

Short-term separation: apart for brief periods of approximately one to four weeks, together for even briefer periods, usually a weekend.

Commuting.

Living together continuously.

Each of these was practiced in connection with a two-career family. As a consequence, our "short-term separation" differs from that of the travelling salesman, our "long-term separation" differs from that of the soldier or sailor. Furthermore each component was affected by other considerations--the age and needs of our child, our career demands, the place where we lived. In what follows I give a brief historical account including all four components and their interactions with the conditions affecting them.

It all began almost by chance in 1958, shortly after I obtained my Ph.D. I received an offer of a "tenure track" assistant professorship at Pennsylvania State University. As Penn State had some very fine mathematical logicians and no nepotism rule, I could not refuse. My husband, who had not quite completed his Ph.D., would remain in Berkeley, California. My daughter and I would move to Pennsylvania. Except for one brief visit of three weeks, we would live apart for an academic year. We would experience a long-term separation.

We planned our move very carefully, and with particular concern for our 2½ year-old daughter. She was to attend nursery school in Pennsylvania as she had enjoyed one in California. Communication was to be by letter. We had no extra funds for long distance telephone calls or frequent visits. It all seemed safe and assured, if spartan. Unfortunately, Murphy's Law took over; nature intervened and my daughter contracted bronchitis. Central Pennsylvania was no sunny California. Although my daughter managed to catnap between bouts of coughing day and night, I could not. Imagine the situation. I was all alone--teaching, doing research, homemaking, and taking care of a sick child--with little sleep. The first attempt at our lifestyle (although we did not know then

that it was the beginning of a lifestyle) seemed doomed to failure. However we had journeyed too far to turn back. Nursery school was out. After several months I found an adequate babysitter, no easy task in central Pennsylvania. Life could once again proceed on a more even keel.

My husband's single visit during that academic year was awaited with great anticipation. My daughter and I talked about it incessantly. When he arrived, the interlude of togetherness was more than we had hoped for. The bond between us had strengthened, our discussions were deeper and more meaningful. We parted with sorrow, but also with joy at the discovery of our strengthened ties. The long period of separation had provided the impetus for the heightened joy of togetherness. We did not realize then that we had had a glimpse of a new lifestyle: the yearning when apart, the delight when together. We were living in limbo, waiting to be reunited again.

Akiva, my husband, returned as planned in the summer with his Ph.D. and a position at Penn State. We remained together in Pennsylvania for three years. These were good years. By then I was promoted to associate professor. Although we did not realize it, this was but a prelude to other separations.

The next in the series was a short-term separation, begun when I received a fellowship to the Institute for Advanced Study in Princeton. Since the Institute was associated in my mind with Einstein, Gödel, and other mathematical luminaries, I could not refuse the offer. Akiva would remain in Pennsylvania and my daughter and I would live in New Jersey.

Again we planned carefully. My husband would visit us by car on alternate weekends --a seven hour trip, one way. Air and rail transportation to central Pennsylvania were virtually non-existent. As Ina was six, she needed a babysitter only for after-school hours. In Princeton, this was easy to find.

The weekends during which my husband visited were very satisfying. All of our activities were family affairs--none of the "you do this while I do that" arrangement. The intervals of separation provided enough stimulus so that strong bonds were forged during the periods of togetherness. Yet these visits did not have the power of those experienced during a long-term separation.

Our commuting experience was initiated by my husband a year later. During my second year at the Institute, Akiva developed a severe back ailment. After being stretched, pounded, injected and immobilized to no avail by several doctors in central Pennsylvania, he came east to join me and to secure adequate medical service. When he accepted a position at the Veteran's Hospital in Philadelphia, he began commuting. Although we found this to be a pleasant experience, it did not have the positive effect of even the short-term separation.

While in Princeton, we began to search for a place where we could live together continuously. We still had not realized that the patterns of alternating separation and togetherness were to continue throughout our lives. But we had already become quite experienced, both mentally and physically, in undertaking such an arrangement.

Our search led us to the Twin Cities where we lived together continuously for five years. During that time I became a Professor at the University of Minnesota and Akiva was promoted to Section Manager at Archer Daniels Midlands Research Division. Many times my lecturing took me away from home, not only throughout the United States, but also to European countries on both sides of the Iron Curtain. My daughter never accompanied me on these trips. However, the pattern of togetherness remained intact, partly due to the fact that each separation was quite brief and did not involve setting up a new household. To preserve our togetherness I refused several offers as visiting professor at other universities. We were living together continuously as we had anticipated at the beginning of our marriage.

The sudden realization of our lifestyle came in 1969. In that year my husband's laboratory moved lock, stock, and barrel to Decatur, Illinois. Decatur may have its favorable aspects, but these seemed well hidden. All that was apparent were soy-beans, corn, railroad tracks, and a rather mediocre school system. Once again, a separation was necessary. It would be long-term, since transportation between Minneapolis and Decatur

was very poor. We were opting for the ever changing variety of a "long-term separation" over the more even existence of "living together continuously." But we went one step further. If we were to have a long-term separation, could we not be a continent apart? I decided to go to Bristol, England, a center for mathematical logic. My daughter, when asked, elected to join me. If you had to choose between England and Decatur which would you pick?

The arrangements for our stay in Bristol were relatively easy to make. I planned to live quietly in Bristol. Ina was enrolled in school and I settled down to work. Unfortunately, informed of my presence through the grapevine, my colleagues in England and the continent invited me for lectures and short term visits. This surprising development demanded some new arrangements for my thirteen-year-old daughter. Had I been a man, it would have been so simple: leave the child with her mother. Babysitting as we understand it in the U.S.A. was unknown. My colleagues in Bristol were at a loss to advise me: this was new to them too. By chance I discovered an English family willing to take Ina in for weeks at a time. We tried this arrangement on some of my overnight trips within England, e.g., to Oxford. When it became clear that Ina was enjoying life in an English household, I was able to plan trips to the continent, each several weeks in length. Thus I was able to keep my commitments both to colleagues and family. The latter would have been easier if I had had more than one child.

Ina's experience with an English family had a profound effect on her. She had arrived in England, a timid thirteen-year-old, afraid to use English money. She left, as she herself had wished, by flying alone to Paris to a French summer camp. She had become a confident fourteen-year-old.

During that year abroad, my husband visited us twice. He came during Christmas, about five months after we had parted; he returned during the summer. Each visit was three weeks in length. In each we experienced the joy we had come to expect of the long-term separation.

After fourteen months abroad, my daughter and I returned to Minnesota; my husband remained in Illinois. We continued this long-term separation for the next five years. Very recently my husband has left Illinois to do consulting work in biochemistry. This takes him to many distant places for varying lengths of time. Today long-term separations alternate with periods of living together.

When our daughter left home to go to college, our lifestyle expanded to include her as an equal partner. "Up to now," she said, "I have been following one of you. Now we each have our own center." To her it seemed a natural thing to do once one reaches adulthood: a physical separation which does not connote an emotional one. At times all three of us are apart, at times two of us are together, and sometimes all three of us are in the same place. We are still practicing the lifestyle we began twenty-three years ago.

Reflections

As my husband and I review our married life over the past twenty years we find that we are in agreement about one fundamental point: life was richer than it would have been had we lived together continuously. Let me attempt to explain this.

There are two major reasons for our point of view. First, our lifestyle paved the way for increased mutual respect. Living apart made it possible for us to practice our careers and achieve professional recognition. Even when apart, we felt that each had a worthwhile occupation and each was leading an interesting life. Thus each became a more fascinating person to the other. Second, our lifestyle helped us acquire increased inner strength and independence--two qualities which we both prized. I did not need my husband to support me. I was doing that on my own. My husband did not need me to sew, cook or clean for him. He had sharpened these skills during the long-term separations. We did not remain married because we feared loneliness. We knew how to live alone successfully. We did not fear bringing up a child alone. We were doing that too. We stayed together because we wanted to and not because we felt we must in order to survive. Our separations forced us to strip our lives of those aspects of family living which were unessential to us and focus on those we considered important.

The third reason is concerned with interchangeability and equality in family roles. This happened, not only when we were apart, but also when we were together. As we had so little time together, only matters of importance to us were included in our plans. Unimportant matters, such as household chores, rarely concerned us. We attempted to discharge as many of these as possible while alone. Interestingly enough those which remained always got done. In the spirit of good will and helpfulness which always accompanied our meetings, one of us--although not always the same one--would finish off the job as quickly as possible so that we could go on to other things. Usually this happened without determining in advance who would do it. This made our roles within the family more fluid. There was little time to stake out a position, either a traditional one or one motivated by the Women's Movement. There was even less time to enforce that position. Nevertheless we did achieve some of the same results that other couples, influenced by the Movement, obtain by negotiation, argument, compromise and marriage contracts. Ours came easily and naturally as a consequence of our lifestyle.

The fourth reason is one of sheer enjoyment. Our lifestyle provided an element of newness, of dynamism, of change, and of excitement. The long-term separations gave us enough time and distance to compare life apart with life together. We were continually evaluating and re-evaluating our marriage. When apart we enjoyed lives which were emotionally and intellectually stimulating. We thought of each other constantly. When we met after a long-term separation it was not the "cocktail hour" or the ritual "evening meal" type of togetherness we remembered from the days when we lived together continuously. Discussions were considerably deeper, emotional investments considerably stronger.

In recent years our lifestyle has helped us in a fifth way. My women friends with grown children have experienced the "empty nest syndrome." When their children left home they felt somewhat lost, unneeded and unwanted. This was true even of those who were professionally active as doctors, lawyers, etc. I never shared this feeling. This is not surprising. Our marriage was not based on continuous physical nearness. Hence our daughter did not leave the family circle simply by living far away from her parents.

Let me make it very clear. There are some difficult problems connected with this lifestyle. One has to work hard to achieve some of the effects mentioned above. A full discussion of this would require a separate article; instead I will consider briefly two sample problems. The first is the matter of sex. Clearly a lifestyle such as ours does not permit sex every other night--or even sex every week. Some agreement between husband and wife appears necessary. Our solution was abstinence while apart. Although it may not be essential to the success of the lifestyle considered abstractly, we considered abstinence important to us. Is this our link to tradition?

A much more subtle problem is the matter of socializing in a "couple-oriented" society. I believe that this is one of the most important and delicate problems confronting the participants of a non-traditional lifestyle. Unfortunately, lack of space prevents me from describing its dynamics. For the present let me merely state that, even when alone, my husband and I are each invited to parties, theatre outings, and other social events on a regular basis. It is easy and natural for us to participate, and we usually do. In brief, my husband and I lead active social lives when apart as well as when together.

More than forty years ago, I decided to have a career. I was amused when told that a full-time mathematical career was incompatible with successful family life. The Women's Movement of the late sixties changed all this. The career-wife is now in fashion.

More than twenty years ago we began this lifestyle. Today I am again amused when told that what we did is incompatible with successful family life. Ours is richer for having lived apart. It is my hope that those who are beginning to practice this lifestyle, perhaps with considerable trepidation, will be somewhat reassured by our experiences.

NSF NEWS

It is possible that the National Science Foundation will have some money available for Visiting Professorships for Women in Science. These would enable senior women to take a year off to help their research and to serve as role models.
For details, please contact Judith Sunley, Program Director in Algebra, Mathematical Sciences Section, NSF, Washington, DC 20550.

There are five rotatorships open this year in the areas of classical and modern analysis, applied mathematics, probability and statistics, and geometric analysis. Information may be obtained from William Rosen, Head, Mathematical Sciences Section, NSF, Washington, DC 20550.

FOR BOYS ONLY? TRAINING INSTITUTE FOR SEX EQUITY IN MATHEMATICS

A thirty-hour inservice institute to train educators in working toward sex equity in mathematics education was held in February at two New York City sites. The Institute, funded by the U.S. Department of Education under Title IV of the 1962 Civil Rights Act and Title IX (Sex Equity), and sponsored through the Institute for Urban and Minority Education, Teachers College, was open to New York City Board of Education personnel serving grades five through nine, particularly classroom teachers, administrators, guidance counselors, and paraprofessionals, as well as to parent association leaders.

The goals of the Institute were to seek the causes of sex inequity in mathematics education, to discuss and develop programs that encourage nondiscrimination on the part of school personnel and parents, and to provide resources to carry out these programs. Participants dealt with such topics as math anxiety, problem solving techniques, real world applications of mathematics, computer literacy, and theories of learning. Discussion was combined with film viewing, visits by role models, and practical "hands on" activities that can be used in the classroom.

The project is also underway at two New Jersey sites, Montclair and Ridgewood.

Serving as consultants and trainers were Claudia Zaslavsky, author, former secondary school mathematics teacher, and retired member of Greenburgh Teachers Federation; and Dr. Carole Lacampagne, assistant professor of mathematics at Bergen Community College, and national director of the organization Women and Mathematics.

AAAS VISITING SCIENCE CONSULTANT PROGRAM

The American Association for the Advancement of Science has received a grant from the Minority Institutions Science Improvement Program (Department of Education) to conduct a two-year project to support scientists in three to five day consulting visits at minority colleges and universities to assist these institutions in addressing science-related problems. A wide variety of schools will be involved, including historically Black colleges and universities, Native American colleges, universities and colleges with predominant Mexican American or Puerto Rican populations or with combined minority enrollments of more than 50%, and schools in the Virgin Islands, Guam, Micronesia or American Samoa.

A roster of scientists who wish to serve as consultants is being developed by the AAAS. Experience and training in many fields are being sought, including chemistry, biology, engineering, mathematics and computer science, earth and marine sciences, physics, and quantitatively oriented social sciences. This includes persons currently involved in research, teaching, administration and development. Scientists of all racial

and ethnic backgrounds are encouraged to join in the project. The consultants would provide assistance in areas such as these (the list is suggestive rather than exhaustive):

* teaching methods in the sciences, including audio-visual, personalized, and computer assisted instruction
* development of faculty skills in science research and teaching, including module preparation
* planning and developing specific majors and programs
* evaluating and upgrading science libraries
* instrumentation use, acquisition, and improvement
* accessibility to science labs, classrooms, and libraries for physically handicapped students
* quantitative methods in the biological, physical, and social sciences
* comprehensive science planning, including review of curricula, facilities, equipment, libraries, and support programs
* computerization: development of computer science majors and minors, selection and acquisition of equipment, and computer applications (including collections management)
* improving sources of financial support for science through effective proposal writing, knowledge of the formal and informal aspects of successful applications for money, guidance on where to apply for support
* accreditation of programs in scientific fields
* creation of co-op, intern, 3-2 (dual degree), and similar programs designed to introduce students to the work world of science, including engineering and environmental fields
* science budget administration and management.

Minority institutions will be asked to specify areas in which they need a consultant and will be given summary lists of consultants from the roster files. The AAAS will "broker" the match between school and consultant. Scheduling will be determined by the scientist and the school. Travel and a modest honorarium will be paid by the project, and the school will provide lodging and meals for the scientist. After the visit, the consultant and the school will evaluate the visit. A follow-up evaluation of the institution several months later will also take place.

The project timetable runs from August 1981 to August 1983. There will be four rounds of requests from schools scheduled tentatively for November 1981, February 1982, June 1982, and January 1983. Resumes of scientists who might serve as consultants are welcome at any time.

Project address and phone: Visiting Science Consultant Program
Opportunities in Science
AAAS
1776 Massachusetts Ave., N.W.
Washington, D.C. 20036
(202) 467-5438 (voice or TTY)

ON CAMPUS WITH WOMEN

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Myths Examined About Women as Part-Time Faculty

Part-time employment is as high a likelihood for men as for women, according to recent data. In addition, the great majority of women do not fit the stereotypical image of women part-timers. Such conclusions form part of a study on Women as Part-Time Faculty Members. Seen for years largely as a women's issue, due in part to the

unexamined assumption that part-time academic work held more appeal for females than for males, the view of part-timers in academe is currently undergoing a shift, in which women are seen to be a minority, comprising 40 percent of the part-timers at universities, 41 percent at four-year institutions and 37 percent at two-year institutions.

The stereotypical view of women teaching part-time in order to tend to child-rearing and household responsibilities is yielding to a wider view which sees women as motivated toward part-time work, like men, for a variety of reasons. The study examines four kinds of part-timers: those wishing to work full-time but unable to find full-time positions; part-timers holding another job of 35 or more hours per week; those working part-time while caring for children or other relatives; and persons holding part-time jobs in one institution while working more than one hour but less than 35 hours per week in another position. Of those wishing full-time work, the percentage of men is considerably smaller than the percentage of women, suggesting that a greater number of women than men prefer a full-time position but are unable to find one. While over half of the men surveyed worked part-time as a sideline, this was true of only 13 percent of the women. More men than women were likely to hold one full-time and one part-time position, whereas two part-time jobs were held twice as often by men as by women. The category of those dividing work in the labor force with work in the home was made up almost entirely of women. Only 26 percent of the women surveyed worked part-time in order to care for children or other relatives, as compared with less than half of one percent of the men.

Additional findings showed women part-timers more likely than men to be in fields with an overabundance of faculty, e.g., arts, humanities. Correspondingly few women held such positions in math, engineering, and law. Regardless of category, women's total income was substantially less than the earnings of their male counterparts.

The study, by Barbara H. Tuckman and Howard P. Tuckman of the Department of Economics at Memphis State University was based on data from the American Association of University Professors. It was published by Elsevier Scientific Publishing Co., Amsterdam, The Netherlands.

Unemployment: Higher for Women Across the Board

The 1979 unemployment rates among 1977 graduates in all science and engineering fields (physical science, math and computer science, social science, psychology, life sciences, and engineering) were higher for women than for men at both bachelor's and master's degree levels, and in almost all fields, as in previous years. Particularly high discrepancies were seen in the social sciences, with a 13.3 percent unemployment rate for women as compared with only 2.4 percent for men, life sciences, with 5.3 percent unemployment for women as compared with 1.7 percent for men, and across all science and engineering fields, with a 4.3 percent unemployment rate for women as compared with 1.7 percent for men.

Women's Educational Equity Act Saved!

As a result of hard work by women's organizations and many individual women (and men) across the country, the Women's Educational Equity Act (WEEA) survived Congressional and administration attempts to gut it. WEAL (Women's Equity Action League) and PEER (Project on Equal Education Rights) played a major role in saving WEEA. Originally scheduled to be incorporated into block grants to the states--where it would have had little chance of funding--WEEA was reinstated by the conference committee working out differences between the House and Senate versions of the budget Act. The authorization level, however, was lowered from $80 million to $6 million. (The actual amount originally appropriated for fiscal 1981 was $10 million, which was later reduced to $8.1 million.) The survival of the Act also allows the continuation of the National Advisory Council on Women's Educational Programs.

American Historical Association Offers Guidelines

The Executive Director of the American Historical Association (AHA) recently sent Guidelines on Hiring Women Historians In Academia to the chairs of History departments

all across the country. The guidelines were designed to provide useful information by which history departments could measure their progress in providing equity for women historians. Included in the guidelines are data on women in the field, such as:

* 90 percent of the women who received doctorates in history in 1979 sought full-time employment as did 90 percent of the men;
* Of the 2,500 women Ph.D.'s in History in the U.S., close to 19 percent were working part-time, compared to only 5 percent of the 14,200 male History Ph.D.'s; and
* Close to half of the women historians working part-time were actively seeking full-time employment.

The guidelines may serve as a model for other professional organizations considering similar tools. Copies of the guidelines are available free from: AHA, 400 A St., SE, Washington, DC 20003.

Women: Getting Ahead by Degrees

As enrollment of women increases at every level of postsecondary education, statistics on the rising number of degrees for women come as no surprise. Among them:

* In 1979, women earned almost half of all degrees awarded at the bachelor's and master's level, 14 percent of doctorates, and slightly over a quarter of first-professional degrees, (e.g., medicine, law).
* The years 1971-1979 show a 101 percent jump in the number of women earning doctoral degrees, with women dominating the fields of foreign languages, home economics and library science.
* The same years show a 558 percent increase in the number of professional degree candidates, with law and medicine accounting for 83 percent of first-professional degrees granted to women in 1979.

Women made up over half of the 11.7 million college students in the fall of 1980, as contrasted with 41 percent of the 8.6 million students registered--representing a 35 percent rise in overall enrollment, but a 67 percent gain in the enrollment of women. Graduate enrollment of women jumped from 38.9 percent in 1971 to 46.1 percent in 1979.

The data are reported in Degrees to Women: 1979 Update, by the National Center for Education Statistics (NCES). Single copies of the report are available free from: Statistical Information Office, NCES, Presidential Building, 400 Maryland Ave., SW, Washington, DC 20202.

Students' Career Aspirations Forecast Continued Sex Segregation in the Marketplace

A study comparing career aspirations of undergraduates at six institutions by sex, race, and college setting found the majority of women continuing to choose fields of study considered "womanly," which in turn confines them in "womanly" occupations, many of which hold severely limited employment opportunities. Despite a dramatic increase in the proportion of women entering law, medicine, dentistry, and veterinary medicine, most women are still selecting traditional fields of study. The study explored possible differences between women and men in coeducational institutions, and between women in coeducational and in single-sex colleges, regarding future plans, choice of major, expected income, and reported self-confidence.

Between the sexes, the most striking difference was that women were significantly more likely than men to include marriage and family in response to questions about future plans.

Women in coeducational institutions were more likely to choose a social science major than their counterparts in single sex schools. Members of the latter group were significantly more likely to report themselves satisfied with college, as well as with their choice of major. The greatest difference between the two groups was in their use of the career counseling center, a resource of which women at women's colleges were far more likely to have taken advantage than were coeds.

The university women chose a wider range of majors than those at other institutions, but had lower income expectations in comparison with those of their male classmates.

The author suggests that "what is needed is to understand why men are more sure of themselves than women are."

The study, "Antecedents of Sex Segregation at Work: Students Career Aspirations," by Jennie Farley, appeared in the May 1981 Journal of College Student Personnel.

OF POSSIBLE INTEREST

A call for papers has been issued for the Conference on Numerical Simulation of VLSI Devices, which will be held at 57 Park Plaza Hotel in Boston, November 2-4, 1982. The major emphasis will be directed towards the numerical solution of the coupled two- and three-dimensional systems of partial differential equations used to describe the process steps and device behavior. Device related aspects of circuit design and simulation of system layout will also be considered. For more information, write Hugh B. Hair, SIAM Services Manager, 1405 Architects Building, 117 South 17th St., Philadelphia, PA. (214) 564-2929.

Three Extraordinary Women, The University of Tennessee Press, 293 Communications Building, Knoxville, TN 37916.

Studies in Women and Religion, The Edwin Mellen Press, P.O. Box 450, Lewiston, NY 10092.

Women, The University of Chicago Press, 11030 S. Langley, Chicago, IL 60628.

Women's Studies, The Haworth Press, 149 Fifth Ave., New York, NY 10010.

DEADLINES: Mar. 24 for May-June, May 24 for July-Aug., July 23 for Sept.-Oct.
AD DEADLINES: 5th of preceding month, e.g., April 5 for May-June

ADDRESSES: Send all material except ads to Anne Leggett, Math. Dept., Western Illinois University, Macomb, IL 61455. Send everything else, including ads, to AWM, Women's Research Center, Room 204, Wellesley College, 828 Washington St., Wellesley, MA 02181.

Job Ads

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

University of Alabama. Dept. of Mathematics, P. O. Box 1416, University, AL 35486. Possible tenure track Asst. Professorships. Required: Ph.D. & demonstrated ability in research & teaching. Current research interests include algebra, analysis & applications, & technology. Interests of candidates should complement those of people in Department. Write to C. Hobby.

San Francisco State University. Department of Mathematics. Anticipated tenure track faculty positions & visiting appts. in Computer Science Program, fall 1982. Required: strong interest & capability in teaching & research. Seeking candidates specializing in data base, operating systems & distributed systems design. Rank & salary dependent on qualifications and experience. Send resumes to Prof. James T. Smith, Comp. Sci. Program, 1600 Holloway Ave., San Francisco, CA 94132.

Eastern Connecticut State College. Department of Mathematics & Computer Science. Instructorship or Asst. Professorship in Comp. Sci., Fall, 1982. Teach 12 semester hours, primarily COBOL & FORTRAN. Required: minimum of MS in Comp. Sci., some college-level teaching experience. Rank & salary commensurate with qualifications. By 3/8/82 send resume & 3 letters of reference to Gerald Geissert, Chairperson, Dept. of Mathematics & Comp. Sci., Eastern CT State College, Willimantic, CT 06226.

Columbus College. Dept. of Mathematics & Computer Science, Columbus, GA 31993. Two positions Sept., 1982. Required: Master's Degree, but Ph.D. preferred. Duties: Will teach undergraduate math and/or comp. sci. Rank & salary dependent on qualifications. Send vita & transcripts to Dr. Jarrel Yates by 4/15/82.

Purdue University. Department of Mathematics, West Lafayette, IN 47907. M.S. Baouendi, Head. (1) Several regular or research Asst. Professorships 8/82. Required: exceptional research promise & excellence in teaching. Send resume & 3 letters of recommendation. (2) One or two senior positions for year 82/83 in applied math. (Prof. or Assoc. Prof. with tenure) Salary competitive & negotiable. Required: excellent research credentials. Please apply early.

Holy Cross College. Dept. of Mathematics, Worcester, MA 01610. Peter Perkins, Chmn. Regular appt. fall, 1982. Ph.D.'s invited to apply. Field of specialization open. Excellence in teaching is top priority, but research is encouraged & required for promotion & tenure. Teaching load: 3 courses per semester. Usual fringe benefits. Salary competitive. Applications should include resume, transcript & 3 letters of recommendation.

Oakland University. Dept. of Mathematical Sciences, Rochester, MI 48063. Likely tenure track asst. professorship 8/15/82. Ph.D. required with strong potential for research. Prefer applicants in fields of statistics or operations research. Two course teaching load. Salary competitive. Contact Donald G. Malm, Chair.

Wayne State University. Dept. of Mathematics, Detroit, MI 48202. Position of Chair of Dept. of Mathematics, Fall, 1982. Required: established record of excellence in research, commitment to teaching & capability for leadership & administration. Send resume & names of 4 references to Dean Martin T. Weschler, Secretary, Mathematics Chairperson Search Committee, 554 Mackenzie Hall.

Rutgers - The State University. Dept. of Statistics, Hill Center, New Brunswick,NJ 08903. Two Asst. Professorships, Fall, 1982. Ph.D. required before 12/31/82. 3 year appts on tenure track lines. Duties: teaching undergraduate & graduate statistics, doing research in applied or mathematical statistics. In one position some consulting will reduce teaching load. Original deadline: 2/1/82, but applications will be considered later or until position is filled. Contact Dr. Joseph I. Naus, Acting Chairman.

Colgate University. Dept. of Computer & Information Studies, Hamilton, N.Y. 13346. Tenure track Assoc. or Asst. Professorship Sept., 1982. Required: Ph.D. in Comp. Sci. & strong interest in research & teaching. Computational facilities include a DEC system - 10 & a variety of mini- and micro- computers. Applications from women & minorities are encouraged. Contact Thomas E. Brackett, Chmn.

Sienna College. Dept. of Mathematics, Loudonville, N.Y. 12211. Two Asst. Professorships, one tenure track & one one-year sabbatical replacement. Full time teaching load 12 credits/semester. Required: Ph.D. Person hired for tenure track position will teach algebra & number theory. By 4/1/82 send resume, transcripts & 3 letters of recommendation to Dr. L. J. Patrick, Chairman.

SUNY - Buffalo. Dept. of Comp. Sci., 4226 Ridge Lea Rd., Amherst, N.Y. 14226. Tenure track positions at all ranks. Required: Ph.D. & strong research potential or accomplishment. Applicants from following areas are sought: programming, languages, operating systems, computer architecture & experimental comp. sci. software engineering. Send curriculum vitae & references to P. J. Eberlein at above address.

University of Rochester. Dept. of Mathematics, Rochester, N.Y. 14627. Two tenure track appts 9/1982. Teaching duties are two courses each term. Initial appt. will be for 3 or 4 years. Required: Ph.D., research promise & excellence in teaching. Send resume & names of at least 3 references to Chmn., Math Dept.

Carnegie-Mellon University. Dept. of Mathematics, Schenley Park, Pittsburgh, PA 15213. 3 Asst. Professorships. Prefer candidates in mathematical optimization, general analysis, & numerical analysis. Will assist in Applied Mathematics Program. Required: potential in excellence of teaching and sufficient breadth to develop & teach courses in diverse areas of applied math; strong research potential & ability to work on problems of interest in engineering & physical sciences, or the management & social sciences. Contact Prof. George J. Fix, Head.

College of Charleston. Dept. of Mathematics, Charleston, S. C. 29401. W. L. Golightly, Chmn., Search Committee. Asst/Assoc. Professorships. Two tenure track positions available 8/22/82. Teaching undergraduate courses in applied & pure mathematics & computer science (up to 12 hrs/wk with possibility of 6-9 hrs/wk). Required: Ph.D. in math or related field, commitment to teaching & continuing research. Prefer those with training in pure & applied math. Salary depends on experience, with a minimum salary of at least $20,000. Send 3 letters of recommendation & resume to Chmn., Search Committee.

Society for Industrial & Applied Mathematics, 1405 Architects Bldg., 117 South 17th St., Philadelphia, PA 19103. New full-time position for an articulate, forward-moving professional to play active role in advancing programs of a pioneering mathematics society. Incumbent will be responsible for overseeing & coordinating technical activities of society & for providing technical support for its committees. Required: advanced degree in science & technology, preferably the mathematical sciences, and administrative experience. Contact Dr. I.E. Block, c/o SIAM at above address.

SURVEY for the AWM Education Committee

Please complete the following questionnaire and send it to E. M. Silvia; Department of Mathematics; University of California, Davis; Davis, California 95616.

1. In your opinion, should the committee:	Yes	No
(a) compile a list of programs that seek to increase the participation of women in mathematics:	/_/	/_/
(b) prepare a bibliography of relevant articles?	/_/	/_/
(c) attempt to identify and encourage mini-networks among those with common interests related to women and mathematics	/_/	/_/
(d) identify a set of major concerns about the math education of women?	/_/	/_/

2. Please list any programs that seek to increase participation of women in mathematics at any level. (Address or partial address would be much appreciated.)

3. What general interests do you have related to the mathematics education of women? Please specify levels.

4. What general concerns do you have related to the mathematics education of women? Please specify levels.

5. General comments and suggests:

Name_____ Address_____

ASSOCIATION FOR WOMEN IN MATHEMATICS
MEMBERSHIP APPLICATION

The AWM membership year is October 1 to October 1.

Name and
Address _____

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_____

_____

_____

Institutional affiliation, if any _____

_____

New_____ Renewal _____

Individual $15.00 _____

Family $20.00 _____

Retired, Student, Unemployed $5.00 _____

New Member Rate: Individual,
for each of first 2 years $10.00 _____

Institutional $25.00 (Two free advertisements in the Newsletter) _____

Contributing Member $20.00 or more in addition to regular dues _____

Make checks payable to: ASSOCIATION FOR WOMEN IN MATHEMATICS

and mail to: Association for Women in Mathematics
Women's Research Center, Wellesley College
828 Washington Street
Wellesley, Massachusetts 02181

Association for Women in Mathematics
Women's Research Center, Wellesley College
828 Washington Street
Wellesley, Massachusetts 02181
March - April, 1982

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