

# Association for Women in Mathematics

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NEWSLETTER

July-August 1986

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## PRESIDENT'S REPORT

International Congress of Mathematicians ICM-86. Plans for the AWM panel at the ICM-86 are well underway. Our panel, titled "Women in Mathematics: An International Perspective 8 Years Later" will have representatives from eight countries: Argentina, Australia, Brazil, Denmark, Federal Republic of Germany, France and Nigeria. The panel will meet in the Physical Sciences Lecture Hall 1 from 7:30 to 9:30 on Wednesday, August 6, 1986. The panel will be preceded by an AWM sponsored carillon recital by Lucy Dechene at 6:00 p.m. and followed by a reception. I look forward to seeing you all there.

I am pleased to report that the executive committee of the International Mathematical Union has been receptive to letters from AWM about the dearth of invited women speakers at the ICM. It is aware that the program committee should make sure that qualified women are not overlooked in the selections process. It has agreed to pass on to its successor the suggestion that the program committee charge the panels to consider women in making their recommendations. This is particularly important since these panels are traditionally composed of previous speakers and hence have very few women on them.

### Awards in the Mathematical Sciences.

Twenty Sloan Research Fellowship Awards were made to mathematicians this year--none of the recipients was a woman!

Eight Guggenheim Fellowships were awarded in the mathematical sciences this year--none of the recipients was a woman!

There was one recipient of an AMS Postdoctoral Fellowship this year. It went to a man!

As reported in this space in the last issue, five Presidential Young Investigator Awards were made this year--none to a woman!

Two out of twenty-nine NSF Postdoctoral Fellowship Awards were made to women.

Women are not doing as well as they should in this arena. Sloan Fellowships and Presidential Young Investigator Awards are made on the basis of nominations by department heads or distinguished scholars. If you think you are being overlooked for these awards, let your chairman or a senior member of your department know and ask to be nominated. The other fellowships are by application. Don't be shy about applying.

Statistics on Women Mathematicians Compiled by the AMS. In response to a resolution of the AMS Council, the AMS is reporting on the relative numbers of men versus women in the following categories: membership in the AMS, invited hour addresses at AMS meetings, speakers at special sessions at AMS meetings, and members of editorial boards of AMS journals. The identification was made on the basis of names. There are four categories: male, female, unknown and foreign. The general picture is that although women are 13% of the current membership, over the last five years 5% were speakers at special sessions, over the last ten years 2% were invited hour speakers, and the percentage of women editors has risen from 5% in 1976 to 8% in 1985. For details see the June 1986 *Notices*.

Making Changes. In order that women not be overlooked for prestigious awards and professional chores such as refereeing articles and serving on panels, etc., it is important that there are women and others aware of the situation in a position to make choices. As President of AWM, I am often asked for names of able and available women as government panelists, speakers at meetings and journal referees.

The Directory of Women in the Mathematical Sciences is an important list of women, and I urge you to fill out the questionnaire and return it to R. Struik at the University of Colorado. I am also happy to pass on names when I am asked. If you would like me to do so, write me. It is important that you tell me what you are willing to do, whether you are junior or senior in the profession, and what your fields of expertise are.

P. S. on Funding in the Mathematical Sciences. I have received some responses to my offer of this newsletter as a forum for the issues involved. One of these is in this issue. Please continue to write about this.

Linda Keen  
Department of Mathematics  
and Computer Science  
Herbert H. Lehman College, CUNY  
Bronx, New York 10468

## IN REMEMBRANCE OF VIOLET BUSHWICK HAAS (1926-1986)

by Pamela G. Coxson, Ohio State University

I met Violet Haas in 1983. At age 57, she approached mathematics with an intensity and enthusiasm that one had to admire. At the time she was a visiting professor at MIT under the NSF Visiting Professorships for Women program. She was extremely pleased to have this opportunity to devote full time to research. She wanted to write up her current results and her insights into singular control theory as quickly as possible, so that she would be able to pursue a growing interest in infinite dimensional control problems. Several research papers were completed in the next couple of months, and she contracted to write a monograph on singular control. In addition to this work, she was very active in the control systems community, serving on the program committee of the American Control Conference and as the SIAM representative to the IEEE Conference on Decision and Control. Her hard work increased participation of the mathematical community in these two annual conferences.

It was natural to wonder how the energy and the desire for this furious activity sustained itself in a person who could legitimately turn to thoughts of a comfortable retirement. In the course of our daily trek across Longfellow bridge from Boston to the MIT campus, Professor Haas talked about the years when she devoted much of her energy to breaking down or detouring around numerous barriers. Women graduate students were not permitted to teach courses. She pushed very hard to get office space, which turned out to be literally a small closet. Rules against nepotism had resulted in her taking a position in electrical engineering rather than mathematics. The difficulties of combining work and family responsibilities were compounded by the need to adjust to a different academic environment which was sometimes hostile. She recalled occasions when the entire department put together a grant proposal in which she was the only member excluded. But those days were past. Now she had friends and supportive colleagues within her department. In the preceding fifteen years her research output had accelerated. A dozen M.S. and Ph.D. students had studied under her supervision. She was a mathematician/engineer in her prime, not giving any thought to the prospect of retirement.

Over the years, Violet Haas made a substantial commitment to furthering the careers of younger women and to creating an environment in the university which would be less hostile for them. She was a member of AWM since 1975, actively involved as a coordinator for the Speakers' Bureau. She served for fifteen years as counselor to the Purdue Student Chapter of the Society of Women Engineers. She was a member of the IEEE Committee on Professional Opportunities for Women and the ASEE Constituent Committee on Women in Engineering. In 1983 at MIT she confronted the student "tradition" of showing an X-rated film during registration week. There were many others who voiced their objections that year, and in previous years as well, but her letters in the student paper and her appeals to students and administrators at MIT clearly had an impact.

Eight months after leaving MIT in 1984 and one month after I last saw Violet Haas, she suffered a brain tumor which left her unconscious until her death early this year. There are many things I wish I could have told her about how much I have appreciated and benefited from her advice and encouragement. Today I am happy to be able to share with you this very brief glimpse of her life and work.

Obituary

from SIAM News, March 1986, p. 10

Violet B. Haas died at the age of 59 on Jan. 21, 1986 of a brain tumor. She was a professor in the school of engineering at Purdue University.

Haas was the SIAM representative to the IEEE Conference on Decision and Control Program Committee for two years. During the time that she served in this capacity--a service that was cut short by her terminal illness--she built up the SIAM participation in the CDC conference from a haphazard, almost fringe activity, to a major presence.

Haas actively supported and encouraged women students in engineering, both at the graduate and undergraduate level. In recognition of her efforts, she was elected as one of five "Very Important Women" on Campus by the Association of Women Students in 1976, received the D.D. Ewing Award in 1977 and the Helen B. Schleman Award in 1978. Other honors included being a Vassie James Hill Fellow, A.A.U.W. and an NSF Science Faculty Fellow.

She was one of the principal organizers of a national conference on Women in the Professions held at Purdue University in March 1981, as well as an editor of the proceedings of this conference and a contributor to the proceedings.

Haas received her Ph.D. from Massachusetts Institute of Technology. She has been published in numerous journals and books and is in the biographical listings of *Who's Who in the Midwest*, *Who's Who of American Women*, and *American Men and Women of Science*.

Along with being a SIAM member, Haas was a member of ASEE, IEEE, Society of Women Engineers, and the counselor of the Purdue Student Chapter of the Society of Women Engineers.

Haas is survived by her husband, three children, and two grandchildren.

LETTER FROM THE EDITOR

*Signs* winter issue contains a couple of interesting articles. "Citations: Are They an Objective Measure of Scholarly Merit" by Marianne A. Ferber analyzes citations in a particular area of economics. She discovers that authors of both sexes tend to cite articles by authors of the same sex at a higher rate than their ratios in the literature would indicate. Because there are so many more men in the field, this gives men an edge in the supposedly objective measure provided by a citation index.

"Social Forces Shape Math Attitudes and Performance" by Jacquelynne S. Eccles and Janis E. Jacobs is a rebuttal of Benbow-Stanley. The impact of media coverage on parents' attitudes is discussed. From the conclusion:

Our research suggests that sex differences in students' attitudes toward mathematics and in plans to continue taking math courses are influenced substantially by their parents' perceptions of the difficulty of mathematics for their child and by their own attitudes about the value of mathematics. Furthermore, parents' beliefs, especially mothers' beliefs, appear to have a greater influence on students' attitudes than do students' mathematics grades. ... Finally, our results suggest that media reports attributing sex differences in mathematics to innate or biological factors have a negative impact on mothers' confidence in their daughters' math abilities.

...  
We too hope [that the fact that society encourages boys in math more than girls] will change but fear that change will be very slow, especially given the prevailing biases that influence what is spotlighted and what is ignored in national news coverage. In the meantime, we, as feminists, parents, and teachers, need to do all we can to support and encourage girls in their efforts to develop interests in math and science. In this area, passive nondiscrimination is simply not an adequate intervention strategy.

The article is thus a healthy antidote to "math gene" nonsense. It's a shame these views don't reach the mainstream press.

I know how difficult it is to find the time to write to newspapers, magazines, etc.--I have written many more outraged letters in my head than I have ever sent. But I, along with Eccles and Jacobs

above, would like to encourage you to make your voices heard. One of our members has recently done just that.

The *Seattle Times*, Wednesday, February 26, 1986 contained an article "Gender question still nagging philosophy department at UW" by Sally Macdonald, a staff reporter. The philosophy department has been trying to hire a woman logician for several years. And they have a problem. "Women don't tend to study logic. Should the professors forget logic and recommend the best woman they can find? Or should they remember they need a logician and go for the best, period?" Now, it's news to me that women don't "tend to study logic." I must admit that I don't know what the situation is in philosophical logic, but there are certainly plenty of women in mathematical logic.

"Right now, the all-male philosophy department is interviewing candidates, as it has periodically over the years. Apparently, though, the same thing has happened every time. Everyone says he wants to hire a woman, but everyone agrees on a man as the top prospect." I've heard that one before.

"Unfortunately, nobody but white, male people practice this profession," said Moore." Sigh. About one-third of the graduate students in the department are women.

The following letter was printed in the "letters to the editor" section of the paper, but only after several phone calls and a follow-up letter.

Logical place to recruit is math department

I was rather surprised by the statement in the article "Gender question still nagging philosophy department at UW" (The Times, Feb. 26) that "women don't tend to study logic."

Let me point out that a recent president of the American Mathematical Society, the late Julia Robinson, was a famous logician, as was the first American woman to earn a doctorate in mathematics (in 1882 from Johns Hopkins University), Christine Ladd-Franklin. One of the most eminent logicians of this century was the Hungarian Rosza Peter.

At the University of Washington, for many years the only woman full professor of mathematics was the logician Anne Morel. Perhaps the philosophy department should widen its search to include the most likely source of women logicians: mathematics departments. A concrete first step would be to place a job ad in the newsletter of the Association for Women in Mathematics.

--Dr. Ann Hibner Koblitz

The president's remarks in the *AWIS Newsletter* for Feb/Mar/Apr 1986 contains information about an outstanding videotape series for counseling young women about careers in science. From the article:

With support from the Women's Educational Equity Act Program in the U.S. Department of Education, [Chris Black and her colleagues at the Educational Resources Department of the University of Michigan School of Dentistry] have produced the Women in Science Videotape Series.

...  
The computer science videotape had many ... virtues ... . The woman all loved what they did, they emphasized the need for training in mathematics, they spoke of working hard and the intellectual, financial, and social rewards that went along with their deep involvement in their careers, and they were all people you'd like to talk with at greater length.

This tape was particularly good at presenting the non-traditional. One young woman did not have a college degree when she began working in data entry. This stimulated her to go back to school. I liked her comments about not needing to be the best or the fastest in her math class, as long as she learned the material eventually. Another woman wanted to remain at home because she was nursing her baby--so she began a business in her home teaching people how to use PCs, working with children after school and with adults in the evenings.

...  
[In the overview tape,] Jacqueline Eccles, a psychologist on the faculty of the University of Michigan, pointed out that when girls get good grades, parents tend to praise their effort, while with boys they praise their talent. She also pointed out that girls tend to see math as less valuable than boys see it, so it is important for teachers to point out how math is used.

For boys and girls who attach the same value to math, the boys are more likely to stick with it. Furthermore, girls are more likely than boys to consider a B or C grade a failure, and to think they don't have the skills to go forward in math.

...

The fee for renting a tape is \$25. For further information call Joyce Williams at 313/763-3337.

I don't know whether I should admit this or not, but I was watching the Miss U.S.A. pageant on TV recently. It's interesting to see the response made to the women's movement: the first production number was a feminist anthem of sorts--all about how we're doing this for ourselves, and we're doctors and lawyers, and other wonderful things. One of the interviews of a semifinalist was truly absurd. The young woman is studying aeronautical engineering because she would like to be an astronaut. She would like to be a member of the first space colony. So far, so good. Then she was asked how she would contribute way out there. Well, she was soon to become an aerobics instructor, and she'd like to help keep people fit.

I had the best laugh I'd had in a while--the real-life equivalent of the contestant who is parodied as saying "I want to be a brain surgeon and a flight attendant, so I can help people and travel", right there before me. Playing the game to get herself some education money.

How does appearing in one of these pageants affect the contestants who are not headed for the entertainment industry? One of them was an anchorwoman for a small TV station in the South--could this possibly be good for her career? Will the aspiring astronaut leave it off her resumé and hope no one remembers?

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## HONORS AND AWARDS

Congratulations to Professor Karen Uhlenbeck of the University of Chicago. She has been elected to the National Academy of Sciences!

Congratulations to these recipients of National Science Foundation Minority Graduate Fellowships (institutions listed in parentheses are those awarding bachelor's degrees, those listed outside the parentheses are those at which graduate study will be pursued): Rita Terese Duran (Trinity University), Northwestern University; Selma Maria Gomez (Harvard University), Harvard University; and Jacqueline M. Hughes (University of Cincinnati), University of California, Berkeley.

Congratulations also to recipients of NSF Graduate Fellowships: Christina Louise Black (Cornell University), Stanford University; Mara Chibnik (Brown University), Harvard University; Martha Jean Hiller (Massachusetts Institute of Technology), Massachusetts Institute of Technology; Deborah F. Minehart (Harvard University), University of California, Berkeley; Karen Lee Pieper (Rice University), Stanford University; Stephanie Frank Singer (Yale University), Stanford University; Edith Nelson Starr (Harvard University), Massachusetts Institute of Technology; Cynthia Paige Tharpe (James Madison University), Duke University; and Elizabeth Susan Wolf (University of California, Berkeley), Stanford University.

Both these fellowships provide a stipend of \$11,000 per year for full-time graduate study. An annual cost-of-education allowance of \$5,250 is also provided to the U.S. institution by NSF in lieu of all tuition fees. The cost-of-education allowance for U.S. institutions was reduced from the previously announced level of \$6,000 to accommodate the deficit reduction provisions of the Gramm-Rudman-Hollings act.

The NSF Fellows may attend any appropriate nonprofit U.S. or foreign institution of higher education. Three years of graduate study are supported by each fellowship. The fellowships may be used over a five year period, so students can incorporate teaching or research assistantships into their education during periods in which they are not receiving their fellowship support.

from the *Kovalevskaja Fund Newsletter*:

Dr. Arlene Ash of the Health Care Research Unit of Boston University Medical School has been awarded the Kovalevskaja Travel Grant to spend the month of January 1987 lecturing in Vietnam. Dr. Ash is an expert in applications of statistics to biology and medicine. [The grant provides] \$2000 for travel and expenses from the Kovalevskaja Fund. In addition, all hotel accommodations, meals, and transportation within Vietnam will be paid for by the Hanoi Mathematical Institute. ... The trip to Vietnam is expected to include three weeks in Hanoi and one week in Ho Chi Minh City.

[Mathematics educator Bùi Thị Tý has received a Kovalevskaja Prize.] The award ceremony took place in Hanoi ... Present were leaders and representatives of the Central Committee of the Vietnam Women's Union, the Ministry of Education, and universities and institutes. Dr. Judith Ladinsky of the Department of Preventive Medicine at the University of Wisconsin, who is Chair of the U.S. Committee for Scientific Cooperation with Vietnam, also took part in the ceremony.

## DOD FUNDING IN MATHEMATICS

by Michael Shub, New York, New York

The good part is that a lot of deserving work in mathematics, and dynamical systems in particular, will now be supported. The bad part is that the CIA and the Department of Defense are doing the supporting. *A priori* such support might not be bad: indeed, the people whom I've asked had no complaints about DOD funding in the fifties. The issues are political and internal to mathematics itself.

I received my Ph.D. at Berkeley in 1967. I had been active in the student movement there. In 1968 I applied for NSF and NATO postdoctoral fellowships. The NATO program was a State Department program administered by the NSF. The main differences, if I am not mistaken, were that the NSF postdoc paid more and that the NATO postdoc application required no loyalty oath or record of arrest, while the NSF did. I received both fellowships and accepted the NATO postdoc.

In 1969-70 I used my fellowships to visit L'Institut des Hautes Études Scientifiques outside Paris. I mentioned to Grothendieck that I had a NATO postdoc. He told me that he thought that the military posed a serious threat of destruction to the world and that he thought it wrong to cooperate with them. Grothendieck was just then resigning his position at the IHES because a small percentage of its funding came from the French military.

In 1984, my Ph.D. student, Helena Wisniewski, took a job with the CIA. While she was still considering her new position, I had lunch with her and voiced my disapproval. Several months later Helena called and tempted me with the possibilities of DARPA-CIA funding. This could have significantly improved my working conditions and those of people around me at the City University of New York, while providing support for research in dynamical systems and geometric complexity theory. There seemed to be no strings attached, but when I inquired as to prior publication restraints, the CIA insisted on them. I made up my mind at that point not to get involved. Ultimately, the universities accepting the grants negotiated the prior publication restraints out of the agreement, but I don't regret my decision, even though I have frequently coveted the support. That kind of money is not to be found elsewhere. Due to working conditions as they are at CUNY, I am leaving my job and going to IBM in Yorktown.

I think that the Reagan government has been escalating the arms race enormously, that the "star wars" initiative is very dangerous and wasteful, that DARPA-CIA funding forms a continuum with SDI research. My position has come closer to Grothendieck's. Given the current circumstances, I am not going to apply for funding from DOD agencies.

There are other problems as well. Defense agencies are not in the business of promoting free and open exchange of information. A fair amount of vigilance will be required in monitoring or structuring programs to see that they function appropriately within an academic and free research environment. The National Intelligence Mathematics and Multiprocessor Project kicked off its program with a non-publicly announced, by invitation only, meeting at CUNY. In some ways it was no big deal--most people at CUNY were invited and invitations were easy to get, but many people in the New York area who would have been interested had no way of knowing that the meeting was even happening.

This is the only "closed" meeting in dynamical systems that I am aware of in the twenty or so years I have been in the business, and a bad precedent. Some of us posted a public letter, objecting to this structure. But unlike their universities which resisted the prior publications restraints, the program participants did little or nothing about the meeting. It remained to the AMS to pass a resolution opposing closed meetings. The lesson may be that an institutional overseer is necessary, but from what institution?

One of the participants in the NIMMP project whose funding was channeled through the ONR instead of the CIA has told me that his grant was wiped out by the Gramm-Rudman reductions; they didn't actually get the money. Someone slightly more paranoid than I might think that the whole program of support for mathematics being organized by the DOD will just be the Gramm-Rudman reductions for SDI.

In any case, DOD will have to defend the legitimacy of its math program sometime if the program is to continue. I think that legitimacy will have to be in the form of actual technology transfers to DOD or defense-related industries. Ultimately, the work supported by these grants will shift towards applications in DOD's interests.

Work tends to follow money. With a lot of money coming from Defense, we have to wonder how it will affect mathematics. Over the long run, will their funds provide additional support for mathematics, or will they provide a competitive market for mathematical talent that will redirect it to narrow goals? I know that we need more research support, but I am afraid that the answer to the question is the latter.

## ETHICAL PROBLEMS IN MATHEMATICAL LIFE: Part 2 of 3

edited version of panel talks, "Ethical Problems in Mathematical Life," Laramie, Wyoming, August 12, 1985  
transcription by Margaret Munroe, Ruth Rebekka Struik, and Anne Leggett from tape provided by Struik  
Marian Pour-El's talk will appear in a later *Newsletter*.

### Jean Taylor, Rutgers University

In my role as a member of the Executive Committee of the AMS, I would like to point out the existence of the AMS Committee on Professional Ethics. Its current members are Paul Halmos, Anneli Lax and Murray Protter. It operates basically now on a case-by-case procedure. It is still clarifying its charge.

So, if you are aware of or feel victimized by any ethical matter, there does exist a framework within the AMS for attempting to resolve it. The major source of issues, I guess, tends to be things like plagiarism. I should mention how one case of plagiarism was handled. There was an abstract published in the NOTICES which somebody looked at and said, "Hey, this was taken word for word - a paragraph from one of my papers." He told it to the editor; the editor contacted this person (author of the abstract) and said, "Perhaps you would like to retract or amend your abstract." The person in fact published another abstract saying "Well, in fact, I used those results to prove something else."

In any case, in my official capacity, I should say that there are mechanisms for handling things. You don't have to just sit and fume about them. I will now leave that role completely and switch over to more individual things.

How do you learn what's ethical? It seems to me that you get a little help from your friends. If you think you have ethical questions, you ask people and you find out what your colleagues do in similar situations. That gives you a potential answer. For instance, one of the questions suggested to this panel was "What do you do if you think your paper is going to be sent to a referee who you think will not treat it fairly?" After thinking about it, it seemed to me like the most natural thing would be to say in your cover letter submitting it, "Please do not send this to so-and-so as a referee." I mentioned that to an editor and he said, "Yes, certainly, that happens all the time and we usually honor such requests." So I guess it is somewhat the same thing as Susan Montgomery said, which is that there are ways to handle this. If you just take it on more or less straightforwardly, there are often ways to cope. But if in doubt you can just ask and see if your plan of action is a reasonable way to handle it.

Now of course there are problems with that which come up in subjects much different than mathematics - in that what is ethical within one group might not be considered ethical by the community as a whole. I guess that a lot of things like that have come out in the biological sciences.

Perhaps the mathematics community is small and connected enough that that would not be a problem. But it seems to me that if you have questions of your own as to what is ethical or not, you should ask your colleagues what they would do about it.

There are a lot of gray areas. Maybe it isn't so much a matter of ethics as propriety, as to what is proper to do. On the issue of homework: working together on homework was highly frowned upon when I was an undergraduate, and was highly encouraged when I was a graduate student. From the student's point of view, you have to do whatever your professor tells you and assume, I guess, that it's better not to work together unless your professor encourages you to do so. At a slightly higher level, I think most people would consider it perfectly proper to work on a problem which you knew somebody else was working on in research, but you would consider it vaguely improper to work on a problem that you knew a graduate student was trying to work on for her or his thesis. It's a gray area - you sort of pick this up from your colleagues that one is perfectly acceptable, and the other one is felt to be underhanded.

You certainly are not supposed to steal other people's research and yet it seems to be more or less acceptable to pump people for everything they know in another subject and then publish something which depends a lot on that in your own subject. There is an overlap. You should certainly do a lot of acknowledging in a case like that, and I've certainly known cases of that. You shouldn't publish a paper again which you've published before, but you are certainly free to rewrite it as an expository paper and recapitulate twenty times results that you have published. There are a whole lot of gray areas which you learn mainly from your friends.

## BU MATH PROFESSOR'S LIFE FILLED WITH FIRSTS

by Catherine Cantwell, *Tribune-Herald* staff writer, Waco, Texas  
reprinted by permission from the February 26, 1986, issue  
Thanks to Lee Lorch for bringing this article to our attention.

In the classroom, Vivienne Malone Mayes is a rarity.

She is the only black math professor at Baylor University and one of a handful of black professors in the entire university.

She is one of three women among the 14 tenured professors in the math department.

But Ms. Mayes is used to being somewhat isolated.

As a doctoral student in the mid-1960s at the University of Texas--where she was the second black, and the first black woman, to receive a doctorate in math--she said other students, mostly male and white, virtually ignored her during the first summer session.

She went to the University of Texas after her application for admission to graduate school at Baylor was rejected. But after graduating, she was the first black, male or female, to be hired at Baylor and put on the tenure track.

She was the first black to serve on the executive committee of the national Association for Women in Mathematics.

This year, as she celebrates her 20th year of teaching at Baylor, Ms. Mayes says she has seen a lot of firsts and a lot of changes.

"I never dreamed when I was a child that things would have changed so much when I was a young adult," she said. The civil rights movement was at its height during the years she was in graduate school, 1962-66, and she recalls joining picket lines to force restaurants and movie theaters to admit blacks.

"Attitudes have changed so much," she said. "When I made a low grade, I felt I'd let down 11 million people. That's a heavy burden. Every professor stereotyped blacks by my performance. You felt like you had no choice but to excel."

She said fellow black students often took courses two or three times to make an A because they wouldn't be satisfied with a C.

Although she is pleased that young blacks today do not have to feel that responsibility, she said sometimes they don't try hard enough.

Ms. Mayes has a number of interests and activities. She is the legal guardian for two Hispanic children who live with her--one in elementary school, the other in high school--and she has a grown daughter who lives in Dallas.

She serves as the director and organist for New Hope Baptist Church choir.

Ms. Mayes was one of 40 Waco women named as Pathfinders last fall by the Women's Issues Forum of the Young Women's Christian Association on behalf of her accomplishments.

She attended segregated schools while she was growing up and graduated from Moore High School in Waco. She received a bachelor's and master's degree from Fisk University in Nashville, Tenn., one of the most prestigious black colleges at that time.

She chaired the math department at Paul Quinn College for seven years and at Bishop College for one year before deciding to take math courses in graduate school to "refresh herself."

Her application was rejected at Baylor and she said she still has the letter she received that spelled out the university's segregation policy.

"It was a blessing, really," she said. "If they'd accepted me at Baylor, I would have just taken a few courses and not pursued a doctorate."

Baylor does not offer a doctorate in mathematics. So she took summer courses at the University of Texas and became inspired to pursue a doctorate. After attending UT one summer and seeing others pursuing doctorates, she began to consider the idea.

"The first summer gave me the courage to continue, especially after I succeeded," she said. After the first summer, she taught another year and then quit her job to pursue a degree full time.

The math profession was predominantly male as well as white when she began her career. When the women's movement gained momentum, more women joined the profession, but now the number is again lagging behind the men.

"I always feel like so many of the things that you think are bad when they're happening, can turn into things that are good," she said.

#### CALL FOR PAPERS - WOMEN IN MATHEMATICS: IDEAS FOR THE FUTURE

A one-day conference focusing on strategies to improve the participation of female students in mathematics will be sponsored by Nassau Community College. It will be held Friday, March 27, 1987. Topics of interest include: Innovative Programs, Overcoming Stereotypes, Preparing for Careers in Mathematics, Planning a Workshop, Suggestions from Research, and The Role of Guidance and Counseling. These are only suggestions; we encourage all proposals for papers, panels or workshops in keeping with the conference theme.

Please submit 2 copies of your 1-2 page outline by November 1, 1986 to: Dr. Deborah Levine, Conference Coordinator, Mat/Stat/Cmp Dept., Nassau Community College, Garden City, NY 11530, (516) 222-7383.

#### UCSMI PRE-CONGRESS SESSION OF SURVEY TALKS

On August 2, 1986 the United States Commission on Mathematical Instruction will sponsor a series of invited survey talks aimed at enhancing understanding and appreciation of some of the major research-related work which will be discussed at ICM-86. These talks will take place from 2-6 p.m. at Wheeler Auditorium on the Campus of the University of California at Berkeley. There is no registration fee for this USCFMI Pre-Congress Session.

The schedule is as follows:

2:00 p.m. - Robert Edwards, "Highlights of Low Dimensional Topology"

3:00 p.m. - Richard Karp, "The Polynomial-Time Frontier: Recent Developments in Computational Complexity Theory"

4:00 p.m. - Clifford Taubes, "The Physics and Geometry of Estimates in Nonlinear Partial Differential Equations"

5:00 p.m. - Andrew Ogg, "Modular Functions and Number Theory".

For further information, contact the session organizer: Warren Page, New York City Technical College, 300 Jay Street, Brooklyn, NY 11201, (718) 643-3637 or (718) 643-2470.

## A HISTORIAN LOOKS AT GENDER AND SCIENCE

by Ann Hibner Koblitz, Seattle  
abstract of a paper  
see also Beth Ruskai's article last issue

### Some quotations:

"I am come in very truth leading you to Nature with all her children to bind her to your service and make her your slave." - Francis Bacon

"This vision of a new science fit well into the social and political order that was emerging in 17th-century England. In sympathy with an increasing polarization between masculine and feminine, public and private, work and home, the rhetoric of modern science pitted mind against nature, reason against feeling, objective against subjective." - Evelyn Fox Keller

"Just as surely as inauthenticity is the cost a woman suffers by joining men in misogynist jokes, so it is, equally, the cost suffered by a woman who identifies with an image of the scientist modeled on the patriarchal husband. Only if she undergoes a radical disidentification from self can she share masculine pleasure in mastering a nature cast in the image of woman as passive, inert, and blind." - Evelyn Fox Keller

"To strive to do valuable work as a female scientist is to strive for access to a part of society that embodies the quintessential values of patriarchal culture. The very word *science* implies masculinity. ... [T]he predominant image of the scientist is as a solitary creator with a competitive spirit that pervades his feelings about his peers." - Leanna Standish

"I think that my own subconscious decision against a career in science was made when I discovered that the initiation rite required for admission to high school science courses was the cold-blooded murder of a frog." - Barbara Dodds Stanford

### Some facts:

1. The first three women to teach at the university level in Europe were in the sciences.
2. The first women to obtain doctorates (in the modern sense) were in the physical sciences, anatomy, physiology, zoology.
3. The first and second women to hold chairs at research universities in Europe were in mathematical physics and physical chemistry.
4. An 1897 survey of the German professoriate asking whether women should be admitted to institutions of higher education revealed that the mathematicians were unanimously in favor of women's admission, while historians were almost unanimously opposed.

### Abstract

In this paper, I discuss some recent work by a group of feminist theorists on gender and science. Put in its most general guise, the new "gender theory" says that centuries of male domination of science have affected its content--what questions are asked and what answers are found--and that "science" and "objectivity" have become inextricably linked to concepts and ideologies of masculinity. I focus on the writings of Evelyn Fox Keller, partly because her work is cited by other commentators of this tendency, and partly because she has received attention in the popular as well as scholarly press. After summarizing the writings of the gender theorists, I explore the theories and their implications from my own perspective as a feminist historian of science. I argue that gender theorists: (1) show little understanding of the diversity of scientific workstyles and personalities; (2) make inexcusable generalizations on the basis of very little data (Keller's flawed portrayal of Barbara McClintock as the exemplar of how "gender-neutral" science would look is one of the few concrete examples ever used); (3) make unsubstantiated and unwarranted extensions from the human sciences (such as sociobiology, psychology, primatology) to all of the natural sciences and mathematics; (4) fail to take into account cross-cultural comparisons and rapidly changing historical circumstances; (5) seem unaware of the increasing numbers of women who have had satisfying lives as scientists; (6) employ cartoon-character stereotypes of science, scientists, men, and women; (7) play into the hands of the newest wave of cognitive pseudoscience (brain lateralization studies); (8) tend to see gender roles and expectations as far more constant and consistent through time and place than most social historians would think justifiable.

## REPLY TO STUART S. ANTMAN

by Ann Hibner Koblitz

Replies from authors are not published in the *MAA Monthly*, so this forum has been made available.

In his review of *A Convergence of Lives. Sofia Kovalevskaia: Scientist, Writer, Revolutionary* [1] in the February 1986 issue of the *MAA Monthly*, Stuart Antman brings up three specific points on which he claims that my book, while "written with an outward adherence to the norms of historiography," contains "errors of fact." I would like to address these points in order.

1) Mr. Antman claims that my description of Bunsen's reaction to Kovalevskaia was somehow at fault because a quotation from Mittag-Leffler cites the stories Bunsen told against the Zürich Russian women students, but (supposedly on my own admission) Kovalevskaia never lived in Zürich. In the first place, it is really immaterial that Mittag-Leffler's account refers to the Zürich women; Kovalevskaia, Lermontova, and the other women studying abroad were often grouped together with the Zürich women in pejorative descriptions. Moreover, Kovalevskaia lived in Zürich with her sister for a couple of months (this should have been clear to Mr. Antman from pp. 117-121 of my book), which was as long as many of the students Bunsen was maligning. Finally, let me call Mr. Antman's attention to a September 21, 1874 letter from Weierstrass to Kovalevskaia [3, pp. 50-51] in which he says that Bunsen has called her a "dangerous woman," and jokingly asks her if stories Bunsen is telling about her are true. According to Weierstrass, Bunsen *did* refer directly to Kovalevskaia by name.

2) Mr. Antman criticizes me for saying that "Kovalevskaia had no way of knowing the behind-the-scenes maneuverings of her French colleagues" with regard to the Prix Bordin of the French Academy of Sciences [1, p. 207]. He seems to think that this statement is contradicted by Kovalevskaia's 1886 letter to Mittag-Leffler, which he quotes on p. 140 of his review. The contradiction is more apparent than real.

As any historian knows, not all letters can be taken at face value. A letter may reflect simply the writer's mood at the time; it may be based on misinformation or wishful thinking. There are a couple of errors of fact in the letter from Kovalevskaia: the prize eventually decided upon for Kovalevskaia was *not* the Grand Prix, as Kovalevskaia thought; nor was her work on the rotation of a rigid body nearly as far along as she implies--she would have been unable to publish her full results in the proceedings of the Christiania conference in 1886, as she fancifully writes she might do. I think, judging from the facts of this and other letters in the Swedish archives, one could say (as I *did* on p. 197 of my book) that Kovalevskaia was aware "that the French Academy was thinking of offering a prize for which her work would be suitable." This is somewhat different from saying, as Mr. Antman does, that "she actually participated in precisely those maneuverings." During 1888, in the months before the awarding of the Prix Bordin, letters from Hermite to Mittag-Leffler (cited on pp. 207 and 209 of my book) stress the need for secrecy, and it is clear from these letters that Kovalevskaia was excluded from knowledge of Hermite's and Bertrand's efforts to raise the amount of the prize from 3000 to 5000 francs. Also, letters from her and an account of the period by her lover Maksim Kovalevskii give no indication that she thought she could relax with regard to the Prix Bordin, even if she did know that the contest had been arranged in the hope and expectation that she would win. She was, in fact, nervous about whether she would receive the Prix Bordin until the official decision was announced. This would not have been the case had she been privy to Hermite's, Bertrand's, and Mittag-Leffler's maneuverings.

3) The final "error" that Mr. Antman finds in my work is my use of the term "unreliable" to refer to Felix Klein's evaluation of Kovalevskaia. But Mr. Antman himself acknowledges that Klein disparaged Kovalevskaia's prize-winning work on rotation of a rigid body "with egregious innuendo," and admits that he did so in "the absence of any supporting justification" [p. 141 of his review]. Why, then, is it an error for me to brand Klein as unreliable?

Besides criticizing me on the above points, Mr. Antman calls "absurd" my statement that at the time of her death, Kovalevskaia was considered the equal of anyone of her generation, including Poincaré, Picard and Mittag-Leffler. Mr. Antman apparently feels that his mere pronouncement (handed down, to paraphrase Jane Austen, with all the *éclat* of a proverb) of the absurdity of my comment should be enough evidence for any right-thinking mathematician to immediately see his point of view. Being a historian rather than a mathematician, I'm afraid I disagree. I devote a significant portion of my book to providing documentation of the high regard in which Kovalevskaia was held by mathematicians of her time, and I return to this in one of my articles [2]. To some extent my insistence on this was in reaction to those mathematicians of my acquaintance who, knowing nothing about Kovalevskaia except possibly the few passages in Klein and Bell, would smugly assure me that she was just Weierstrass's "weakness" or something of that sort.

In addition, Mr. Antman accuses me of "retailing superlatives about Kovalevskaia's genius." Since I myself nowhere uses the term "genius" in reference to Kovalevskaia or her works, and I specifically say that it is a pity that "her achievements have been obscured by exaggerated claims and what amounts almost to idolatry in some accounts" [1, p. 269], I find Mr. Antman's criticism perplexing. I quote the superlatives used by her contemporaries (including Hermite, Beltrami, Kronecker, Poincaré, Weierstrass, and such lesser-known mathematicians as P. L. Nekrasov and E. F. Litvinova) to prove a specific point: Kovalevskaia was accepted by her most eminent colleagues as one of them.

If one of my beginning undergraduates had plunged into historical study with all the exuberance and ineptitude of Mr. Antman, I would be amused and touched, and I would try to be encouraging. As it is, I think that Mr. Antman should stick to his primary interest, and leave history and historical commentary to those more competent to deal with them. His specific objections to my "errors" are as groundless as they are petty, while his more global criticisms make no sense, and give a misleading impression of the content and thrust of my book.

#### References

1. Ann Hibner Koblitz, *A Convergence of Lives. Sofia Kovalevskaia: Scientist, Writer, Revolutionary*, Birkhauser, 1983.
2. Ann Hibner Koblitz, "Sofia Kovalevskaia and the Mathematical Community," *The Mathematical Intelligencer*, 6(1984):20-29.
3. Karl Weierstrass, *Briefe von Karl Weierstrass an Sofie Kowalewskaia 1871-1891*, Nauka, 1973. (This is a German/Russian bilingual edition of Weierstrass's extant letters to Kovalevskaia.)

## WOMEN'S PARTICIPATION IN THE PROFESSIONAL WORKFORCE LEVELS OFF - MINORITY REPRESENTATION AT NEAR STANDSTILL

press release

There is evidence of continued improvement in the participation of women in the professional labor force, but the rapid increases of the early 1970s have settled into a slow and unsteady rise, while the evidence of true and steady increase in participation by blacks, Hispanics and American Indians over the past few years appears to be almost totally lacking, according to an updated report just released by the Commission on Professions in Science and Technology (formerly the Scientific Manpower Commission).

The 1986 edition of *Professional Women and Minorities* delineates the professional labor force in the United States by employment sector, field and subfield, and highest degree. Both historical and current data on enrollments and degrees are provided by subfield, and all tables include breakouts by sex and/or minority status. This comprehensive reference book of manpower data is cross-indexed and includes an extensive bibliography.

A major trend discernible in the new data is a leveling off and in some cases a dropping off of participation by women. For example, as a proportion of first-year engineering students, women increased from 2% in 1970 to 17% in 1983, or an average of 1.1 percentage points per year for 13 years. However, in fall 1984 the proportion of women in the freshman class dropped back to 16.5%.

The proportion of women among the bachelor's graduates in geology and earth sciences rose from 11.4% in 1971 to 26.4% in 1982. However, among 1983 graduates, the proportion is 25.8%. Women earned 38.1% of mathematics master's degrees in 1980, but only 34.2% in 1983. In the biological sciences, women earned 33% of doctorates in 1983, but their proportion dropped to 31.3% in 1984. However, in other fields including computer sciences, medicine, business administration and law, the proportion of women enrolled and graduating at every level continues to increase.

Freshman plans for their college majors indicate a continuation in these trends. The proportion of freshman women indicating plans to major in the biological sciences peaked in 1973, and those planning majors in computer science peaked in 1982.

Minorities show mixed progress in technical fields. Among first-year engineering students, Hispanic students have increased from 2.9% in 1973 to 4.6% of the total in 1984. Asians have moved from 1.7% to 5.3% of the entering class in those same years, while blacks have moved up slightly from 4.5% to 5.9% of the class in 1984, down from the 6.1% peak in 1981.

Among bachelor's graduates in science, blacks have dropped slightly from 6.4% of the total in 1979 to 6.2% in 1984. Asians have increased from 2.0% to 2.8% of the total; Native Americans have

stayed steady at 0.4%; and Hispanics have risen from 3.3% to 4.5% of science bachelor's awards. Thus, little progress has been made in those five years.

Women have made more progress in moving up in the occupational labor force than have under-represented minorities. For example, among all personnel and labor relations managers in 1980, 36% were women, 6.5% black and 1.5% Hispanic. In 1985, 44.5% are women, 5.6% black and 3.3% Hispanic. Among physicians, 13.4% were women, 3.0% black, and 4.2% Hispanic in 1980. By 1985, 28% are women, 5.5% black, and 3.1% Hispanic. Women were 30% of economists in 1980 and 34.5% in 1985. Blacks, on the other hand, have dropped from 4.1% of the total to 3.4%.

These statistical parameters are among many available in the new sixth edition of *Professional Women and Minorities--A Manpower Data Resource Service*, which provides a comprehensive statistical picture of yesterday's, today's and tomorrow's professional workforce in the United States in the natural and social sciences, engineering, arts, humanities, education and all the professions. Data in all fields from more than 200 sources are detailed by sex and/or minority status, and the volume includes annotated recruitment resources, both for specialized fields and for general recruitment of professional women and minorities. It is available for \$75 from the Commission on Professionals in Science and Technology, 1500 Massachusetts Avenue, N.W., Suite 831, Washington, DC 20005.

## THE TROUBLES OF A WOMAN MATHEMATICIAN

by Hoang Xuan Sinh, professor, Pedagogic Institute in Hanoi  
Prof. Sinh's research interests are in abstract algebra; she is also a leader of the Vietnam Women's Union. She visited the U.S. in August, 1985, supported by the Kovalevskaja Fund and the U.S. Committee for Scientific Cooperation with Vietnam.  
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Thanks to Lee Lorch for bringing this article to our attention.

There are far fewer women than men in the world who teach mathematics or are mathematicians.

However, ever since my early childhood, I have dreamed of being such a woman. I always got good marks in mathematics at school and at the university. My student's life in France was however harder than that I spent in secondary school, as I had to earn a living while studying. Most of my efforts were devoted to a struggle against cold and hunger. I was not rich enough to buy adequate food and firewood. After getting my "licence," I was sent for by my physics professor, a famous member of the Institute, who asked me about my future projects. Without hesitation, I told him that I intended to prepare for the "agrégation" - the competitive examination for a university fellowship - in mathematics.

"I have paid particular attention to you," he told me, "as you gained excellent results at the exams. I would advise you to start straight away with preparing your thesis for a doctorate of Physics, without bothering to do one for the 3rd degree. I advise you not to sit for the 'agrégation' in mathematics, for it is a very hard exam, especially for a young woman. Stay here and work with me, within four or five years, you will get your doctorate of Physics. If you follow your own idea, you won't get anything better in ten years' time. Benefit from the experience of your seniors."

Well, I knew that many of my fellow students had failed years at the agrégation and finally given it up out of discouragement. But my intention was to stay in France just long enough to get acquainted with research work before returning to Viet Nam. There, with my agrégation I could enter a research centre or a faculty without difficulty. That was why I did not follow my professor's advice.

When I passed my "agrégation," the Toulouse Faculty of Sciences posted my name so that the public was informed; it was considered as a glorious and rare occasion. I was congratulated by Vietnamese and African students who regarded my success as something that enhanced the prestige of coloured people. At that time, a single thought possessed me: if I was admitted to a research centre, my salary would help me to prepare my doctor's thesis without any problems.

That was in the summer of 1959. The North of our country had completed transformation of the relations of production and was engaged in socialist construction. In France, the Vietnamese colony had decided to send some of its members back to the homeland to take part in the national reconstruction. Seeing my friends go one after another, I began to think seriously. In France, my scientific future was secure - so I was told by professors and acquaintances. I was rather tempted to follow that easy way. After many nights of reflection and anxiety, I came to this conclusion: I had to go home, the country was in need of teachers. If, because of the lack of material means, my dream of doing scientific research could not come true, I wouldn't mind.

I arrived in Viet Nam in the spring of 1960; I was allowed to choose the school where I would like to teach. I chose the Teacher's Training College for the simple reason that there I could take an active part in training teachers. As the school was in the suburbs, eight kilometres away from my home, I was advised to think twice and to choose one of those schools that were nearer to the centre of the city so that I could go every day without much trouble. I flatly rejected those suggestions: "I have travelled thousands of kilometres for the sole purpose of serving my country here; I certainly won't be put off by those eight kilometres!"

At the beginning, I was confronted with unexpected difficulties in my work. The use of the Vietnamese language, for the first time in my life, to explain my lessons, or the consultations of Soviet textbooks, when I did not know Russian, such problems were overcome during the first few months, thanks to the devoted assistance of my colleagues. The number of students was quite large, and therefore there was a great difference in their levels. We had to work out such a training programme which would ensure good results for all in their studies. To this were added material difficulties due to the large number of students. The library was unable to provide them with all the necessary books. The lecture hall was just a thatch hut large enough to seat about a hundred people, the lighting was so poor that students sitting too far from the blackboard could not see clearly what was on it, even in the day-time. What was being said in the next classroom could be clearly heard. Thus the best distraction for the students during lectures was to listen to what was being said next door.

I had moments of discouragement. My colleagues and students were not aware of that. All of them had confidence in me and praised me for my efforts and progress in teaching. Seeing them work with great optimism and faith, I began to think hard and finally understood that to make a revolution one should not be diverted from the aim set for oneself and one should find the means to overcome all difficulties.

We had started from scratch in a poor and under-developed country; we had to build up a whole system of higher education with our bare hands. Under normal conditions, no one would have thought of building lecture halls with stamped mud and thatch. Those thatch classrooms were of great significance to the revolution: they helped us to advance by leaps and bounds, to master modern sciences in a short lapse of time, to provide abundance and comfort for our people. I tried first of all to think like my colleagues, that is to acquire a correct method of thinking. After so many years, I can now admit that it was a long trial for me. My students were full of youthful ardour, and among them there were bright and hard-working ones. The country had confidence in us and had entrusted us with the mission of transmitting scientific knowledge considered as seeds to be disseminated everywhere by my students in the plains and in the mountains, in the countryside and the towns.

Having understood the importance of my task, I made greater efforts in preparing my lessons, delivering lectures and giving tutorial assistance to my students. I would write down my lectures again and again, to consult numerous textbooks and seek advice from my senior colleagues. If my work had some success, it was partly due to the devoted assistance of my colleagues. A well-organized course should be a scientific exposition in which the teacher should pay sufficient attention to both fundamental notions and up-to-date knowledge. I tried to enunciate every new notion with the greatest concision possible, to bring it within reach of my students' comprehension, so that they could realize what reality had led to its conception.

Mathematics, with its present high degree of abstraction, is likely to give my audience the impression of being simply the product of pure imagination, without any connection with daily reality. I have always struggled to avoid this in my lectures. I tried to find a clear, intelligible and concise demonstration for each theorem, so as to bring out the logic of its reasoning. By helping students outside class hours I had the opportunity to mix with them and understand them better. I have always sincerely regarded them as friends and I think they feel the same about me.

Teaching and doing scientific research at the faculty are two aspects of the same problem. You can teach well only if you do scientific research. To neglect it is to lose all contact with modern sciences and you would be unable to guide your students and impart new knowledge to them. But we have met with numerous difficulties in this field. First of all, we had very little time; then there were few experienced people in this work to help us with their advice. And none or few of necessary documents were to be found.

Reading about the feats of arms of our fighters at the front, I felt ashamed. My work was difficult, but not so difficult as the fight against the enemy. There was no need to look far; I had an opportunity to talk with women peasants during my long stay in the countryside where we were evacuated in the years of war. Almost all of them had their husbands at the front. They lived with their old mothers and young children. Their shoulders carried the burden of the affairs of the family and the

country. They bore all that, however, with courage and in silence. As for me, it could hardly be said that I had fulfilled my task. That idea haunted me during many sleepless nights. At times, I had resolved to resume my work, but after some time, in face of accumulating difficulties, I lost heart again. I invoked the difficulties in an attempt to justify myself. I lived in a state of worry. During that time, the attitude of the younger colleagues to whom I should render assistance gave me much food for thought. During the evacuation time, I lived in a peasant's house. One day one of my younger colleagues told me, "I am going to build a house for you. Tell me which side you want your house to face, and I'll build you a high and airy dwelling!"

To live in the midst of that unstudied and sincere affection gave me the courage to continue my work. I also understood that my scientific research work could not be separated from that of my colleagues. Today the sciences are too vast for any single individual, even for a genius. I set about forming a team of researchers.

In the village where I stayed, I had the habit of visiting my friends after the evening meal. My intention was to make use of those casual visits to expound to my colleagues the methods of developing mathematics, as I had come to conceive them through reflection. Those discussions gradually led to visible results; my friends were agreed with me on many points. It was the moment, I thought, to set up a team of scientific researchers. Further meetings were necessary to work out a plan of research for the years to come, with three objectives of increasing degrees of difficulty. First, training in research. Second, working on theses for the doctor's degree within the country. Third, doing scientific research within the country. To allow everyone to see the prospects of success, to avoid pessimism and discouragement, we took care to work out a particular plan for each year to come. We carefully noted down everything that was to be done in the year: what to read, what subjects to work on, etc.

I was charged with providing them with the necessary reading materials. As most of them knew only Russian, it was necessary to translate for them works written in other languages. Two years later, they were able to read English and French. In our weekly meetings, we discussed problems we had come across in our reading or listened to one of us making an *exposé* of what had been studied. Those meetings were held regularly, rain or shine; those absent should have good reasons.

As they were inexperienced, I had to make detailed working plans for each of them every week. It took me a lot of time, but it was necessary to train them in this sort of work discipline. Thus my team soon began to work regularly and methodically, overcoming its early difficulties. Every passing year saw the progress of each in his field, which resulted in better teaching by them all.

Those studies were of great help for my personal work. While my colleagues worked out a common research program, I had decided on the subject of my own research. Now my doctor's thesis has been completed and submitted to the appreciation of international scientific circles. It may be accepted but I expect numerous critical remarks and I am waiting for the replies. I will simply tell you now how I was able to complete my work.

[Ed. note: her thesis was accepted, and she was awarded her doctorate.]

My thesis was written during the years my school was evacuated to the countryside. Lack of comfort, shortage of materials, and over our heads the threat of US aircraft which were trying to bomb us back to the Stone Age! I was almost without documents. There were too few publications in our library. Sometimes, the first or second volume of a set was lacking. I was badly in need of the assistance of experienced scientists, as I was not fully confident in my own capacities. Only I told myself that whatever might happen, I would not give up the aim I had set for myself. What would my colleagues say if they saw that I urged them to do scientific research while I was only reading for enjoyment? I arranged my work so that I could be free on Saturday and Sunday for my own researches. I also arranged for one or two hours of research every weekday. In the country, I gave my lectures at a place 4 kilometres away from where I lived. I used to go there on foot and on the way I reflected on what I was going to say, on a theorem to solve, or a chapter I had read. My meals were taken at the canteen; if I wanted to have some extra food, I just bought some bananas or eggs so that no time was lost on the cooking. At times I failed to give my child proper care.

By arranging my time in this way, I could concentrate on the demonstration of my theorems. A demonstrated theorem is a wonder while one for which you don't see a ray of hope after much time spent on it becomes a torment. I had a theorem which required over one hundred pages for its demonstration. To expound it in my thesis, I cut it up into dozens of smaller theorems, for fear that my readers would lose patience. It was a nightmare following me for days and nights on end. Sometimes during the night, while my brain was working subconsciously, I believed I had the solution: I woke up suddenly and settled down at my desk by the light of a kerosene lamp. But after a few moments, I had painfully to recognize my error.

So I worked during long years. Naturally I did not dare to tell anyone that I was working on a doctor's thesis. Under our working conditions, wouldn't it be foolhardy to hope to complete such a thesis? Sometimes, going past my room, my colleagues could see pages covered with writings and diagrams on my desk. When they asked what I was doing, I just told them that there was nothing interesting in it.

During the summer of 1969, seeing that I would have to spend too much time on household work if I went home for my holidays, I stayed at the school, volunteering to look after the poultry so that my colleagues could go home. Thus I had all the time necessary for solving my puzzles. I didn't go home either during the *Tet* of 1970, for I was in danger of falling behind in my schedule. On the third day of *Tet*, as people asked me why I didn't go home, I began to regret having left my father alone at home on those festive days. So when I came home, I kept silent, unable to explain to my father that I had stayed away simply because I could demonstrate a theorem!

All this is happily a thing of the past. I have achieved some results. The day when I announced to my colleagues, with some hesitation, that I proposed to work out my doctor's thesis on the basis of those results, everyone congratulated me sincerely. If elsewhere people are jealous of women out of some sort of atavism, such prejudice was absent in our group. My colleagues helped me when it was a question of carrying my bike over a muddy path, or of finding some decent lodgings in the village for me. Theirs was a correct attitude, different from Western gallantry for it proceeds from a just and revolutionary conception of women. Here, I can say after the poet Gian Nam that if once I loved my country because I played truant and learned to make toy balloons with banyan sap, now I love it because of hard working days spent courageously with a group of colleagues who share a common goal with me.

I have not grown up alone. Around me, all our women have grown, each having fulfilled her particular task. This is the result of the emancipation of women promoted by the Revolution. With gratefulness, I think of the regime that has educated me to become a woman worker of the present, fully conscious of her rights and responsibilities.

## GRANT INFORMATION

### National Science Foundation

The National Science Foundation is an independent agency of the Federal Government established to promote and advance scientific progress in the United States. The organizational philosophy states that, "advancing science and engineering is the basic purpose of all Foundation activities. ... The Foundation achieves its purpose primarily by supporting research and by supporting the education of future scientists and engineers." The Foundation welcomes proposals on behalf of all qualified scientists and engineers and strongly encourages women, members of minority groups, and handicapped individuals to compete fully in all of its programs.

The Foundation over the years has seen it as their responsibility for the advantage of the country to increase the scientific research base by promoting the utilization of individuals from groups traditionally underrepresented in science. Toward this end programs have been established to increase opportunities for these investigators. Examples of these programs include:

NSF Visiting Professorships for Women (VPW): This program is designed to give established women scientists the opportunity to serve as visiting professors at academic institutions in the United States. During the last year, a special effort has been made to increase the number of minority applicants to this program. This has been accomplished by visits from NSF research staff to academic institutions with larger numbers of minority faculty. In FY 1986, \$2.0 million is available for funding in this program; the FY 1987 budget request maintains the \$2.0 million.

Research Opportunities for Women (ROW): This activity provides opportunities for women who have not previously been principal investigators or who are reentering research careers to undertake independent research. The first year of operation for the ROW program centralized the activity; during FY 1986, the program will be mainstreamed to the disciplinary research programs in order to foster permanent liaisons between the women applying to the program and the research programs. In FY

1986, \$2.2 million has been targeted within the research directorates for support of ROW projects; the FY 1987 budget request includes an addition to the target of \$250,000 for a total of \$2.45 million.

Minority Research Initiation (MRI): This program attempts to give greater access to scientific research support to minority groups that are underrepresented in science. Grants are available for up to five years and are not renewable. Like the ROW program, research proposals for this program are handled by the research directorates. In FY 1986, \$2.5 million has been targeted for support of minority research initiation projects; the FY 1987 budget request targets an additional \$200,000 for a total of \$2.7 million.

Research Improvement in Minority Institutions (RIMI): Provides funds to improve research environments at predominantly minority institutions. The FY 1986 budget for RIMI is \$4.99 million; the FY 1987 budget request maintains this amount at \$4.99 million.

Minority Research Centers of Excellence: This is a new program requested in the FY 1987 budget with a starting level of \$4.0 million. The plan of the program is to upgrade the research capabilities of the strongest and most productive minority institutions enabling these institutions to serve as resource centers for precollege, undergraduate and faculty training in other minority institutions in their areas.

These are examples of activities at the Foundation attempting to increase representation of women and minorities in scientific careers; the programs are either sheltered within the Division of Research Initiation and Improvement in the Directorate for Scientific, Technological, and International Affairs (STIA) or targeted within each of the research directorates. But there are other activities within each of the research directorates, that have been designed to help alleviate problems related to the balance of scientific personnel unique to the various disciplines. Some examples follow.

Within the Biological, Behavioral and Social Sciences Directorate, regular research grants can receive supplemental funding for the addition of a female, minority, or handicapped graduate student. The Engineering Directorate has just announced a program of supplemental funding for support of underrepresented groups as engineering research assistants. This program is aimed at the high school or undergraduate student in an attempt to encourage these individuals to select careers in engineering and to provide opportunities to experience the rewards of research through participation in an NSF-sponsored research project.

In FY 1981, the Congress mandated the establishment of the Committee on Equal Opportunities in Science and Technology (CEOST) in recognition of the fact that there were certain groups of individuals that were traditionally underrepresented in science and technology. This committee was established to advise the Director of the NSF on ways in which NSF could promote equality of opportunity, increased participation, and advancement of minorities, women, and disabled persons in scientific and technical careers.

Since that time the committee has been active in a number of ways. Each year an annual report is prepared for the Director to be transmitted to the Congress in order to advise on progress made on mandated objectives. The committee follows closely management recommendations regarding the special programs outlined above and advises the director on any proposed changes. In addition, the committee follows closely data published biennially by the foundation on the participation of underrepresented groups in science. Following observance of trends in this data, the committee may make program recommendations to the Director to alleviate identified imbalances.

The Foundation is committed to improving the participation of women, minorities and handicapped individuals in science in order to strengthen the United States' human resource base. The programs described above are examples of some of the activities NSF has implemented to achieve that objective.

#### Graduate Women in Science - Sigma Delta Epsilon

The purpose of Eloise Gerry Fellowships is to increase knowledge in the fundamental sciences and to encourage research in science by women. The candidate should have a doctoral degree or equivalent. Qualifications should include evidence of outstanding ability and promise in research in the biological, physical, or mathematical sciences. Awards will be made irrespective of race, nationality, creed, national origin, or age.

The fellowship is not to be used to support research leading to an advanced degree. The funds available in any one year shall be the income from the Eloise Gerry Trust Fund. This amount thus varies from year to year. The Committee reserves the right to make no awards if no satisfactory applicants present themselves. The period of the fellowship shall depend upon the option exercised at the time the fellowship is granted. If the fellowship extends beyond one year, submission of an annual progress report acceptable to the Committee is required.

A grant-in-aid has the same purpose but is awarded at the graduate level. It is awarded to a person in the U.S.A. or Canada who holds a degree from a recognized institution of higher learning; gives evidence of outstanding ability and promise in one of the mathematical, physical, or biological sciences; and is currently involved in research or has an approved research proposal at the graduate level. The stipend will be \$750.

For guidelines and application forms for either award, write to Sigma Delta Epsilon, Graduate Women in Science, Inc., 9650 Rockville Pike, Bethesda, MD 20814.

#### OF POSSIBLE INTEREST

MITRE Corporation's Technical Women's Group recently held a Professional Organization Fair in Bedford. Representatives from 14 national and international associations were on hand to take membership applications, explain services and generally to answer questions from employees. AWM was one of the organizations represented. The long-term goal of the fair was to build an ongoing relationship with these organizations.

*Women in the World, 1975-1985: The Women's Decade, Second, Revised Edition* chronicles what has transpired in the movement from the mid-seventies to the mid-eighties. First, women's status in the industrial democracies such as France, Italy, Ireland, and Japan is examined. Next, developing countries (among them, Nigeria, Mexico, India, and Colombia) are treated, followed by such Communist countries as the Soviet Union and Yugoslavia. Questions considered include: Do major political parties include women in leadership positions? How do human rights issues impact the status of women? Are there exclusionary practices built into central government and legal institutions that effectively rule out women participants? Is the number of women voters increasing? Are there revolutionary movements for social change that include women and women's issues in a major way? Are there significant numbers of women elites? Are they making inroads into the centers of power and decision making? Write ABC-CLIO, 2040 A.P.S., Box 4397, Santa Barbara, CA 93140-4397.

Women's Studies. Humanities Press International, Inc., Atlantic Highlands, NJ 07716.

American Women Writers. Rutgers Univ. Press, 109 Church St., New Brunswick, NJ 08901.

Women's Studies. Longwood Publishing Group, Inc., 51 Washington St., Dover, NH 03820.

Women's Studies. Wesleyan University Press, 110 Mt. Vernon St., Middletown, CT 06457.

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

Women's Issues. Lexington Books, 125 Spring St., Lexington, MA 02173.

*Hypatia: A Journal of Feminist Philosophy*. Editor, *Hypatia*, Box 1437, Dept. of Philosophical Studies, Southern Illinois University at Edwardsville, Edwardsville, IL 62026-1437.

Women's Studies. Yale University Press, 92A Yale Station, New Haven, CT 06520.

Women's Studies. Northeastern University Press, P.O. Box 116, Boston, MA 02117.

*Parnassus: Poetry in Review*. The April-10 issue is a 640-page double issue on Women and Poetry. \$11. *Parnassus: Poetry in Review*, 205 West 89th St., NY, NY 10024.

In response to Linda Keen's column Barbara Simons submitted the following list of materials available from Computer Professionals for Social Responsibility. These materials may be ordered from CPSR, P. O. Box 717, Palo Alto, CA 94301.

### ARTICLES

The following articles (arranged in chronological order) are available for \$1.00 each, to cover postage and handling. Back issues of CPSR's Quarterly Newsletter, first published Summer 1983, are also available for \$1.00 each. Please specify issue.

- **COMPUTER UNRELIABILITY AND NUCLEAR WAR**  
CPSR/Madison (11 pages - October 1983)
- **STRATEGIC COMPUTING: AN ASSESSMENT**  
Severo M. Ornstein, Brian C. Smith, and Lucy A. Suchman (4 pages - June 1984)
- **ANNOTATED BIBLIOGRAPHY ON COMPUTER RELIABILITY AND NUCLEAR WAR**  
Compiled by Alan Borning (16 pages - updated October 1984)
- **ETHICAL QUESTIONS AND MILITARY DOMINANCE IN NEXT GENERATION COMPUTING**  
Paul Smolensky (6 pages - October 1984)
- **SELECTED AND ANNOTATED BIBLIOGRAPHY ON ISSUES IN PEACE, INTERNATIONAL RELATIONS, NUCLEAR WEAPONS, AND ARMS CONTROL**  
Compiled by Gary Chapman (8 pages - January 1985)
- **THE RESPONSIBLE USE OF COMPUTERS; WHERE DO WE DRAW THE LINE?**  
Christiane Floyd (4 pages - June 1985)
- **THE STAR WARS COMPUTER SYSTEM**  
Greg Nelson and David Redell (10 pages - June 1985)
- **THE LIMITS OF CORRECTNESS**  
Brian Cantwell Smith (21 pages - June 1985)
- **THE "STAR WARS" DEFENSE WON'T COMPUTE**  
Jonathan Jacky (reprinted from The Atlantic, 6 pages - June 1985)
- **RELIABILITY AND RESPONSIBILITY**  
Severo M. Ornstein and Lucy A. Suchman (reprinted from Abacus, 6 pages - Fall 1985)
- **WHY SOFTWARE IS UNRELIABLE**  
David L. Parnas (8 memoranda; 17 pages - June 1985)
- **SOFTWARE AND SDI; WHY COMMUNICATION SYSTEMS ARE NOT LIKE SDI**  
David L. Parnas (Senate testimony, 2 documents, 7 pages - December 1985)

### VIDEOTAPES

Please specify desired format: BETA, VHS, 3/4" Sony-U-matic.

- **"To Err . . ."** - WHA Madison Public Television presentation on computer failure. Features Severo Ornstein and several members of CPSR/Madison, 15 minutes, May 1985.  
Rental: \$5.00 to cover cost of postage and handling.
- MIT debate on the feasibility of the SDI, co-sponsored by MIT Computer Science Laboratory and CPSR/Boston, approx. 2 1/2 hours, October 1985. Moderator: Mike Dertouzos (head of CSL); pro-SDI: Danny Cohen and Chuck Seitz (SDIO); con-SDI: David Parnas (University of Victoria) and Joseph Weizenbaum (MIT). Includes questions from the audience.  
Rental: \$50 (lower rates for non-profits).  
Purchase: \$50 + cost of materials and labor for copying.
- Stanford debate on the feasibility of the SDI, sponsored by Stanford Computer Science Department, approx. 2 1/2 hours, December 1985. Moderator: Marvin Goldberger (president Cal Tech); pro-SDI: Richard Lipton (Princeton University) and Major Simon P. Worden (SDIO); con-SDI: Richard Garwin (IBM) and David Parnas (University of Victoria). Includes questions from the audience.  
Rental and purchase price currently being determined. Please contact the CPSR office for details.

### BOOKS AND TRANSCRIPTS

- **THE SACHERTORTE ALGORITHM and Other Antidotes to Computer Anxiety.**  
John Shore, Viking Press, 256 pp, 1985.  
Cost: \$6.95. Please add \$1.50 for each copy to cover postage and handling. (CA residents add 6% sales tax.)
- Transcript of MIT debate described under Videotapes above. (50 pages)  
Cost: \$10 to Non-profit organizations; \$20 to Profit making institutions and to Institutional Libraries.

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