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**BEFORE THE SUBCOMMITTEE ON SCIENCE, TECHNOLOGY, AND SPACE
OF THE SENATE COMMITTEE ON COMMERCE, SCIENCE, AND
TRANSPORTATION
ON
TITLE IX AND SCIENCE**

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Mr. Chairman and members of the Subcommittee, it is a privilege to have the opportunity to share some thoughts with you this afternoon on a subject which is near and dear to my heart. It is a tribute to the entire committee that you recognize the subject of discrimination against women in those highly skilled areas of mathematics, engineering and the hard sciences as one of the most critical remaining vestiges of discrimination. In the high tech world in which we are living, we as a country cannot tolerate the underutilization of more than half of our population which happens to be women. To compete in today's world America must fully utilize all of its resources and we are far from meeting this goal in the education areas which are the subject of this hearing. To put it into today's terms, it is like telling the Arizona Diamondbacks that Randy Johnson and the New York Yankees that Roger Clemens will not be permitted to pitch in the early stages of the trip toward the World Series. Discrimination against women is to a great extent an unconscious, yet insidious fact of today's life. Most of our society does not realize that it exists. That makes the public awareness potential of your hearing extremely valuable.

When I became involved with discrimination against women in a very personal way, I was blessed to have an Oklahoma wheat farmer's daughter as my bride. Marvella was an outstanding human being, extremely intelligent, and recognized with many honors at the tender age of 18, whose dream was to become a student at the University of Virginia. Upon application she was informed that girls need not apply. She provided me with a masters degree in awareness of how discrimination affected the lives of our women for the next 26½ years. I am presently blessed by my wife, Kitty, who has been providing me with a Ph.D. degree in awareness of how American women are treated in business and corporate society. To get a complete and alarming view of discrimination and its effects on our families and their standard of living, on the relationship between husbands and wives, and the consequent drain on our society's well-being, I highly recommend Ann Crittenden's *The Price of Motherhood*. It presents a truly frightening picture as far as equality is concerned. This committee is dealing with a critical and perhaps least-known element of this hurdle in our efforts to see that all American citizens are treated equally, and that America realizes its full potential.

The other witnesses on the panel are extremely well qualified to assist in your efforts. For a statistical analysis of this problem, I suggest that after reading my friend and colleague Marcia Greenberger's statement, you take it home and put it under your pillow at night. Ms. Greenberger and the National Women's Law Center have over the years served as modern-day Paul Reveres, or should I say Abigail Reveres, with a message of "Wake up, America." Permit me to give you some personal reflections of what these statistics mean, and share my thoughts about some of the factors which should be considered as the committee fulfills its responsibilities.

From a policy perspective, I became involved in the legislative efforts to root out discrimination against women, as the principal Senate sponsor of the Equal Rights Amendment. Before proceeding further, I should point out that the death of Congresswoman Patsy Mink this week should remind us that she and many of her peers, Edith Green, Shirley Chisholm, Bella Abzug, Barbara Mikulski, Pat Schroeder and others both within and outside the Congress, worked tirelessly to achieve our common goal. I was shocked at the degree of discrimination that existed across the board. Women did not receive equal pay for equal work. Women were often treated more harshly by the nation's court system, because "women are not supposed to commit such crimes." However, it was immediately apparent that the most egregious and damaging discrimination existed in the area of education. Tomes have been written about the fact that the future of our boys and girls and our country depends upon the quality of our education system. I need not repeat the impact of shortcomings in this area to the future well being of our country in today's high-tech environment to those of you who are well aware of this fact.

Most of the publicity about Title IX's existence has been from the accomplishment of our women athletes. Olympic champions, the World Cup in soccer, Olympic medals, the annual trip to the Final Four in women's basketball, and the extraordinary capabilities of the women who nightly perform in the WNBA, have been visual reminders of what women athletes can accomplish. I have been told by countless numbers of these women personally involved that their opportunity to participate would not have been possible were it not for Title IX.

I most confess that this athletic success warms my heart but it also reminds me that at the time we were considering the Equal Rights Amendment and Title IX, I thought that the greatest benefit would come from opening the doors of our education system so that girls, young women, faculty members and administrators could fully utilize their God-given talents in the academic area. As Marvella would remind me on occasion, "We cannot ignore the need to develop the thought processes and talents of 52% of the nation's population."

We have made significant progress in opening the doors of education to America's young women in the last 30 years. Before Title IX, women's enrollment in higher education was in the 40s. Today, women constitute approximately 53% of the student bodies on our campuses, however a careful statistical analysis of the disparities which exist among the various

degree programs causes one to be less enthusiastic and to realize that, despite this progress, unacceptable elements of discrimination continue to exist. Marcia Greenberger and her associates at the National Women's Law Center have provided a detailed study which permits us to focus on where the problem of discrimination is greatest. At the risk of over simplifying a complex problem, boys and young men have, from an early age, been prepared to follow one educational track. Girls and young women have been sensitized to follow another. It has been the age old stereotyping in which educators have assumed that girls and young women are better qualified to fulfill certain roles in society and boys and young men have been educated to fulfill another.

Prior to Title IX, our nation's education system provided boys with shop and vocational education and girls took home economics. The opportunity to train for jobs in the automotive, aviation, food and maritime trades was reserved almost entirely for boys. At the post-secondary level, young men traditionally received training for jobs in trade and industry and technical occupations. At the same time young women were traditionally educated to be homemakers, teachers or in the health occupations and cosmetology, all of which were lower paying jobs. It is readily apparent that wages received in male-oriented occupations provided a better standard of living for the worker and his or her family.

Permit me to zero in on one of the areas of education and that is engineering. Although at some institutions such as MIT and Berkeley the percentage of entry level students is 30%, if one looks at overall averages for the year 2001, students in the entering class averaged 18%, bachelor degrees 20%, and Ph.D. degrees 16.7%. For the faculty as a whole, women faculty constituted 8.9% and senior faculty 4.4%. Approximately 2% of executive positions were filled by women. This constitutes a dismal picture and it is easy to become depressed at the discrimination which exists in this area. Permit me to suggest that rather than dwell on failures, we recognize the successes which have been made in other areas of education. I am an optimist, I am confident that if our institutions of higher learning set the proper standards and follow the proper practices which are designed to accomplish the goal of equal education opportunities for women in the engineering field, we will reach this goal.

Unfortunately, the problem cannot be solved by Congressional awareness or by passage of legislation. Congress can send a clear message to those in the Department of Education and the institutions of higher education throughout the land that present standards will not be accepted. However, to solve this problem in the long run requires dealing with a more fundamental problem. In my judgment, this problem must be addressed first at the breakfast and dinner tables where mothers and fathers need to understand that equal opportunity should be expected for their daughters as well as their sons. Psychiatrists have observed that young girls/daughters begin developing expectations for themselves at a very early age. It is encouraging to note that soccer and baseball fields and basketball courts are filled with girls at an early age on into high school. Those girls are participating in athletics because their parents have encouraged them to do so and have been on the sidelines encouraging them to participate and to be successful. Women would not now be participating at significant percentages in

athletics at our colleges and universities and playing for the WNBA if it were not for encouragement at home or in the early ages of primary and secondary education. Also, it should be pointed out that the Department of Education had rigid requirements which were regularly enforced across the nation's athletic fields. Despite the notoriety and justifiable pride which has accompanied women's accomplishments in the athletic field, it is imperative to recognize that only a very small percent of the student body in our universities and colleges ever play varsity athletics.

Also, it is critical to note that young women need role models which help them focus and develop self-esteem. In the athletic area they have Chamique Holdsclaw, Cynthia Cooper and Mia Hamm, but who are the role models in the academic area? Before Title IX women were suspect if not outright prohibited from studying in the areas of law and medicine. Today, in the upper 10% of most graduating classes you will find at least half of them are women, often the number one graduate is a woman. We need to inform our daughters of the accomplishments of women in corporations and businesses where numerous women are CEOs and serving on corporate boards. But what about the fields of engineering and science? Who do they have for role models? We need to alert our daughters to accomplishments in these areas. Of course, we recognize the exploits and the sacrifices of women astronauts such as Christina McAuliffe and Sally Ride. Permit me to use an excellent example of a peer model in the area of engineering. Recently, my alma mater, Purdue University, appointed a woman, Linda P.B. Katehi, as the university's Dean of Engineering. This is all well and good, but Dean Katehi is one of only 5 women deans out of the top 150 engineering schools in the country. What happens to young women who determine to enter the engineering field? I have already cited the abysmal record in this area. Why do so few women choose engineering as a career? Here is only one snapshot. To advance as a faculty member, it is critical to be granted tenure. This status is not available until seven or eight years of faculty experience. Often the first stage to granting tenure is to receive the majority support of your peers on the faculty which is mostly constituted of men. Often the vote is held in secret and one cannot help but wonder whether male faculty members vote no because they are not comfortable to have female faculty members succeed. Permit me to suggest that the Subcommittee ask the Department of Education to allocate sufficient funds to establish specific criteria which must be met for institutions to comply with Title IX in the academic area. The Department should establish a system of careful examination and enforcement such as that which now exists in the field of athletics.

I am sure that members of the Subcommittee can, from their own experiences, develop ideas which will help provide little girls, older girls and young women with examples and programs which will result in them developing the self esteem and incentive to make their mark in areas where now they are not comfortable.

Unbelievable as it may sound, often young women report that the reason for not pursuing an engineering education is that reports from women who have preceded them are to the effect that often male students have made life miserable for them and their professors have often exhibited outright hostility. If we mean business, I suggest that such students should be

expelled and such professors should find new employment.

Thank you for providing me with the opportunity to express my thoughts.