Speech by Phyllis Evans Miller
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The horizons for women in the professional and technical fields have widened so vastly during the last 10 years that one is overwhelmed by its scope. In 1940 not more than 100 women had ventured into the field of engineering. By 1945, Tau Beta Pi, the honorary engineering fraternity, listed the rate of 1 of 1% of the graduating students as women. By 1952, W. V. Kahler of the Illinois Bell Telephone Company estimated that 3 out of every thousand engineers are women. By total volume these numbers are not impressive but when you realize that almost 3 thousand women have qualified as engineers either by degrees earned or by training in the field it is staggering. All this in ten years.

However when we look back on the careers of the trail blazers it seems as if we have not quite lived up to the marvelous standards that were set for us. Back in the days of petticoats and high buttoned shoes a local Pittsburgher, Bertha Lamme, decided that she would receive her education at Ohio State. Her brother Benjamin Garver Lamme had recently completed the engineering course and she felt it would be fun to take the same course. In 1893 she received her degree, believed to be the first degree granted to a woman in engineering in the United States. Her brother was now working for Westinghouse and his friends did not consider a career as lightly as she did so when they offered her a job she
accepted and proceeded to design and do calculations on generators until her marriage.

Many of these pioneers had such assistance in finding a place for their talents. Kate Gleason and Dr. Lillian Gilbreath never graduated from an engineering college but their training and aptitudes were such that with the assistance of a father and husband respectively they were able to gain the necessary knowledge and experience to qualify as engineers.

It has been truthfully said that war which women detest has advanced them the most. During the First World War five women are known to have been working in this area, at Westinghouse, the Bureau of Mines and American Bridge. It is strange to note that although ten women in this area had degrees during the Second World War, not more than three were employed in the area. These women found it wiser to work elsewhere and unfortunately still do. However on a national scale the shortage of engineers during the Second World War forced many colleges to open their doors to women.

Although most of these coeducational universities and institutes of technology have graduated a woman in engineering, it still requires determination and superior ability for a woman to enroll. It seems a shame that our colleges are the last to realize that women are the answer to the present shortage. It is my experience that more discouragement is encountered in college
than in industry.

The opportunities are here in abundance for any girl that feels qualified to enter the field. However it is important that she be graduated with good marks from a well-rated engineering college, and that she receive her professional engineer's license as soon as possible.

During my college days and even now I hear advice that women should enter the engineering field by back doors. Many are advised to study typing and shorthand to work as engineering secretaries. I have not yet met the woman engineer that has found this satisfactory or advisable. The few that have tried it were very sorry. Obviously a chief engineer would be delighted to hire a secretary with engineering training. However he also hates to lose one and will never be convinced to advance her. With a little time the same chief engineer can be convinced to hire a woman as an engineer. The time spent is worth the triple salary.

The newer type industries like aircraft and electronics are very interested in hiring women. On the east and west coasts it is not uncommon for their ads to specify male or female. On the west coast women engineers are so numerous that it only took two months for a member of the Society of Women Engineers to round up 100 eligible members to form a section in Los Angeles.

In areas like Pittsburgh where there are not many of
these industries, it is wiser for the woman engineer to stick to the smaller companies. Here her abilities will be noted and she will gain more experience.

As with all women, the engineer finds discrimination no more and no less than in many other fields. The discrimination that is encountered is more against her as a woman than as a woman engineer. Once in an engineering department, she finds that little of her engineering ability is questioned; it is usually the reactions that she is supposed to have because she is a woman.

With few exceptions the woman engineer has demanded and received equal pay. The exceptions are in the research field and with companies that hire large numbers of women at cheap rates. The greatest difficulties that are encountered are the rules that are meant to apply to the clerks but are worded to apply to all women. It is very difficult when you have demanded equal pay to find that misworded rules make it impossible for you to work equal hours. It is also embarrassing to find that privileges granted to other engineers are not granted to you because you are a woman, such as smoking.

However when all factors are considered, I feel safe in saying that a girl can go as far as she wishes to in engineering if she is willing to put forth the effort. It is significant to
note that at the yearly conventions of the Society of Women Engineers many companies request that they be permitted to list job opportunities; however there are usually few looking for jobs unless they are better ones.

As we look back over the careers of women engineers, it will be noted that in no case can it be said that the education was wasted. Of the first 36 women to enter the field, 26 are still actively engaged in engineering, or were at the time of their death, or the age of 60. It should be remembered that these are the women that entered the profession in the pioneer days when the going was tough. Two of these 36 women retired for a few years for families and then returned to engineering, while 3 assisted their husband in his engineering work. Only three retired from engineering when they married. These are interesting figures when you consider that 70% of these women were married and most of them had children. Although none of these have matched Dr. Gilbreath's twelve children, many had at least five.

The present records of the Society of Women Engineers show that this record for staying on the job is now being equaled. 95% of the women that we are able to keep track of are still actively engaged in the field, even though 68% of those over 25 are married and again many have children. 3% are assisting their husbands in engineering business, and 2% have retired. Those that have left the field have done so immediately after graduation.
These statistics show that a married woman is not a poor risk in the engineering field, but is even better than a man, many of whom leave the field in the five years after graduation.

I'm sure that you all know of Dr. Gilbreath and how she raised twelve children while leading an active career. So I would like to tell the stories of two very average women engineers that have a home and two children to take care of in addition to running a full time consulting business.

One of these is a local girl, upon graduation she started working with a company that provided excellent experience in her field. Shortly thereafter she was married, by the time her first child was expected she had gained sufficient experience to venture on her own. At first she found that she had all the jobs she could handle but was not earning the money she could when she was employed. Being an industrial engineer she analyzed the situation and finding that she was not earning enough to warrant help with the care of the house, she applied the principles of engineering to the housecleaning and cooking jobs. These have both been worked out to the basis that she need spend no more than an hour and a half a day on these jobs. The time you and I spend getting to work. The rest of her time is for her consulting work and she is kept very busy.

The other woman had obtained a degree and experience in
piping layouts before her first child was expected. Unfortunately her husband's job was changed at that time so she moved far from the contacts that had been made during her employed years. She promptly set about locating all the companies that could use her experience and contacting them. Soon she had more work than she could handle. She firmly believes that since her talents lie in the engineering field the work of housekeeping should be done by one more capable in that line. All but the guidance of her children, of which she has three, all boys.

In almost every branch of engineering some woman has risen to the top. Professor Mary Blaske of Cooper Union is well known in the field of education and has been on many committees studying better education for engineers. Dr. Gilbreath is the leader in her field of industrial or efficiency engineering, Elsie Eaves, Manager of the Business News Department of Engineering News Record and other engineering magazines published by McGraw Hill. Dot Merrill a sales engineer has had her name added to Who's Who for the outstanding work she did on the Engineering Centennial.

Beatrice Hicks heads her own manufacturing company. Hazel Quick's work in civil engineering has been rewarded by appointment to the City Planning Commission of Detroit. Edith Clark has made her name known while at General Electric in the electrical field and now in the educational field at the University of Texas. Olive Dennis has used her engineering to make the passengers of the B & O more
comfortable, she served as a consultant to the Office of Defense Transportation during the Second World War.

The accomplishments of women engineers in Europe match those of American. In England they had sufficient women engineers to organize the Women's Engineering Society in 1922. Their membership as well as the membership of the British Woman's Electrical Association is represented in nearly every country of the world. Women engineers the world over are proud to have had one of their rank knighted by the King of England and recently chosen head of the International Business and Professional Woman's Club - Dame Haslett.