

## HISTORY OF PANHANDLE WOMEN IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM)

*The National Science Foundation* estimates that nearly 5 million people work in STEM fields, just over 4% of the workforce, and the *U.S. Department of Labor* predicts that by 2018, 9 out of 10 of the fastest growing occupations requiring a bachelor's degree will involve significant scientific or mathematical training. While more women are getting degrees in STEM, they are still outnumbered in most fields. Engineering faces the greatest disparity with fewer than 1 in 5 female engineering graduates.

While college educated women make up 49% of the workforce, even women with STEM degrees do not obtain or remain in STEM professions. And while the pay gap between men and women is smaller in STEM fields than in the general population, it is still significant (over 10%) and often occurs between ages 40 and 49, when some women feel the repercussions of having decided to have children.

Over time, there have been three major concerns for women in STEM: training and education, recruitment and employment, retention and promotion. All three must be addressed in order to continue to benefit from women's contributions in this critical area. Mentoring, role models in administration, and changing departmental and corporate culture, are all essential to achieve this goal.

From math teachers to industrial workers, Texas women have participated in STEM fields for generations. Women in STEM have made their mark on Texas since the early 1800s. Matilda Jane (also known as Maude Jeannie) Fuller, born in North Carolina in 1826, moved to Houston with her family in 1843. She married Dr. Samuel O. Young, but was widowed and a single mother in just a year. Nevertheless, she went on to author the first textbook on Texas botany and served as *State Botanist* from 1872-1873.

Dr. Dora Jean Strother McKeown of Fort Worth was an aviation psychologist, a leader in aircraft-cockpit systems research, an accomplished pilot and served 20 years in the Air Force Reserve, retiring with the rank of Lt. Colonel from the 9823rd Air Reserve Squadron, Ft. Worth. She worked at Bell Helicopter/Textron. During World War II, she was a WASP (Women's Air Force Service Pilots) and was a leader in the campaign to get WASPs converted from civilian to military status, which was finally achieved in 1977. The official WASP archives are housed at *Texas Women's University*.

The Panhandle boasts past successes and a bright future for women in STEM. Increased employment for Panhandle women in STEM came in 1942, this was directly linked to the increased employment of women in war industries. In the booster line, women outnumbered men 5 to 1. In that year, half of the members of the editorial staff of the *Pantexan*, the internal newsletter of the *Pantex Ordnance Plant*, were women, proving that women not only worked, but also spoke for the industry. More recently, *Pantex* has sought to train and encourage girls in STEM. Young women engineers at *Pantex* developed a "Smart Cookie" program as a workshop for girl Scouts that encouraged participants to apply engineering principles alongside women in the field. *Amarillo College* has also supported *Girls Scouts* interested in getting their STEM badges with their program "S'More Engineering."

*The Amarillo Zeta Epsilon Chapter of Delta Kappa Gamma Society International*, a professional society of women educators, has held career fairs featuring local teachers and STEM professionals to inspire girls to pursue careers in science, technology, engineering and math. Amarillo's WISE (Women in Science Endeavors) sponsors an annual conference for middle school girls, and *Amarillo College* is a member of the "Change the Equation" a program aimed at increasing the participation of women and underrepresented populations in STEM.

### LOCAL STEM HISTORY

*West Texas A&M University* and *Amarillo College* have a long history of training women in STEM. Below are just a few examples of the achievements of Panhandle women.

### Dr. Ivy M. Parker

From Tucumcari, NM, **Ivy Parker** became interested in chemistry when she was just fourteen. She came to *West Texas State University* and majored in chemistry, winning the *Garvan Essay Prize* her sophomore year. She earned graduate degrees in chemistry at the *University of Texas*, being the first woman at that school to achieve a doctorate in chemistry. Known as the "*First Lady of Petroleum*," and as "*the Gentle Pipeliner*," Dr. Parker was a research engineer with *Plantation Pipe Line Company* in Atlanta. She specialized in combating corrosion and was the only woman in that field at the time. She also worked for *Shell Oil* and taught chemistry at the *University of Houston*. She even appeared on the **CBS** television program "*To Tell the Truth*." Dr. Parker was named a *Distinguished Alumna* by **WTSU** in 1973.

### Edna Graham

Professor **Edna Graham** taught in the WTSU Mathematics Department for thirty-three years, 1919 – 52, having taught at *Baylor College* before. Her WTSU students went on to head the Mathematics Department at *Rochester University* in New York, and another headed the department at *Texas Technological College*. She established a scholarship fund for outstanding math majors. Notable women scientists benefitted from the *Edna Graham Scholarship* such as **Mary Reitman Blaylock**, who worked with the *Atomic Energy Commission*. In 1952, the **West Texan**, said of Miss Graham, "*When Miss Graham does a thing... she does it like fighting fire.*"

### Mary Elizabeth Hudspeth

Born in 1874 in Arkansas, **Mary Elizabeth Hudspeth** and her family moved to Texas where Mary cared for her six siblings after her mother's early death. She attended *Baylor University*, the *University of California*, the *University of Chicago* and *Columbia University*. She was among the inaugural faculty when *West Texas Normal College* opened in 1910. She was appointed the first *Dean of Women* in 1917 by President Cousins, who sometimes referred to her as "*Queen Mary*." Professor Hudspeth taught mathematics, and German and Spanish, and was head of the Modern Languages Department. The first art gallery in the *Panhandle Plains Historical Museum*, and a dormitory at WTSU, were named in her honor by former students and supporters.

### Therese Jones

**Therese Jones** taught mathematics at *Amarillo College* from 1973-1999. She chaired the *Division of Sciences and Engineering* from 1988-1999. During her 26 year career, she contributed to equalizing STEM education by bringing AC into *TexPREP* (Texas Pre-Freshman Engineering Program), to encourage high school students to explore science and technology careers, especially women and underrepresented groups. Professor Jones established a Math Lab at AC through a *National Science Foundation* (NSF) grant. After retirement, she helped write successful NSF and U.S. Department of Education Grants and successful STEM grants for AC's Trio Program as well as for a Solar Energy Program..

### Dr. Sondra King

Sondra King earned a biology degree from WTSU in 1963. She was listed in *Who's Who in American Colleges and Universities*. Married and with a family while a student, she excelled in all her efforts. As Vice President of *Beta Beta Beta*, she also worked as a lab assistant in the department. She taught in Georgia and Texas, and earned her doctorate in food sciences. In 1976, she joined the faculty at *Northern Illinois University*. Dr. King was a specialist in global nutrition and spent the last 20 years of her career travelling throughout the developing world conducting research projects with non-profit organizations aimed at improving nutrition in impoverished children.

*Written by Dr. Elizabeth Morrow Clark, Department of History, WTAMU. Researched by Carolyn Ottoson, Government Documents Librarian, Cornette Library, WTAMU with assistance from Susan Coleman, Instructor, Criminal Justice, WTAMU (retired). Edited by Claudia Stravato, Instructor, POSC, WTAMU, b and Jane Harlan.*