Women Inventors

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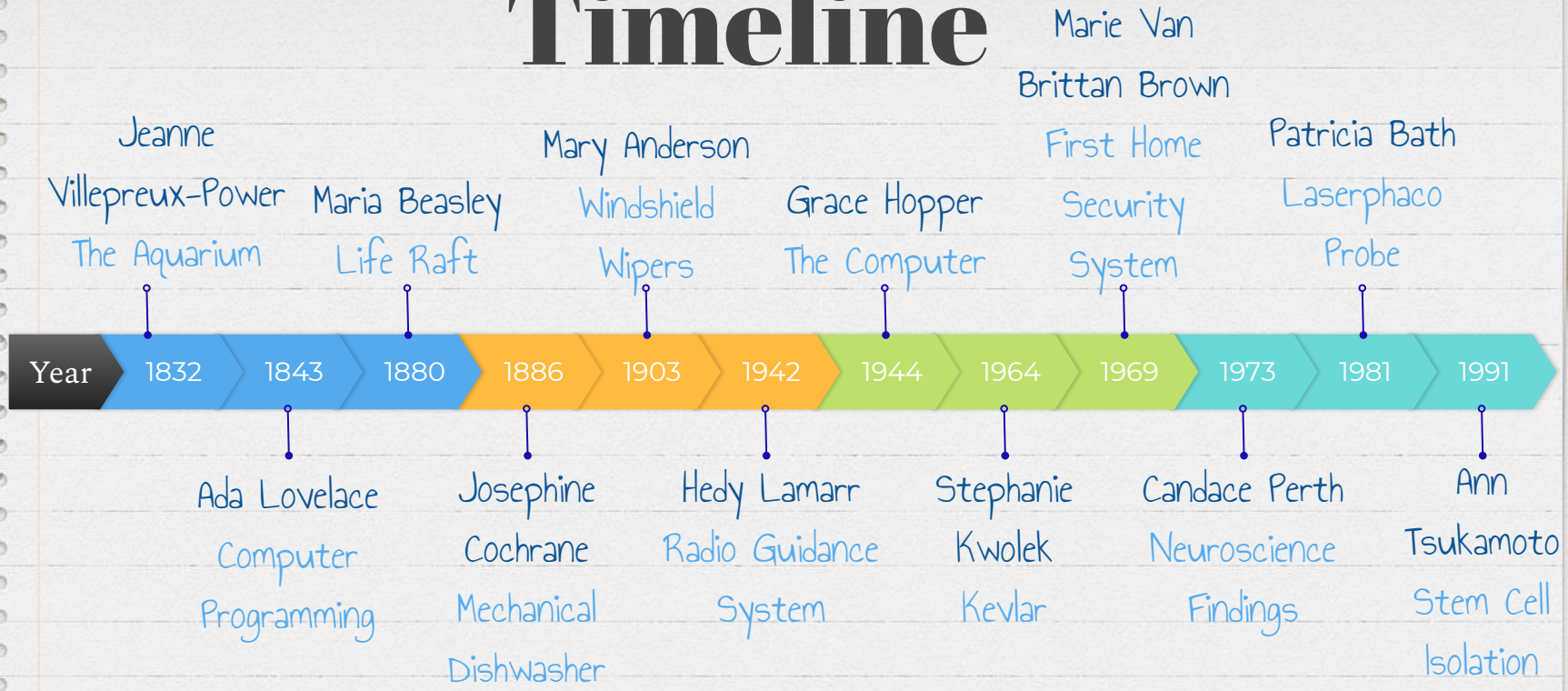
HIST492 Final

Introduction

When you're asked to think of an inventor, mainstream names like Benjamin Franklin, Thomas Edison, and Alexander Graham Bell may come to mind first. Not to discredit their groundbreaking work, but there seems to a common theme. They are all white men.

Does this mean women weren't inventors as well? No, it just shows how normalized patriarchal beliefs are within our society. For centuries women had to work twice as hard to be taken seriously and had to prove themselves constantly to be seen as equals. This can still be seen in the workplace today. Women are putting in the work, but not getting the recognition and rewards they rightfully deserve. It's unbelievable that these men in places of privilege are able to get away with plagiarism and stealing another's intellectual property, but that's the reality of the world we live in. During Women's History Month in March, female inventors are featured, but my goal with this final is to dig deeper. Women should to be accredited for their work and I get to learn about these notable visionaries during the process!

Timeline

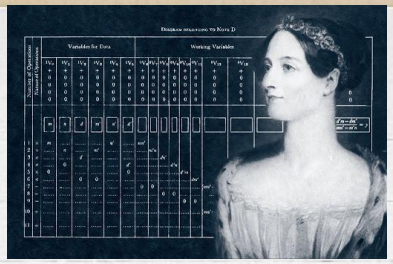

Year
1832
Jeanne Villepreux-Power
The Aquarium
1843
Ada Lovelace
Computer Programming
1880
Maria Beasley
Life Raft
1886
Josephine Cochrane
Mechanical Dishwasher
1903
Mary Anderson
Windshield Wipers
1942
Hedy Lamarr
Radio Guidance System
1944
Grace Hopper
The Computer
1964
Stephanie Kwolek
Kevlar
1969
Marie Van Brittan Brown
First Home Security System
1973
Candace Perth
Neuroscience Findings
1981
Patricia Bath
Laserphaco Probe
1991
Ann Tsukamoto
Stem Cell Isolation

Jeanne Villepreux-Power

Born: September 24, 1794, Juillac, France

Died: January 25, 1871, Juillac, France

Pioneering marine biologist that invented the first glass aquarium in 1832. Started scientific studies on the island of Sicily. She went on to design two variants: a glass apparatus within a cage for studying shallow water creatures and a cage-like aquarium that could be raised and lowered to different depths. Became the first female member of the Catania Accademia, as well as over a dozen other scientific academies.



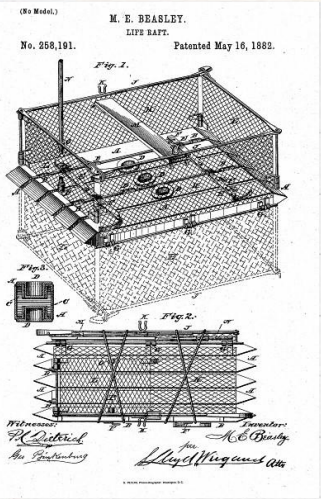
Born: December 10, 1815, London, United Kingdom

Died: November 27, 1852, Marylebone, London, United Kingdom

Augusta Ada King, Countess of Lovelace, is the only child of Lord Byron. Lovelace collaborated with inventor Charles Babbage at the University of London. Babbage was working on an Analytical Engine, an early prototype of the computer. Lovelace contributed detailed and extensive notes to Babbage's work, articulations that fed data to complete complicated math problems. These ideas led to the earliest computer programming and algorithms. Lovelace's contributions and her role are still obscured by debate.

Ada Lovelace

Maria Beasley

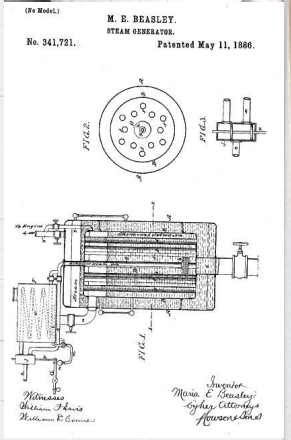


1882 life raft patent

Born: 1817, Philadelphia, PA Died: 1904

Her specialty was improving transportation safety and machines. She secured 15 patents from the 1870s to 1890s. Some of them were foot warmers, an anti-derailment device for trains, baking pans, and radical improvements to the life raft. Her first patented invention was in 1878 and it was a barrel making machine. Beasley's design for the life raft would save countless lives in the coming years as immigrants sailed across the oceans. 20 lifeboats were on the Titanic and it saved around 700 passengers. Prior to her innovation, they were just wood planks with hollow floats. Fortunately, she had an estimated income of $20,000 a year which was a fortune at that time. Despite her accomplishments, Beasley was listed as an "unemployed housewife." in the 1880 U.S. Census.

"Engineering dynamo"



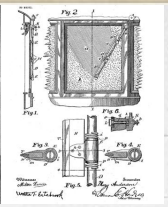
1886 steam generator patent

Josephine Cochrane

Born: March 8, 1839, Ashtabula County, OH

Died: August 3, 1913, Chicago, IL

Cochrane was a socialite with husband, William. She wanted to create a solution when hand washing chipped fine china. William passed away soon after she first began working on the design for an automatic dishwasher. Left with debt, this tragedy gave her a push to create a successful model. Working in a shed behind her home, she worked out a design. In 1886, she patented it and began making them for the public, calling the machine the "Cochrane Dishwasher." She established Cochran's Crescent Washing Machine Company and it eventually became KitchenAid, part of the Whirlpool Corporation.



Born: February 19, 1866, Greene County, AL

Died: June 27, 1953, Monteagle, TN

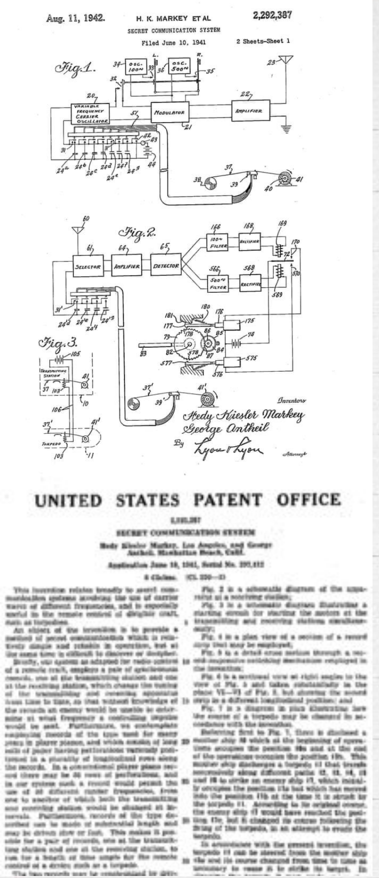
Anderson was a real estate developer and rancher before being an inventor. While riding in a snowy streetcar, Anderson came up with the idea for windshield wipers and designed the first effective model. She tried selling it to companies after receiving the patent for it in 1903, but they all rejected her. Unfortunately, Anderson's patent had expired and Robert Kearns took credit for her idea. In 1922, Cadillac became the first car manufacturer to include a windshield wiper on all its vehicles, but Anderson never made money from her invention.

Mary Anderson

Hedy Lamarr

Born: November 9, 1914, Vienna, Austria Died: January 19, 2000, Casselberry, FL

Originally named Hedwig Eva Kiesler, her parents encouraged her to think outside the box. She started acting at the age of 16 and appeared in 30 films across a 28-year career. Her brains were overshadowed by her beauty and fame as a Hollywood actress during the Golden Age. After meeting George Antheil at a dinner party, Lamarr collaborated with him to create a radio guidance system to be used in World War II. They created an early version of frequency-hopping spread spectrum communication meant for guiding torpedos to their targets. Although she kept acting until 1958, her inventive genius was yet to be recognized by the public. It wasn't until Lamarr's later years that she received any awards. Lamarr became the first woman to receive the Invention Convention's Bulbie Gnass Spirit of Achievement Award and inducted into the National Inventors Hall of Fame in 2014. She is now dubbed "the mother of Wi-Fi".



Lamarr's Patent

After its creation, Lamarr and Antheil sought a patent and military support for the invention. It was awarded U.S. Patent in August of 1942, but the Navy rejected it. Lamarr's patent expired before she ever saw a penny from it.

"We view formal policies as a complement to conditions for sex equity but suggest that less bureaucratic, horizontal distributions of work relations in network firms may better accommodate women scientists in the structure of science. Our research suggests it is important to look beyond the coarse distinctions of academic/industry science to understand how organizational settings influence sex disparities. While we have made an argument that might be classified as a "liberal feminist" perspective, our research raises questions that could incorporate a "radical feminist" analysis of women in science (Schiebinger 1999). Women's participation in patenting, while increasingly important for their success, may be linked to larger influences on their orientation to science." (Whittington, Smith-Doerr, 213-214)

Grace Hopper

Born: December 9, 1906, New York, NY

Died: January 1, 1992, Arlington County, VA

After teaching at Vassar College, Hopper joined the Navy WAVES (Women Accepted for Voluntary Emergency Service) in 1943. A year later she was commissioned as a Lieutenant and assigned to the Bureau of Ordnance Computation Project at Harvard University. As mentioned in Ada Lovelace's slide, Charles Babbage is credited with the creation of the Analytical Engine, but her team worked on and produced the Mark I, an early prototype of the electronic computer. Hopper wrote a 500-page Manual of Operations and coined the word "bug" to describe a computer malfunction. She was awarded the Defense Distinguished Service Medal in 1987 and named a distinguished fellow of the British Computer Society, the first and only woman to hold the title. Although Hopper had many career accomplishments, she said her greatest joy came from teaching. In 2016, Hopper was posthumously awarded the Presidential Medal of Freedom.

Stephanie Kwolek

Born: July 31, 1923, New Kensington, PA

Died: June 18, 2014, Wilmington, DE

Kwolek accepted a research position in 1946 and discovered a passion for chemistry research that led to a 40 year career. She invented Kevlar in 1964 when experimenting for an alternative for steel in radial car tires. She turned a solid polymer into a liquid and her peers considered the experiment a failure. Kwolek took a closer look, and discovered that fibers within the liquid were five times stronger than steel. Kevlar has since been used for everything from boots for firefighters to spacecraft parts, but it's most famous for its use in bulletproof body armor. Kevlar vests were introduced in the 1970s, at least 3,000 police officers' lives have been saved, as well as those of countless soldiers and civilians in combat zones.

Born: October 30, 1922, Jamaica, New York, NY

Died: February 2, 1999, Queens, New York, NY

Brown was a nurse that wanted to increase safety when she came up with the idea for a home security system. She worked with her husband Albert, an electrician, to create a system of four peep holes and a movable camera that connected wirelessly to a monitor. A two-way microphone allowed conversation with someone outside, and buttons could sound an alarm or remotely unlock the door. The Browns received a patent for their security system in 1969, and Brown received an award from the National Science Committee for her truly innovative idea. Her idea became the groundwork for all modern home security systems.

Marie Van Brittan Brown

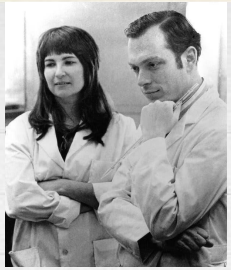
Patricia Bath

Born: November 4, 1942, New York, NY

Died: May 30, 2019, UCSF Medical Center, San Francisco, CA

Bath was the first black person to serve as an ophthalmology resident at New York University and the first woman on staff at the Jules Stein Eye Institute. She was also the first African-American female doctor to receive a patent for medical purposes. That patent was for the Laserphaco Probe, a medical device she invented in 1981 that uses a laser to dissolve cataracts in the eye. It then irrigates and cleans the eye to make inserting a replacement lens quick and easy. Laserphaco Probe is now used internationally as a quick and safe way to prevent blindness due to cataracts. She is also invented a new discipline, community ophthalmology, which is dedicated to ensuring that all members of the population have access to eye and vision care. Even if people can't afford an operation, Bath believes that ophthalmologists should do all they can to care for their vision; after all, she says, "The ability to restore sight is the ultimate reward."

Candace Pert



Born: June 26, 1946, Manhattan, New York, NY

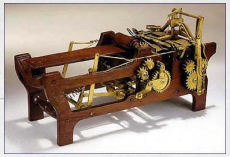
Died: September 12, 2013, Potomac, MD

While a graduate student at Johns Hopkins University, Pert discovered the opiate receptor, the cellular binding site for endorphins in the brain and first of the brain receptors to be found. This discovery led to transformative research on brain function. Her professor, Dr. Solomon Snyder, received the recognition and won the prestigious Albert Lasker Basic Medical Research Award. When Pert wrote a letter of protest to the award committee underscoring her contributions, Dr. Snyder mansplained in response, "That's the way the game is played." The two later reconciled and Snyder praised Pert. She continued her career and conducted pioneering work on receptors and the peptides that correspond to them, steering her toward alternative medicine

Born: July 6, 1952, Los Angeles, CA, currently 68 years old. Tsukamoto was part of the team that patented the first method of isolating blood-forming stem cells in 1991. Conducting postdoctoral work with Dr. Harold Varmus at the University of California, San Francisco, she worked on the wnt-1 gene and developed a transgenic model for breast cancer. Wnt-1 was later discovered to be a key player in stem cell self-renewal pathway. Tsukamoto holds a total of 12 U.S. patents for her stem cell research. She has been working in the stem cell field for almost 31 years to this day and continues to help with the development of cancer treatments.

Ann Tsukamoto

More Female Inventors



★ 1868- **Margaret Knight** Born: February 14, 1838, York, ME Died: October 12, 1914, Framingham, MA

During the industrial era, Knight invented a machine that automatically folded and glued paper bags into the formation seen by present day shoppers. As Knight worked on a metal prototype, a machinist named Charles Anan saw and filed for a patent for her invention. She only learned of his deception when she applied for her own patent. Anan argued that a woman "could not possibly understand the mechanical complexities." Fortunately, many witnesses could defend Knight and she was awarded the patent as well as all future royalties.

★ 1890s- **Sarah Breedlove** Born: December 23, 1867, Delta, LA Died: May 25, 1919, Irvington, NY

Noticing a lack of hair products tailored towards black women, Breedlove developed her own line of hair care products and branded them with her new identity, Madam C. J. Walker over several years. She created jobs for thousands of African American women and made numerous donations. She is the first female self-made millionaire in the United States. "If I have accomplished anything in life it is because I have been willing to work hard."

★ 1893- **Margaret A. Wilcox** Born: 1838, Chicago, IL Died: 11 Aug 1896

Wilcox was a mechanical engineer and the first person to patent an automobile heater. Her 1893 design used heat from the car's engine to keep drivers and passengers warm during trips. Prior to when women were allowed to file patents, Wilcox had to file previous patents under her husband's name. Eventually, she was able to receive full credit for her invention.

More Female Inventors Cont.

★ 1930- **Ruth Graves Wakefield**

Born: June 17, 1903, East Walpole, MA Died: January 10, 1977, Beth Israel Deaconess Hospital Plymouth, Plymouth, MA

Wakefield was a dietician before buying Toll House Inn with her husband in 1930. It quickly became famous for her food, especially the desserts. Wanting to offer guesting something new, Wakefield took an ice pick to a block of chocolate and added it to her cookie dough. That is how the chocolate chip cookie was born. When Wakefield reissued her best selling cookbook, she added the Toll House Chocolate Crunch Cookie. Chocolate company Nestle approached Wakefield about the rights to the recipe and they were soon making semi-sweet chips and printing the Toll House cookie recipe on every box. Wakefield's payment- $1, a lifetime supply of chocolate, a consulting deal to work with Nestle on other recipes.

★ 1940s- **Marion Donovan**

Born: October 15, 1917, Fort Wayne, IN Died: November 4, 1998, New York, NY

Donovan invented disposable diapers in the 1940s to provide new mothers with more than just cloth diapers. Her first patent was for a diaper cover made of shower curtains. Diaper companies ignored her patent and made their own products similar to her invention. By 1949, she had four patents for her "boater" diaper cover, including one that used plastic snaps rather than diaper pins. Her initial attempts to sell to manufacturers were unsuccessful and this led her to hiring a company to make them for her and started selling them through Saks Fifth Avenue. In 1951, she sold her company and patents to the Keko Corporation for $1,000,000. Donovan continued to invent and patent 20 other items after. She was inducted into the National Inventors Hall of Fame in 2015.

Analysis and Conclusion

We have just covered a ton of brilliant and iconic women, some of which you may not have heard of before. It is clear that they were just as qualified as men, but society kept them in a box of what role they had to uphold. The Patent Act of 1790 opened the door for anyone to protect their invention with a patent. This did not elicit cooperation and compliance from everyone though as many of the women I highlighted were not taken seriously and taken advantage of.

Judith A. McGaw summarizes it best in her article, "Inventors and Other Great Women: Toward a Feminist History of Technological Luminaries", "The abundant evidence that knowledge of women's inventions has not altered public perception might have discouraged a less enthusiastic and committed chronicler of women's inventions than Autumn Stanley... Stanley optimistically concludes, "In short, women invent. And from this moment forward, it is to be hoped, they will be recognized as inventors" (p. 774). Unfortunately, I am enough of a believer in history to suspect that, like the work of earlier crusaders, Stanley's reported findings are unlikely to alter the general perception that invention is an overwhelmingly masculine affair. And that is notwithstanding the fact that Stanley offers a daunting catalog of women inventors' names, dates, and other particulars. Why am I so pessimistic? A number of factors, many of them illustrated by Stanley's own evidence, combine to make me less than sanguine. First, there is the reality that, although women's rates of patenting have risen substantially since the 19th century, Stanley's most optimistic source estimates that only 8 percent of U.S. patents belonged to women as late as 1985... Whatever figure we accept, though, the numbers are disheartening" (McGaw, 220-221)

Thank you for your time!

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