



Who Was Sarah Boone?

FULL NAME: Sarah Boone

BORN: 1832

BIRTHPLACE: Craven County, North Carolina

DEATH: 1904

SPOUSE: James Boone (m. 1847)

Early Years

Boone was born Sarah Marshall near the town of New Bern in Craven County, North Carolina, in 1832. The daughter of enslaved parents, she earned her freedom at one point; some sources say it came with her 1847 marriage to James Boone, a free African American. The couple went on to have eight children.

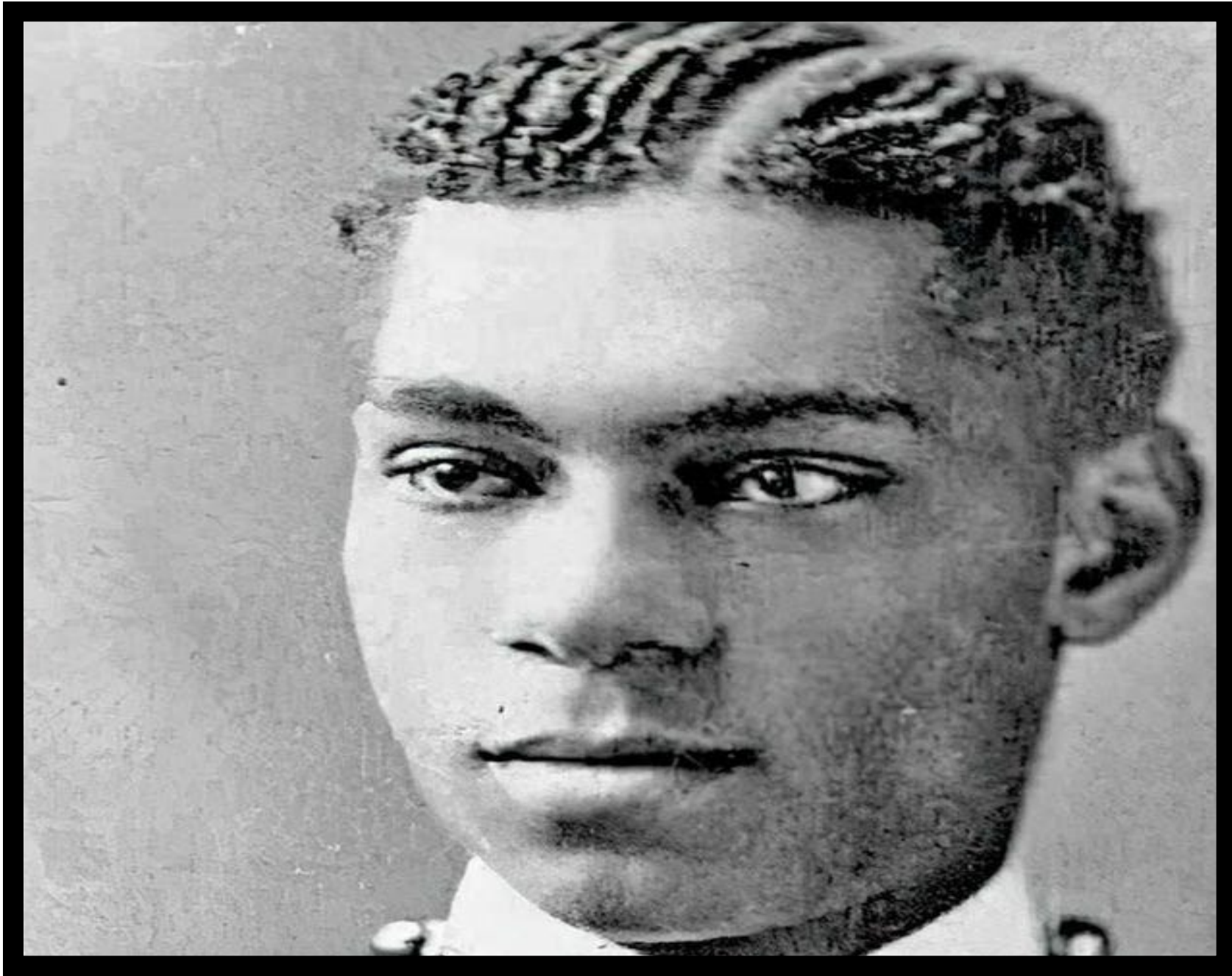
Sarah Boone was an African American dressmaker who made her name by inventing the modern-day ironing board.

In her [patent](#) application, she wrote that the purpose of her invention was "to produce a cheap, simple, convenient and highly effective device, particularly adapted to be used in ironing the sleeves and bodies of ladies' garments."

With its approval in 1892, **Boone became one of the first African American women to be awarded a patent.**

Utilizing a network tied to the Underground Railroad, Boone migrated with her husband, children and widowed mother to New Haven, Connecticut, prior to the Civil War.

The family settled into an African American neighborhood near Dixwell Avenue, where Boone worked as a dressmaker and her husband as a bricklayer, until his death in the mid-1870s. According to records, Boone was successful enough to own her own house.



Who Was Henry Blair?

FULL NAME: Henry Blair

BIRTH DATE: 1807

BIRTH PLACE: Glen Ross, Maryland

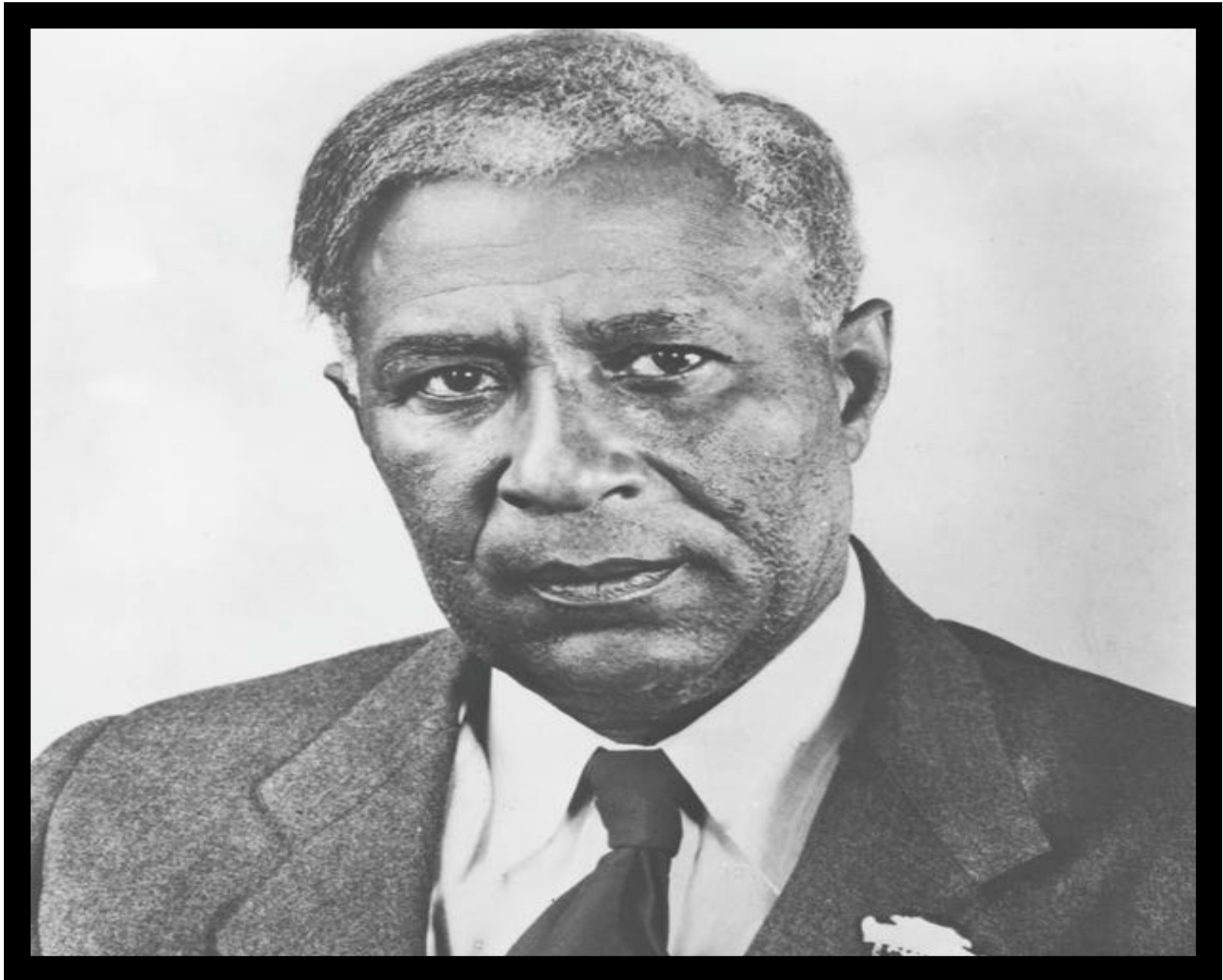
Henry Blair was born in Glen Ross, Maryland, in 1807. Blair was an African American farmer who patented two devices designed to help boost agricultural productivity. In so doing, he became the second African American to receive a United States patent. Blair died in 1860.

Patents and Invention

A successful farmer, Blair patented two inventions that helped him to boost his productivity. **He received his first patent — for a corn planter — on October 14, 1834.** The planter resembled a wheelbarrow, with a compartment to hold the seed and rakes dragging behind to cover them. This device enabled farmers to plant their crops more efficiently and enable a greater total yield. Blair signed the patent with an "X," indicating that he was illiterate.

Blair obtained his second patent, for a cotton planter, on August 31, 1836. This invention functioned by splitting the ground with two shovel-like blades that were pulled along by a horse or other draft animal. A wheel-driven cylinder behind the blades deposited seed into the freshly plowed ground. The design helped to promote weed control while distributing seeds quickly and evenly.

In claiming credit for his two inventions, **Henry Blair became only the second African American to hold a United States patent.** While Blair appears to have been a free man, the granting of his patents is not evidence of his legal status. At the time Blair's patents were granted, United States law allowed patents to be granted to both free and enslaved men. In 1857, an enslaver challenged the courts for the right to claim credit for an enslaved person's inventions. Since an enslaver's enslaved people were his property, the plaintiff argued, anything in the possession of these enslaved people was the owner's property as well. The following year, patent law changed so as to exclude the enslaved from patent eligibility. In 1871, after the Civil War, the law was revised to grant all American men, regardless of race, the right to patent their inventions.



Who was Garrett Morgan ?

FULL NAME: Garrett Augustus Morgan

BORN: March 4, 1877 **DIED:** July 27, 1963

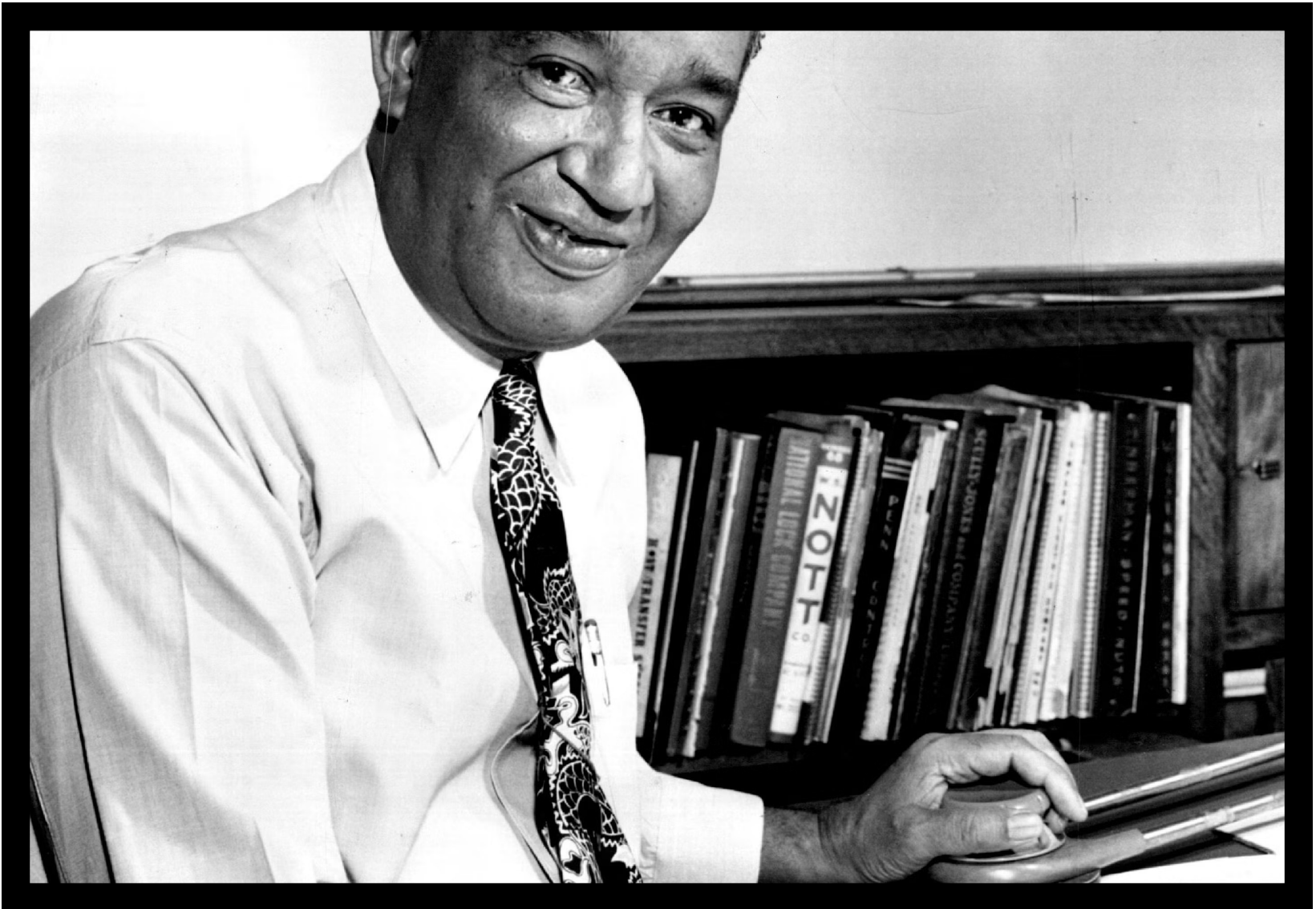
BIRTHPLACE: Paris, Kentucky

Born in Paris, Kentucky, on March 4, 1877, Garrett Augustus Morgan was the seventh of 11 children. His mother, Elizabeth Reed, was of Indian and African descent and the daughter of a Baptist minister. His father, Sydney, a formerly enslaved man freed in 1863, was the son of John Hunt Morgan, a Confederate colonel. Morgan's mixed-race heritage would play a part in his business dealings as an adult. When Morgan was in his mid-teens, he moved to Cincinnati to look for work and found it as a handyman to a wealthy landowner. Although he only completed an elementary school education, Morgan paid for more lessons from a private tutor. Jobs at several sewing-machine factories soon captured his imagination and helped determined his future.

Patents and Invention

One of **Morgan's first inventions involved the sewing machine.** After learning the inner workings of the machines and how to fix them at his factory jobs, Morgan obtained a patent for an improved sewing machine and opened his own repair business. Morgan's business was a success; it enabled him to marry his second wife, Mary Hasek, and establish himself in Cleveland. Following the momentum of his business success.

In 1909, Mogan also invented a hair straightener and in **In 1914, Morgan patented a breathing device, or "safety hood," providing its wearers with a safer breathing experience** in the presence of smoke, gases, and other pollutants. Morgan worked hard to market the device, especially to fire departments, often personally demonstrating its reliability in fires. **Morgan's breathing device became the prototype and precursor for the gas masks used during [World War](#)**



Who was Frederick Jones ?

FULL NAME: Frederick McKinley Jones

BORN: May 17, 1893 **DIED:** February 21, 1961

BIRTHPLACE: Cincinnati, Ohio

Frederick McKinley Jones was born in Cincinnati on May 17, 1893, to a white father and a Black mother. His mother deserted him when he was a young child. His father struggled to raise him independently, so when Frederick was 7, he was sent to live with a priest in Kentucky for two years. Frederick's father died near the end of this time.

At 11, with minimal education, Jones ran away to fend for himself. He returned to Cincinnati and found work doing odd jobs, including as a janitor in a garage, where he developed a knack for automobile mechanics. He was so good that he became the foreman of the shop. However, he was eventually fired for racing cars on company time. More odd jobs followed, then in 1912, Jones landed in Hallock, Minnesota, where he obtained a job doing mechanical work on a farm.

Jones had a talent for and an interest in mechanics. He read extensively on the subject in addition to his daily work, educating himself in his spare time. By the time he was 20, Jones was able to secure an engineering license in Minnesota. His expertise made him a valuable asset during his service in the U.S. Army in World War I.

Jones was initially placed with an all-Black unit in France until his superiors began to grasp his mechanical skills. He was soon promoted to sergeant and worked as an electrician, wiring telephones and telegraphs and fixing X-ray machines and other equipment. He also taught electrical circuitry to his fellow soldiers.

After the war, he returned to the Hallock farm and continued to educate himself in electronics.

Patents and Invention

When Hallock, Minnesota, decided to fund a new radio station, Jones built the transmitter needed to broadcast its programming. He also developed a device to combine moving pictures with sound. Local businessman Joseph A. Numero subsequently hired Jones to improve the sound equipment he produced for the film industry. Jones also looked to serve filmgoers by developing a machine in 1939 that delivered tickets and offered change to customers at movie box offices—his first patent.



Who was Lewis Howard Latimer?

FULL NAME: Lewis Howard Latimer

BORN: September 4, 1848 **DIED:** December 11, 1928

BIRTHPLACE: Chelsea, MA

Latimer was born in Chelsea, Massachusetts, on September 4, 1848. Latimer was the youngest of four children born to George and Rebecca Latimer, who had escaped from slavery in Virginia six years before his birth. Captured in Boston and brought to trial as a fugitive, George Latimer was defended by abolitionists Frederick Douglass and William Lloyd Garrison. He was eventually able to purchase his freedom, with the help of a local minister, and began raising a family with Rebecca in nearby Chelsea.

George disappeared shortly after the Dred Scott decision in 1857, possibly fearing a return to slavery and the South.

Patents and Invention

After his father's departure, Latimer worked to help support his mother and family.

In 1864, at the age of 16, Latimer lied about his age in order to enlist in the United States Navy during the Civil War. Returning to Boston after an honorable discharge, he accepted a menial position at the Crosby and Gould patent law office. He taught himself mechanical drawing and drafting by observing the work of draftsmen at the firm. Recognizing Latimer's talent and promise, the firm partners promoted him from office boy to draftsman. In addition to assisting others, Latimer designed a number of his own inventions, including an improved railroad car bathroom and an early air conditioning unit.

Latimer's talents were well-matched to the post-Civil War period, which saw a large number of scientific and engineering breakthroughs. **Latimer was directly involved with one of these inventions: the telephone. Working with Bell, Latimer helped draft the patent for Bell's design of the telephone. He was also involved in the field of incandescent lighting, a particularly competitive field, working for Hiram Maxim and Edison.**

Latimer's deep knowledge of both patents and electrical engineering made Latimer an indispensable partner to Edison as he promoted and defended his light bulb design. In 1890, Latimer published a book entitled *Incandescent Electric Lighting: A Practical Description of the Edison*



Who was Alice Ball ?

FULL NAME: Alice Ball

BORN: July 24, 1892 **DIED:** December 31, 1916

BIRTHPLACE: Chelsea, MA

US chemist Alice Ball was born in Seattle, Washington, on 24 July 1892. She came from a middle-class African-American family of photographers; her grandfather, James Presley Ball, was one of the first Black daguerreotypists in the US. As such, Ball was surrounded by fascinating chemical processes as a child, such as the use of mercury vapor to print photos onto iodine-sensitized metal plates.

After graduating from Seattle High School in 1910, Ball went on to study at the University of Washington, achieving two bachelor's degrees in pharmaceutical chemistry and the science of pharmacy by 1914.

That same year, she co-authored a paper on benzoylations in ether solution that was published in the prestigious *Journal of the American Chemical Society*, a rare feat for a Black woman at this time.

In 1915, Ball became the first woman and the first African-American person to receive a master's degree from the College of Hawaii (now known as the University of Hawai'i) and to teach chemistry there. She became the head of the chemistry department later that year. As a postgraduate, she researched the chemical makeup and active ingredients of kava root (*Piper methysticum*).

Patents and Inventions

Alice Ball was an African-American chemist who created the most effective treatment for leprosy until the 1940s.



Who was Katherine Johnson ?

FULL NAME: Katherine Johnson

BORN: August 26, 1918 **DIED:** February 24, 2020

BIRTHPLACE: White Sulphur Springs, West Virginia

Katherine Johnson was born in White Sulphur Springs, West Virginia, she was a mathematical prodigy from a young age, but because her hometown did not provide public schooling for African American students beyond the eighth grade, her family moved to Institute, West Virginia so she could attend high school on the campus of West Virginia State College.

Katherine Johnson was a pioneering NASA (.gov) NASA (.gov) mathematician and "human

Her key contributions and accomplishments included:

Project Mercury: Calculated the trajectory for Alan Shepard's 1961 mission, the first American in space.

Orbital Mission: Verified the computerized, manual calculations for John Glenn's 1962 flight, ensuring his safety.

Apollo Missions: Provided essential calculations for the Apollo 11 mission to the Moon, as well as the Apollo 13 mission.

Space Shuttle: Worked on early trajectory studies for the Space Shuttle program.

Legacy: Authored or co-authored 26 research reports during her 33-year career, breaking racial and gender barriers at NASA.

Katherine Johnson was awarded the Presidential Medal of Freedom: Awarded by President Barack Obama in 2015.

Congressional Gold Medal: Awarded in 2019.

Namesake Facilities: NASA dedicated the at the Langley Research Center in her honor.



Who is Dasia Taylor ?

FULL NAME: Dasia Taylor

BORN: April 6, 2004

BIRTHPLACE: Chicago, Illinois

Dasia Taylor is a 21-year-old inventor, entrepreneur, and STEM advocate who gained national recognition for inventing color-changing surgical sutures that detect infections early.

Daisia Taylor was just 17 years old when she developed her innovative color-changing sutures to detect surgical site infections. As a high school junior in Iowa City, she began this project in October 2019, using beet juice to create sutures that change from bright red to dark purple when detecting infection. **While a student at Iowa City West High School, Taylor developed sutures that use beet juice as a natural pH indicator.**

HOW DOES THIS WORK ?

Mechanism: Human skin is naturally acidic (pH ~5), but an infected wound becomes more alkaline (pH ~9). When Taylor's beet-dyed sutures detect this change, they shift from **bright red to dark purple**, providing a visual warning of infection within minutes.

Impact: Her goal was to create an equitable, low-cost alternative to expensive "smart" sutures that require smartphones or computers, making it accessible for **low-resource communities and developing countries.**

Entrepreneurship and Advocacy

Taylor has transitioned her high school project into a career as a CEO and public Speaker.

- **Variegate Health:** She is the founder and CEO of **Variegate Health**, a medical device company focused on healthcare equity and innovative diagnostic tools.
- **NERD STEM Box:** She launched this initiative to provide STEM kits to children, helping bridge the educational gap in underserved schools.



Who was Granville T. Woods ?

FULL NAME: Granville T. Woods

BORN: April 23, 1856 **DIED:** January 30, 1910

BIRTHPLACE: Columbus, OH

Granville T. Woods, a prolific inventor known as the "Black Edison," lived from April 23, 1856 until January 30, 1910.

Granville T. Woods became one of the most prolific African American inventors, earning more than 50 patents for rail and electrical innovations that improved train communication, braking and power systems and overall railway safety.

After obtaining his first patent for a steam boiler furnace, in 1885 Woods began to work on his most notable invention, which he called “telegraphony.” This form of communication combined features of both the telephone and the telegraph, allowing users to switch between Morse code and their voices to transmit messages. Alexander Graham Bell’s company, American Bell Telephone Co., purchased the rights to Woods’ telegraphony patent, and the proceeds allowed Woods to become a full-time inventor.

Based on telegraphony, Woods invented the induction telegraph in 1887. Prior to its creation, moving trains were unable to communicate with each other or with rail stations, resulting in dangerous situations. The induction telegraph used static electricity from the existing telegraph lines running parallel to the train tracks, making messaging possible between moving trains and rail stations.

Woods' death was attributed to a **cerebral hemorrhage** (stroke). Despite holding over **60 patents** for technologies like the **Synchronous Multiplex Railway Telegraph** and the **third rail** system, he died in poverty and was buried in an unmarked grave for nearly a century until a headstone was finally placed in 1975.



Who was Dr. Percy Lavon Julian ?

FULL NAME: Dr. Percy Lavon Julian

BORN: April 11, 1899 **DIED:** April 19, 1975

BIRTHPLACE: Montgomery, Alabama

American chemist Percy Lavon Julian made various vital contributions to modern medicine as a result of experimenting with soybeans. He synthesized a drug called physostigmine, which is used to treat glaucoma. Julian also discovered how to mass produce cortisone and the steroid progesterone.