



## Profiles in Leadership: From 19<sup>th</sup> Century: Inventors, Physicians, and Scientists

### Materials:

- PowerPoint: **Profiles in Leadership, 19<sup>th</sup> Century, Inventors, Physicians, and Scientists**
- **Elijah McCoy** <https://video.search.yahoo.com/search/video?fr=mcafee&ei=UTF-8&p=elijah+McCoy&type=E210US0G0#id=5&vid=517d1a6ecdfd22cf74a51451228f877f&action=view>
- **Lewis Latimer**  
<https://video.search.yahoo.com/search/video; ylt=AwrJ7Fzmb15g2mMAHIZXNyoA; ylu=Y29sbwNiZjEEcG9zAzIEdnRpZANDMTYxNV8xBHNIYwNzYw--?p=Lewis+Howard+Latimer&fr=mcafee#id=1&vid=5e853cb0d4e1fb1d83d1a319f858a961&action=view>
- **Jan E. Matzelliger**  
<https://video.search.yahoo.com/search/video; ylt=AwrJ7JiziF5g54UAgRXNyoA; ylu=Y29sbwNiZjEEcG9zAzIEdnRpZANDMTYxNV8xBHNIYwNzYw--?p=jan+matzelliger&fr=mcafee#id=1&vid=893e6e8767a4e7e92f55c6d8211ddcde&action=view>
- **George Washington Murray** <https://video.search.yahoo.com/search/video?fr=mcafee&ei=UTF-8&p=george+W.+Murray&type=E210US0G0#id=1&vid=e5c3b8924810bc626764db5d036f85f9&action=click>
- **Granville T. Woods**  
<https://video.search.yahoo.com/search/video; ylt=AwrJ7J2PqWBgf4YAI3pXNyoA; ylu=Y29sbwNiZjEEcG9zAzIEdnRpZANDMTYxNV8xBHNIYwNzYw--?p=Granville+Woods&fr=mcafee#id=1&vid=8c7c4268f7076ce790b1dab550713bea&action=view>
- **Dr. Hale Williams**  
<https://video.search.yahoo.com/search/video; ylt=AwrC5pkTuWBgrC0AFNz7w8QF; ylu=c2VjA3NIYXJjaAR2dGlkA0MwMjU2; ylc=X1MDOTY3ODEzMDcEX3IDMgRhY3RuA2NsawRjc3JjCHzPZANaR1d0MHpFd0xqR2Uyc0VFWGI5bFNBTzVNaF1TVFBQUFBRGdBMF9jBGZyA21jYWZlZQRmcjIDc2EtZ3AEZ3ByaWQDMWk0LnIDRThUNS5FeUV5WTFVeHdNQQRuX3JzbHQDMTIEbl9zdWdnAzQEb3JpZ2luA3ZpZGVvLnNIYXJjaC55YWVhby5jb20EcG9zAzAEcHFzdHIDBHBxc3RybAMEcXN0cmwDMzM EcXVlcnkDZHIuJTlwZGFuaWVvJTIwaGFsZSUyMHdpbGxpYW1zJTlwBHRfc3RtcAMxNjE2OTUxNTg2?p=dr.+daniel+hale+williams+&ei=UTF-8&fr2=p%3As%2Cv%3Av%2Cm%3Asa&fr=mcafee#id=9&vid=930bae0489acdfa82fea467a16d9fc5&action=view>
- **George Washington Carver**  
<https://video.search.yahoo.com/search/video; ylt=AwrE19Z5xmBge9QAsp5XNyoA; ylu>



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?p=george+washington+carver&fr=mcafee#id=4&vid=9cb86dff2dc18fb008a15fd0a0e21  
163&action=view](https://www.youtube.com/watch?v=Y29sbwNiZjEEcG9zAzEEdnRpZANDMTYxNV8xBHNIYwNzYw--?p=george+washington+carver&fr=mcafee#id=4&vid=9cb86dff2dc18fb008a15fd0a0e21163&action=view)

- **Madam C.J. Walker**

[https://video.search.yahoo.com/search/video; ylt=A0geKI5902Bg3bYAQsVXNyoA; ylu=  
Y29sbwNiZjEEcG9zAzEEdnRpZANDMTYxNV8xBHNIYwNzYw--  
?p=madam+c+j+walker&fr=mcafee#id=41&vid=20e655bb4fca4a88742eb6ea79fc6853&  
action=view](https://video.search.yahoo.com/search/video; ylt=A0geKI5902Bg3bYAQsVXNyoA; ylu=Y29sbwNiZjEEcG9zAzEEdnRpZANDMTYxNV8xBHNIYwNzYw--?p=madam+c+j+walker&fr=mcafee#id=41&vid=20e655bb4fca4a88742eb6ea79fc6853&action=view)

- Guiding Questions

**Plan of Instruction:**

1. **Introduction:** Black history is American history and should represent blacks' contributions through every American history milestone. In this lesson, YAAHA features some blacks who worked on innovative designs that provided services to save lives, made lives more accessible, or protected the public with their groundbreaking solutions. In various fields, these pioneers served as excellent examples of the importance of education, determination, and tenacity to break down barriers to be judged by their extraordinary work. More than half of the featured leaders in this lesson were former slaves or the sons and daughters of former slaves.

The Profiles in Leadership series honors African Americans' contributions to American history.

2. **Lecture:**

- a. **Slide 1: Profiles in Leadership: 19<sup>th</sup> Century: Inventors, Physicians, and Scientists**
- b. **Slide 2: Introduction** (Read slide)
- c. **Slide 3: Lewis Temple** (1800-1854) Lewis was a very skilled blacksmith and was not part of the whaling industry, but he certainly knew how vital the harpooners' job was. Blacks served on whaling ships long before the American Revolution; Crispus Attucks, a Revolutionary War hero, spent twenty years as a whaler before becoming the first casualty at the Boston Massacre in 1770. A lost whale meant a loss of pay for the harpooner.

There were many blacks in the whaling industry because they were paid equally if skilled. Temple's invention helped the whaling crews by preventing whales from escaping after being harpooned. Temple's invention, "Temple's Toggle," had a spinning head that could pivot on the axel and prevent the whale from thrashing loose. Temple's Toggle became the most important invention in the whaling industry. Unfortunately, Lewis Temple did not patent his invention, and by the 1850s, other blacksmiths replicated his invention.

Following the Civil War, coal, and petroleum displaced whale oil.



- d. **Slide 4: Elijah McCoy** (1843-1929) Elijah's parents were runaway slaves from Kentucky who escaped to Canada, where Elijah was born. He exhibited a keen interest in mechanical engineering; he loved to take things apart and put them back together again. His parents sent him to Edinburgh, Scotland, to study mechanical engineering.

Prejudice prevented him from finding work in his chosen field, so he became a fireman/oilman on the Michigan Central Railroad. His job was to shovel coal to keep the fires going for the steam engine, and his other responsibility was to keep the gears adequately oiled. Elijah had to stop the train on multiple occasions to oil the gears. To improve efficiency, he invented the automatic lubrication system to oil the gears to keep the train running without stopping.

Elijah invented more than fifty products. Some inventors tried to copy the automatic lubricator, but the public wanted the "real McCoy."

- e. **Slide 5: Lewis Latimer** (1848-1929) Lewis's parents were runaway slaves. He joined the Union Navy during the Civil War at fifteen years old and was honorably discharged. He became a barber and later found work as an office boy at a patent office. Lewis was a gifted draftsman who eventually worked with Alexander Graham Bell and Thomas Edison. In 1890, Latimer was hired by Thomas Edison to work in Edison Electric Light Company's legal department and served as the chief draftsman and patent expert.

He created the safety elevator in 1894 and received another patent for his Locking Racks for Hats and Coats for restaurants, hotels, and office buildings. Latimer continued to devise ways to improve the daily lives of the public. He later turned his efforts to civil rights in the United States.

- f. **Slide 6: Sarah Boone** (1832-1904) Sarah was born Sarah Marshall and was the daughter of slaves. In 1847, she married a free black man, James Boone; it is thought that this is how she earned her freedom. Her husband was a bricklayer, and Sarah became a very successful dressmaker.

The dressmaking business was fiercely competitive, and Sarah wanted a way to catch her potential customer's eye. Ironing the corsets and the sleeves of the dresses was difficult using a flat board between two chairs. So, in 1890 she designed the first ironing board that was narrower to allow sleeves to be more easily ironed. Sarah applied for a patent and received it on April 26, 1892, and was one of the first African Americans to receive a patent.

- g. **Slide 7: Jan E. Matzeliger** (1852-1889) Jan Matzeliger was born in Dutch Guiana to a mother who was a house slave and a Dutchman of German descent. At the age of ten, Jan demonstrated a natural aptitude for machinery and mechanics. He began working as a cobbler and became interested in making shoes.



He was able to work as a shoe apprentice. At the time, the only way to attach the upper part of the shoe to the sole was by hand, by “shoe lasters.” It was thought that this elaborate work could only be done by hand. An expert “shoe laster” could attach fifty soles per day.

Matzeliger watched these lasters, and at night he sketched out rough drawings to develop a machine that could imitate the hand lasters’ movements. After five years of work, Jan applied for a patent for his machine. The patent office sent a representative to see this machine in action, for no one believed that a machine could replicate the hand lasters’ work. Jan obtained his patent in 1883.

Matzeliger’s shoe laster machine could produce up to 750 pairs of shoes a day instead of the 50 by a hand laster. This machine cut shoe prices and made it possible for ordinary citizens to purchase shoes.

- h. **Slide 8: George W. Murray (1853-1910)** George spent the first thirteen years as a slave. After the Emancipation Proclamation, he enrolled at South Carolina State University and then continued his education at State Normal Institute.

George became a prosperous farmer and was granted eight patents for his inventions that helped the farming industry. These patents included cultivating and fertilizing equipment and a cotton chopper. Also, he was a successful land developer and later was elected as a Republican to represent South Carolina in 1892. Representative Murray made sure that the accomplishments of black inventors were read into the Congressional Record. He served in the fifty-third Congress from 1893-1895.

- i. **Slide 9: Granville T. Woods (1856-1910)** Granville was born in Columbus, Ohio. This self-taught engineer was known as the “Black Edison” and received more than 60 patents for his work. His formal education ended at the age of ten, but he became a machine apprentice, learned blacksmithing, and learned how to repair and invent machinery; he learned his skills on the job.

By 1880, he moved to Cincinnati, Ohio, and opened his machine shop. No matter how talented Granville was, he still experienced discrimination because of his race, and some inventors such as Thomas Edison tried to claim some of his work. Woods sold many of his inventions to companies such as American Bell Telephone Company and General Electric Company.

- j. **Slide 10: Dr. Daniel Hale Williams (1856-1931)** Daniel’s path to becoming a surgeon started as an apprenticed shoemaker, then a move to Illinois led him to open a barbershop. Daniel became fascinated with medicine, and he apprenticed with Dr. Henry Palmer. In 1880, Daniel



entered what is now known as Northwestern University Medical School. After graduation in 1883, he opened his office in Chicago, Illinois.

Williams careful attention to emerging antiseptic methods made him a leader in medicine, and in 1891, he opened Provident Hospital & Training Association to facilitate training black nurses. Provident Hospital used an interracial staff and had an 87% success rate which was unheard of at that time.

In 1893, a young black man was stabbed and was transferred to Provident Hospital. He came close to death as he lost so much blood. Williams faced the choice of opening the chest and operating internally to save the man's life. He was the first physician to perform open heart surgery, thus saving the life of James Cornish.

In February 1894, Dr. Williams was appointed as Chief Surgeon at the Freedmen's Hospital in Washington, D.C., and reorganized the medical and surgical departments, establishing an integrated staff of highly qualified doctors and nurses.

- k. **Slide 11: George Washington Carver (1864-1943)** Carver was one of the most celebrated agricultural scientists and inventors of all times. His mother, Mary, was purchased at 13 years old by a white farmer, Moses Carver. Soon after George's birth, he, his mother, and sister were kidnapped to be sold into slavery. Moses Carver only succeeded in finding George.

Moses Carver raised George and his brother as his own and taught them to read and write. George was later accepted to Simpson College in Iowa and transferred to Iowa Agricultural College. After receiving his master's degree, he was recruited by Booker T. Washington to teach at Tuskegee Institute.

Carver believed that crop rotation would replenish the nutrients in the soil. He thought that years of growing cotton had depleted the soil's nutrients and resulted in low yields of cotton. Using peanuts, a nitrogen fixing plant, or soybeans and sweet potatoes, the soil would be restored. Cotton could be reintroduced a few years later.

Carver and Booker T. Washington often bumped heads over the demands of his faculty position. Carver wanted to devote his time to research and not have all the required responsibilities of a faculty teaching position.

George Washington Carver created more than 300 products produced from peanuts, such as ink, facial cream, shampoo, and soap.

- l. **Slide 12: Madam C.J. Walker (1867-1919)** Madam C.J. Walker was born Sarah Breedlove in 1867 to former slaves working as sharecroppers. She lived with her sister until she ran away at 14, married soon after, and gave birth to a daughter.



Sarah suffered from severe dandruff, and the harsh chemicals used on her scalp and clothes, and her stressful life caused her hair to fall out. There were practically no hair care products for black women. Sarah consulted her brothers, who were barbers in St. Louis, and learned some haircare remedies. Sarah later became a commissioned agent selling Annie Malone hair care products, while developing her own formula to grow hair.

Sarah moved to Denver, met Charles Joseph C.J. Walker, who had creative marketing skills, and they established Madam C.J. Manufacturing company and advertised in black newspapers. Madam C.J. Walker is considered the first black woman millionaire.

*"I am a woman who came from the cotton fields of the South. From there, I was promoted to the washtub. From there, I was promoted to the cook kitchen. And from there, I promoted myself into the business of manufacturing hair goods and preparations...I have built my own factory on my own grounds."* **Madam C.J. Walker**

- m. **Slide 13: Dr. Mary E. Britton** (1855- 1925) Mary was born during the antebellum era in Lexington, Kentucky. She was an educator, suffragist, journalist, and civil rights activist. She fought for racial equality and was the daughter of a former slave. Her father was of Spanish and Native American descent.

Mary's parents instilled in their children a desire for education. Furthermore, given the racially segregated culture of the South, her education and that of her siblings occurred in private schools for African Americans operated by the American Missionary Association. She and her siblings acquired a classical education.

After her parents' death, Mary Britton taught in the segregated public school system in central Kentucky and became one of the first teachers to join the Kentucky State Association of Colored teachers in 1877. Mary retired at the age of 42 after teaching in order to pursue a medical degree.

She attended the American Missionary College of Medicine in Chicago and upon graduation and returned to Lexington to practice medicine for 28 years until her death in 1925. She was the first African American female physician in the state of Kentucky.

Dr. Britton never married or had any children.

- n. **Slide 14: Georgia A. Lee Patton** (1864-1900) Georgia was born a slave. She managed to complete high school, and with the help of her siblings, was able to go to Central Tennessee College in Nashville. She graduated with a medical degree in 1893.



Georgia went to Liberia as a missionary and used her medical skills for two years. She contracted tuberculosis on her return to America but later opened a practice in Memphis, Tennessee as the first black woman licensed as a doctor and surgeon in that state.

- o. **Slide 15: Other Notable Physicians and Scientists** (Read slide)
- p. **Slide 16: Summary** (Read slide)

### 3. **Guiding Questions**

- Why is it significant that a number of these leaders were slaves or sons or daughters of slaves? What challenges did they have to overcome? How is it different from today?
- Why was it so important for the inventors to get patents on their ideas? Did the patents protect them? Why?
- Pick one of the leaders in this lesson plan and write a paragraph about why you think that person is the most significant and include their contributions. What was the common desire for these leaders?