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### Granville T Woods 1856-1910

Biography of a Black Edison

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By Mary Bellis

Born in Columbus, Ohio, in April 23, 1856, Granville T Woods dedicated his life to developing a variety of inventions relating to the railroad industry.

#### The Black Edison

To some he was known as the "Black Edison, both great inventors of their time. Granville T Woods invented more than a dozen devices to improve electric railway cars and many more for controlling the flow of electricity. His most noted invention was a system for letting the engineer of a train know how close his train was to others. This device helped cut down accidents and collisions between trains.



GRANVILLE T. WOODS

Granville T Woods (1856-1910)  
LOC 1687

#### Granville T Woods - Self-Education

Granville T Woods literally learned his skills on the job. Attending school in Columbus until age 10, he served an apprenticeship in a machine shop and learned the trades of machinist and blacksmith.

During his youth he also went to night school and took private lessons. Although he had to leave formal school at age ten, Granville T Woods realized that learning and education were essential to developing critical skills that would allow him to express his creativity with machinery.

In 1872, Granville T Woods obtained a job as a fireman on the Danville and Southern railroad in Missouri, eventually becoming an engineer. He invested his spare time in studying electronics. In 1874, he moved to Springfield, Illinois, and worked in a rolling mill. In 1878, he took a job aboard the Ironsides, a British steamer, and, within two years, became Chief Engineer of the steamer. Finally, his travels and experiences led him to settle in Cincinnati, Ohio, where he became a person dedicated to modernizing the railroad.

#### Granville T Woods - Love of the Railroad

In 1888, Granville T Woods developed a system for overhead electric conducting lines for railroads, which aided in the development of the overhead railroad system found in cities such as Chicago, St. Louis, and New York City. In his early thirties, he became interested in thermal power and steam-driven engines. In 1889, he filed his first patent for an Improved steam-boiler furnace. In 1892, a complete Electric Railway System was operated at Coney Island, NY. In 1887, he patented the Synchronous Multiplex Railway Telegraph, which allowed communications between train stations from moving trains. Granville T Woods' invention made it possible for trains to communicate with the station and with other trains so they knew exactly where they were at all times.

Alexander Graham Bell's company purchased the rights to Granville T Woods' telegraphy patent enabling him to become a full-time inventor. Among his other top inventions were a steam boiler furnace and an automatic air brake used to slow or stop trains. Wood's electric car was powered by overhead wires. It was the third rail system to keep cars running on the right track.


#### At Odds With Thomas Edison

Success led to law suits filed by Thomas Edison who sued Woods claiming that he was the first inventor of the multiplex telegraph. Woods eventually won, but Edison didn't give up easily when he wanted something. Trying to win Granville Woods over, and his inventions, Edison offered Woods a prominent position in the engineering department of Edison Electric Light Company in New York. Woods declined preferring his independence.

Continue with > [Pictures of Granville T Woods](#) or [List of all Patents Issued to Granville T Woods](#)

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## Zoom Inventors and Inventions

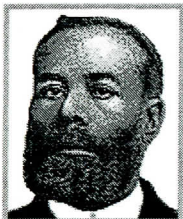


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### Elijah McCoy: Inventor

[Go to a cloze activity on McCoy](#)

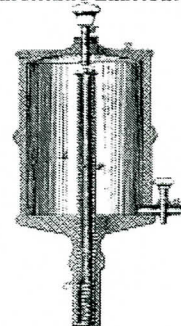
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Elijah McCoy (1843 or 1844-1929) was a mechanical engineer and inventor. McCoy's high-quality industrial inventions (especially his steam engine lubricator) were the basis for the expression "the real McCoy," meaning the real, authentic, or high-quality thing.

McCoy was born in Colchester, Ontario, Canada, to former slaves (George and Emillia McCoy), who had fled the USA. McCoy was educated as a mechanical engineer in Edinburgh, Scotland; he then moved to Detroit, Michigan, USA. Despite his education (and due to racism - he was of African descent), he could only get a job as a fireman and oilman on a steam-engine train, shoveling coal into a train's engine and periodically lubricating the engine.

**Automatic Lubricator**



Patent # 129,843  
July 23, 1872

✗ McCoy's first invention (1872) was a revolutionary way of lubricating steam engines without having to shut them down - this automatic lubricator saved an enormous amount of time and effort in transportation and in industrial production. McCoy eventually had a total of 57 patents, and was known throughout the world for his inventions. In 1920, McCoy opened his own company, the Elijah McCoy Manufacturing Company.


# List of African-American inventors and scientists

From Wikipedia, the free encyclopedia

This list of African-American inventors and scientists attempts to document many of the African Americans who have invented a multitude of items or made discoveries in the course of their lives. These have ranged from practical everyday devices to applications and scientific discoveries in diverse fields, including physics, biology, mathematics, plus the medical, nuclear and space sciences.

- ✂ Among the earliest was George Washington Carver, whose reputation was based on his research into and promotion of alternative crops to cotton, which aided in nutrition for farm families. He wanted poor farmers to grow alternative crops both as a source of their own food and as a source of other products to improve their quality of life. The most popular of his 44 practical bulletins for farmers contained 105 food recipes using peanuts.<sup>[1]</sup> He also developed and promoted about 100 products made from peanuts that were useful for the house and farm.<sup>[citation needed]</sup> He received numerous honors for his work, including the Spingarn Medal of the NAACP.
- ✂ A later renowned scientist was Percy Lavon Julian a research chemist and a pioneer in the chemical synthesis of medicinal drugs from plants. He was the first to synthesize the natural product physostigmine, and a pioneer in the industrial large-scale chemical synthesis of the human hormones, steroids, progesterone, and testosterone, from plant sterols such as stigmasterol and sitosterol.
- ✂ His work would lay the foundation for the steroid drug industry's production of cortisone, other corticosteroids, and birth control pills.

A contemporary example of a modern day inventor is Lonnie George Johnson, an engineer. Johnson invented the Super Soaker water gun, which was the top-selling toy in the United States in 1991 and 1992. In 1980 Johnson formed his own law firm and licensed the Super Soaker water gun to Larami Corporation. Two years later the Super Soaker generated over \$200 million in retail sales and became the best selling toy in America. Larami Corporation was eventually purchased by Hasbro, the second largest toy manufacturer in the world. Over the years, Super Soaker sales have totaled close to one billion dollars. Johnson reinvested a majority of his earnings from the Super Soaker into research and development for his energy technology companies – "It's who I am, it's what I do."<sup>[2]</sup> Currently, Johnson holds over 80 patents, with over 20 more pending, and is the author of several publications on spacecraft power systems.<sup>[3][4]</sup>



Science and technology in the United States

**African-American contributions**

- Discoveries
- NASA spin-off technologies
- Native American contributions
- Puerto Rican scientists and inventors
- Technological and industrial history

Inventions by date

- (before 1890)
- (1890–1945)
- (1946–1991)
- (after 1991)

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## Inventors and scientists

*Note: this table is viewable as a timeline when clicking on the sort symbol next to 'Life'.*

Name	Life	Occupation	Inventions/Accomplishments	Refs
Henry Brown	1832 – ?	Inventor	Invented fire safe	[42]
Burr, John Albert	18xx – ?	Inventor	Rotary-blade lawn mower patent	[43]
Cardozo, P. William	1905 –1962	Pediatrician	Sickle cell anemia studies. In October 1937, he published "Immunologic Studies in Sickle Cell Anemia" in the Archives of Internal Medicine; many of the findings are still valid today.	
Carson, Ben	1951–	Pediatric Neurosurgeon	Pediatric Neurosurgery at Johns Hopkins University First surgeon to successfully separate craniopagus twins	[44]
Carver, George Washington	1865 –1943	Botanical researcher	Discovered hundreds of uses for previously useless vegetables and fruits, principally the peanut	[45][46] [47][48]
Chappelle, Emmett	1925–	Scientist and researcher	Valuable contributions to several fields: medicine, biology, food science, and astrochemistry	
Clark, Mamie	1914 –2005	Psychologist	Conducted 1940s experiments using dolls to study children's attitudes about race.	
Clark, Kenneth	1917 –1983	Psychologist	First Black president of the American Psychological Association	[49]
Crosthwait, David, Jr.	1898 –1976	Research engineer	Heating, ventilation, and air conditioning. Received some 40 U.S. patents relating to HVAC systems.	
Dabiri, John	1980-	Biophysicist	Expert on jellyfish hydrodynamics and designer of a vertical-axis wind farm adapted from schooling fish.	
Daly, Marie Maynard	1921 –2003	Chemist	First black American woman with a Ph.D. in chemistry.	
Dean, Mark	1957–	Computer scientist	Led the team that developed the ISA bus, and led the design team responsible for creating the first one-gigahertz computer processor chip.	[50][51] [52]
Drew, Charles	1904 –1950	Medical researcher	Developed improved techniques for blood storage	
Du Chaillu, Paul	1831 –1903	Zoologist Explorer Anthropologist	Explorer who was the first modern European outsider to confirm the existence of gorillas, and later the Pygmy people of central Africa. Identified as white throughout life, but his mother was a Réunionnais mulatto. Settled in America and considered it his country by adoption. The full aspects of his ancestry were not uncovered until 1979, and are still little known today.	
Easley, Annie	1933–	Computer scientist	Work at the Lewis Research Center of the National Aeronautics and Space Administration and its predecessor, the National Advisory Committee for Aeronautics	[53][54]
Ejeta, Gebisa	1950-	Geneticist	Won the World Food Prize in 2009 for his major contributions in the production of sorghum.	
Ejigu, Kitaw	1948 –2006	Systems engineer	Worked for NASA as a system engineer and space research scientist	[55]
Ellis, Skip (Clarence)	1943–	Computer scientist	First African American with a Ph.D. in Computer Science Software inventor including OfficeTalk at Xerox PARC	[56][57]
Ezerioha, Bisi	1972–	Automotive engineer	Drag racing engineer and driver	
Ferguson, Lloyd Noel	1918 –2011	Chemist Educator	Chemistry doctorate, first received (1943, University of California, Berkeley)	[58][59] [60]
Fryer, Roland G., Jr.	1977–	Economist Social scientist Statistician	Inequality studies	
Gates, Sylvester James	1950–	Theoretical physicist	Work on supersymmetry, supergravity, and superstring theory	[61][62]
Goode, Sarah E.	1855 –1905	Inventor	Cabinet bed invention First African-American woman to receive a patent in the United States	[63][64]
Gilbert, Juan E.	1969–	Computer scientist	Awarded the first Presidential Endowed Chair at Clemson University in honor of his accomplishments	
Graves, Joseph L.	1955–	Evolutionary biologist		[65][66] [67]
Greenaugh, Kevin	1956–	Nuclear engineer		[68]
Griffin, Bessie Blount	1914 –2009	Physical therapist Inventor	Amputee self-feeding device	[69][70]
Hall, Lloyd	1894 –1971	Chemist		
Haile, Sossina M.	1966-	Engineer	Work on fuel cells	
Haile-Selassie, Yohannes	1961-	Paleoanthropologist	Codiscoverer of the <i>Australopithecus garhi</i> and <i>Ardipithecus kadabba</i> species, as well as the Ardi and Kadanuumuu remains. One of the world's foremost authorities on early hominins. Immigrant from Ethiopia.	
				[71]

Name	Life	Occupation	Inventions/Accomplishments	Refs
Harris, James A.	1932–2000		Co-discovered Rutherfordium (element 104) and Hafnium (element 105) at Lawrence Livermore Laboratory	
Hawkins, Walter Lincoln	1911–1992	Scientist	Inventor at Bell Laboratories	[72]
Hodge, John E.	1914–1996	Chemist		
Holley, Kerrie	1954–	Research computer scientist at IBM	Co-creator of Service-Oriented Modeling and Architecture, SOMA and the Service Integration Maturity Model (SIMM)	
Jarvis, Erich	19xx–	Neurobiologist	Duke University neuroscience bird songs studies.	[73][74] [75]
Johnson, Isaac	18xx–? ?	Inventor	Held patent for improvements to the bicycle frame, specifically so it could be taken apart for compact storage.	[76]
Johnson, Lonnie	1949–	Mechanical engineer Nuclear engineer Inventor	Invented Super Soaker while researching thermal energy transfer engines; worked with NASA. Holder of over 80 patents	[4][77] [78][79]
Jones, Frederick McKinley	1893–1961	Inventor	Invented refrigerated truck systems	[80]
Julian, Percy	1899–1975	Chemist	First to synthesize the natural product physostigmine; earned 130 chemical patents; lauded for humanitarian achievements.	[81][82] [83][84]
Just, Ernest	1883–1941	Woods Hole Marine Biology Institute Biologist	Provided basic and initial descriptions of the structure–function–property relationship of the plasma membrane of biological cells.	[85][86] [87]
Kittles, Rick	1967–	Geneticist	Work in tracing the ancestry of African Americans via DNA testing	[88][89]
Kountz, Samuel L.	1930–1981	Transplant surgeon Researcher	Organ transplantation pioneer, particularly renal transplant research and surgery. Author or co-author of 172 articles in scientific publications.	[90][91] [92][93]
Latimer, Lewis	1848–1928	Inventor Draftsman Expert witness	Worked as a draftsman for both Alexander Graham Bell and Thomas Edison. He became a member of Edison's Pioneers and served as an expert witness in many light bulb litigation lawsuits.	[94][95] [96][97]
Lawson, Jerry	1940–2011	Computer engineer	Designer of Fairchild Channel F, the first programmable ROM cartridge-based video game console	[6][98]
Lee, Raphael	1949–	Surgeon Biomedical engineer <i>[citation needed]</i>	Paul and Aileen Russell Professor, Pritzker School of Medicine; MacArthur Fellow, Searle Scholar, Founder and Chairman, Avocet Polymer Technologies, Inc.; Founder and Chairman, Renacyte BioMolecular Technologies, Inc; Discovered use of surfactant copolymers as molecular chaperones to augment endogenous injury repair mechanisms of living cells. Holder of many patents covering scar treatment therapies, tissue engineered ligaments, brain trauma therapies, protective garments. <i>[citation needed]</i>	
Lynk, Beebe Steven	1872–1948	Chemist	Teacher at West Tennessee University	
Matzelliger, Jan	1852–1889	Inventor	Shoe assembly Machine	[99][100]
McBay, Henry	1914–1995	Chemist	His discoveries allowed chemists around the world to create inexpensive peroxide compounds	[101][102]
McCoy, Elijah	1844–1929	Inventor	Invented a version of the automatic lubricator for steam engines.	[103][104]
McLurkin, James	1972–	Robotist		[105]
McWhorter, John	1965–	Linguist	Specializes in the study of creole language formation	
Montgomery, Benjamin	1819–1877	Inventor	Designed a steam operated propeller to provide propulsion to boats in shallow water	
Moore, Willie Hobbs	1934–1994	Physicist	Willie Hobbs Moore was the first African American woman to earn a Ph.D. in Physics (University of Michigan Ann Arbor 1972) on vibrational analysis of secondary chlorides.	[106]
Morgan, Garrett	1877–1963	Inventor	Invented early version of the gas mask <b>✦ TRAFFIC SIGNALS</b>	[107]
Nmezi, Murphy	1955–	Physician/Biostatistician	Advances in Path Analysis and Structural Equation Modeling	
Nriagu, Jerome	1944–	Geochemist	Studies toxic metals in the environment. Originator of the lead poisoning thesis of the decline of the Roman Empire	
Ogbu, John Uzo	1939–2003	Anthropologist	Ethnic studies in education and economics	[108][109]
Olukotun, Kunle	19xx–	Computer scientist	Early advocate and researcher of multi-core processors	
Oyekan, Soni	1946–	Chemical engineer	Work on the epidemiology of tropical diseases including malaria	

Name	Life	Occupation	Inventions/Accomplishments	Refs
Amos, Harold	1918–2003	Microbiologist	First African-American department chair at Harvard Medical School	[5]
* Alcorn, George Edward, Jr.	1940–	Physicist Inventor	Invented a method of fabricating an imaging X-ray spectrometer	[6][7]
Andrews, James J.	1930–1998	Mathematician	Put forth the Andrews–Curtis conjecture in group theory with Morton L. Curtis, still unsolved	[8]
Bailey, L.C.	1890–1976	Inventor	Wind Powered Clothes Dryer.	[9]
Ball, Alice Augusta	1892–1916	Chemist	Extracted chaulmoogra oil for the treatment of Hansen's disease (leprosy).	[10]
Banneker, Benjamin	1731–1806	Mathematician Astronomer Surveyor Clockmaker Author Farmer	Wooden clock (1753). Assisted in survey of the original boundaries of the District of Columbia (1791). Authored almanac and ephemeris (1792–1797)	[11]
Banyaga, Augustin	1947–	Mathematician	Work on diffeomorphisms and symplectomorphisms	[12]
* Janet Bashen	1957–	Inventor Entrepreneur Professional Consultant	First African-American woman to receive a patent for a web-based software invention. The invention, LinkLine, is an Equal Employment Opportunity case management and tracking software.	[13]
Bath, Patricia	1942–	Ophthalmologist	First African-American female physician to receive a patent for a medical invention. Inventions relate to cataract surgery and include the Laserphaco Probe, which revolutionized the industry in the 1980s, and an ultrasound technique for treatment.	[14][15] [16]
* Beard, Andrew	1849–1921	Farmer Carpenter Blacksmith Railroad worker Businessman Inventor	Janney coupler improvements  Invented the car device#594,059 dated November 23, 1897 Rotary engine patent #478,271 dated July 5, 1892	[17]
Bell, Earl S.	1977–	Inventor Entrepreneur Architect Industrial Designer	Invented Chair With Sliding Skin (2004), and the Quantitative Display Apparatus (2005)	[18] [19] [20]
Benjamin, Miriam	1861–1947	Inventor Educator	Invented "Gong and Signal Chair for Hotels". Second African-American woman to receive a patent.	[21]
Berry, Leonidas	1902–1995	Gastroenterologist	Gastroscope pioneer	[22]
Bharucha-Reid, Albert T.	1927–1985	Mathematician Statistician	Probability theory and Markov chain theorist	[23]
* Black, Keith	1957–	Neurosurgeon	Brain tumor surgery and research	[24][25]
Blackwell, David	1919–2010	Mathematician Statistician	First proposed the Blackwell channel model used in coding theory and information theory; one of the eponyms of the Rao–Blackwell theorem, which is a process that significantly improves crude statistical estimators.	[26]
* Blair, Henry	1807–1860	Inventor	Second black inventor to issue a patent Invented early spark plug	[27] [28]
Boahen, Kwabena	19xx–	Bioengineer	Silicon retina able to process images in the same manner as a living retina	[29][30]
Boone, Sarah	1832–1905	Inventor	Ironing board allowing sleeves of women's garments to be ironed more easily	[31][32] [33]
Bouchet, Edward	1852–1918	Physicist	First African-American to receive a Ph.D. in any subject. Received physics doctorate from Yale University in 1876.	
Bowman, James	1923–2011	Physician	Pathologist and geneticist; Professor Emeritus Pritzker School of Medicine; first tenured African-American professor at the University of Chicago Division of Biological Sciences.	[34][35]
* Boykin, Otis	1920–1982	Inventor Engineer	Artificial heart pacemaker control unit.	[36][37] [38]
Brady, St. Elmo	1884–1966	Chemist	Published three scholarly abstracts in Science and also collaborated on a paper published in Journal of Industrial and Engineering Chemistry.	[39]
Branson, Herman	1914–1995	Physicist Educator	Protein structure research	[40][41]
Brooks, Charles	1865–?	Inventor <sup>[citation needed]</sup>	Street sweeper truck and a type of paper punch <sup>[citation needed]</sup>	
* Brooks, Phil	19xx–	Inventor <sup>[citation needed]</sup>	First U.S. Patent for a disposable syringe <sup>[citation needed]</sup>	

Name	Life	Occupation	Inventions/Accomplishments	Refs
Poindexter, Hildrus	1901–1987	Bacteriologist Epidemiologist		
Petters, Arlie	1964–	Physicist	Work on the mathematical physics of gravitational lensing	
* Quarterman, Lloyd Albert	1918–1982	Scientist Fluoride Chemist	Manhattan Project, worked with Albert Einstein and Enrico Fermi	
Renfroe, Earl	1907–2000	Orthodontist		[110][111]
Rillieux, Norbert	1806–1894	Engineer Inventor	Inventor of the multiple-effect evaporator	[112]
Robinson, Larry	1957–	Environmental chemist	Investigated possible role of arsenic in the death of Zachary Taylor. Interim president of Florida A&M University.	
* Russell, Jesse	1948–	Engineer Inventor	Wireless communications engineer	
Sammons, Walter	1890–1973	Inventor	Patent for hot comb	[113]
Sowell, Thomas	1930–	Economist Social scientist	Economist, social theorist and political philosopher	[114][115] [116][117]
Steele, Claude	1946–	Psychologist Social scientist	Stereotype threat studies	
Stiff, Lee	1941–	Mathematician	President of the National Council of Teachers of Mathematics from 2000 to 2002	[118]
* Snyder, Window	1976–	Computer engineer	Security engineer at Microsoft, Mozilla, and Apple	
Temple, Lewis	1800–1854	Inventor, Blacksmith, abolitionist	Inventor of the toggling whaling harpoon head.	[119]
* Thomas, Vivien	1910–1985	Surgical technician	Blue baby syndrome treatment in the 1940s	[120][121] [122]
* Turner, Charles Henry	1867–1923	Zoologist	First person to prove that insects can hear and can distinguish pitch, that cockroaches can learn by trial and error, and that honeybees can see color. First African-American to receive a Ph.D. from the University of Chicago.	[123]
* Tyree, Bernadette	19xx–	Biochemist <sup>[<i>citation needed</i>]</sup>	Program Director at National Institute of Arthritis and Musculoskeletal and Skin Diseases <sup>[<i>citation needed</i>]</sup>	
Tyson, Neil deGrasse	1958–	Astronomer	Researcher and popular educator in astronomy and the sciences	[124][125] [126]
Walker, Arthur B. C., Jr.	1936–2001	Astronomer	Developed normal incidence multilayer XUV telescopes to photograph the solar corona	[127][128] [129]
Walker, C. J.	1867–1919	Inventor <sup>[<i>citation needed</i>]</sup>	Created black cosmetic products.	
Washington, Warren M.	1936–	Atmospheric scientist	Former chair of the National Science Board	[130][131] [132][133]
* West, James E.	1931–	Acoustician Inventor	Co-developed the foil electret microphone	[134][135] [136]
Wilkins, J. Ernest, Jr.	1923–2011	Mathematician Engineer Nuclear scientist	Entered University of Chicago at age 13, PhD at 19, worked on the Manhattan Project, wrote over 100 scientific papers, helped recruit minorities into the sciences.	[137][138] [139]
* Williams, Daniel	1856–1931	Surgeon	Performed the first successful open-heart surgery in the United States	[140]
Williams, Scott W.	1943–	Mathematician		
Williams, Walter E.	1936–	Economist Social scientist		[141][142] [143]
* Woods, Granville	1856–1910	Inventor	Invented the Synchronous Multiplex Railway Telegraph <i>Combustion Engine</i>	[144]
Wright, Jane C.	1919–2013	Cancer Research and Surgeon	Noted for her contributions to chemotherapy and for pioneering the use of the drug methotrexate to treat breast cancer and skin cancer	
Wright, Louis T.	1891–1952	Surgeon	Led team that first used Aureomycin as a treatment on humans	[145][146] [147]
Young, Roger Arliner	1899–1964	Zoologist	First African-American woman to receive a doctorate degree in zoology	[148][149]

## See also

- History of United States patent law
- Lemelson–MIT Prize