

## SCIENCE AND TECHNOLOGY

African Americans have made significant contributions to science and technology for the benefit of all.

Many Black inventors and scientists encountered legal and social obstacles towards their discoveries. In, 1885, the Commission of Patents refused to grant a slave a U. S. patent. The government refused on the grounds that a slave not being a citizen could not contract with the government or even assign his invention to his master. The inventions of some free Blacks were often refused acceptance, once the inventor's racial identity was known. Jo Anderson, the slave of Cyrus McCormick, is reputed to have contributed largely to the McCormick Grain Harvester, but official records state that he was only a "handyman or helper." The U.S. patent office records 341 patents, granted to Blacks between 1834 and 1900.

Applied Science: Henry Blair is considered the first Black to be granted a U.S. patent for a corn plating machine, on October 14, 1834. Two years later, a patent for a similar machine for cotton planting was issued. The records show that Henry Blair was designated "a colored man": this practice ceased after this period.

Lewis Howard Latimer was employed by Alexander Graham Bell to create the patent drawings for the first telephone. He later became chief draftsman for both the General Electric and Westing-house Companies. In 1881, he invented and patented the first incandescent electric light bulb with a carbon filament. The largest number of patents were issued to Elijah McCoy. Most of his inventions were for machine lubricating devices. Granville T. Woods obtained 50 patents in his lifetime. One included an incubator, which was the forerunner of present day machines.

Blacks have produced such items as railroad signal (A.B. Blackburn, 1888), lawnmower (J.A. Burr, 1899), elevator device (J. Cooper, 1895), printing press (W.A. Lavalette, 1878), gas burner (B.F. Jackson, 1899), caps for bottles (Jone/Long, 1898), elevator (A. Miles, 1887), electric lamp (Nicholas/ Latimer, 1881), and fountain pen (W.B. Puvis, 1882). Hundreds of other inventions by Black inventors will go unknown, but those that are known, proved to be of vital importance to business and industry.

Frederick M. Jones developed the first practical refrigerator system for trucks and railroad freight cars; Thomas J. Carter developed a machine to test the durability of various letters; B.V. Montez, developed electronic devices in tape and wire recorders and listening aids, including receiving sets for professional football players' helmets; Sgt. Adolpus Samms patented various rocket designs that received the attention of the National Aeronautics and Space Administration, and Tony Helm of Chicago who patented an all-angle wrench attachment.

### Technology

Many African Americans are among the scientists involved in government and corporate ventures. Among them are George Carruthers, a physicist who in 1972

invented the lunar surface ultra violet camera/spectrograph for Apollo 16. It was placed on the lunar surface in April, 1972 and obtained the first photographs of the ultra violet equatorial bands of atomic oxygen that girdle the earth.

Katherine Johnson was an Aerospace Technologist at the National Aeronautics and Space Administration's Langley Research Center in Hampton, Virginia. Johnson analyzed data gathered by tracking stations around the world during the lunar orbital missions-- the moon shots. Later, she studied new navigation procedures to determine more practical ways to track manned and unmanned space missions.

O.S. (Ozzie) Williams was the first Black aeronautical engineer to be hired by Republic Aviation, Inc., during World War II. He was also instrumental in the development of the first airborne radar beacon for locating crashed aircraft. More recently he was appointed vice president of Gruman International, in charge of trade and industrial relations with emerging African nation; here his work includes the application of solar and wind energy to African needs.

In August, 1983, the first astronaut, Colonel Guion S. Bluford, Jr., lifted off in space in the space craft, Challenger. The Challenger's major mission was to put into orbit a giant communications and weather satellite for India.

The mission specialist who launched the satellite from the shuttle's payload bay was Colonel Bluford. Colonel Bluford, who holds a Ph.D. in aerospace engineering, grew up in Philadelphia where his father was a mechanical engineer and his mother a teacher. As a child, he wanted to design airplanes and spent many hours building model planes. In 1978, while finishing his doctorate at the Air Force Institute of Technology at Wright-Patterson, he applied to the NASA to become an astronaut.

Medicine: The earliest known physician was Imhotep, who defined therapeutic principles in Egypt around 3,000 B.C. One of the first Americans of medicine was the slave, Lucas M. Santonee of New York, who was trained in Holland and practiced medicine among the Dutch and English in New York. In 1667, for medical services rendered to the colony, Santomee was granted land. Another Onesimus who developed an effective antidote for the dreaded smallpox in 1721.

James Derham, a slave, is generally regarded as the first trained Black physician. Derham received a basic general education while growing up in Pennsylvania. He had the "peculiar fortune" of being owned by several individuals who were physicians. During the 1780's he became one of the most prominent physicians in New Orleans.

James McCune Smith, a native of New York, was a graduate of the University of Glasgow, Scotland. He came from a family which, on its maternal side, has been free of slavery for several generations, He received the A.B. degree in 1834, M.A. degree 1836, and the M.D. degree in 1837 from the University of Glasgow. Smith wrote several scientific papers attacking the idea of racial inferiority.

Blacks were encouraged to enter the medical profession, which was supported by the American Colonization Society, for services in Liberia. In 1849, John V. DeGrasse and Thomas J. White, who received medical degrees from Bowdoin College, refused the Colonization Society's offer to practice in Liberia. After the war, two of the oldest Black medical schools, Howard University and Meharry University were founded. Howard Medical School opened in 1868 with the aid of the Freedmen's Hospital facilities and eight students. Meharry was added to the Central Tennessee College in Nashville with a \$500 endowment by Samuel Meharry.

Martin R. Delaney was trained at the Canaan Academy and the Oneida Institute, both of New York State. This training was followed by an M.D. degree from Harvard in 1852. He became a leading physician and while practicing medicine in Pittsburgh was instrumental in containing a cholera epidemic there.

Delaney was also recognized both here and abroad as a geographer, anthropologist and author. Two of his best known works are, Principal of Ethnology: The Origin of Races and Color with an Archaeological Compendium of Ethiopian and Egyptian Civilization (1879), and The Condition, Evolution, Emigration, and Destiny of the Colored People of the United States, Politically Considered (1852).

Upon graduating, Blacks found it difficult to receive intern, residency or staff appointments at white hospitals. Provident Hospital in Chicago, founded by Dr. Daniel Hale Williams, a Black physician, provided appointments for new Black doctors. Dr. Williams was the first surgeon to perform a successful operation on the human heart, and the first Black member of the American College of Surgeons.

Dr. Charles Drew, was a pioneer in blood plasma preservation. Before his time, there was no efficient way to store large quantities of blood plasma. After his discoveries, it became possible to preserve blood plasma in what is known today as "Blood Banks." Dr. Percy Julian, demonstrated what could be done with an ordinary soybean. He extracted from the soybean an ingredient to relieve inflammatory arthritis.

Two Black women surgeons are pioneers in the highly specialized medical field of neuro-surgery. Neurosurgery involves the diagnosis and treatment of injuries and disorders affecting the nervous system. Dr. M. Deborah Hyse-Rowna is a neurosurgeon at Guthrie Clinic in Sayre, Pennsylvanian. Dr. Hyde performs a procedure called a laminectomy on patients who are experiencing severe back and leg pain. During the operation, she removes arthritic bone and ligament, which cause pressure on the spinal nerve and lead to pain. Dr. Hyde was the first member of her family to attend college.

Dr. Alea Candy is pediatric neurosurgeon at Detroit's Children's Hospital of Michigan. Dr. Canady became interested in medicine in her junior and senior years at the University of Michigan and graduated magna cum laude of the medical school.