

# CELEBRATING

**IET** The Institution of Engineering and Technology

# BLACK ENGINEERS



**c.3000BC EARLIEST AFRICAN ENGINEERS**

The pyramids attest to the engineering genius of Ancient Egyptian civilisation, an African civilisation. The largest Egyptian pyramids are large enough to contain Westminster Abbey, St Pauls Cathedral, the cathedrals in Florence, Milan and St Peters in Rome. The Ancient Egyptians built at least 97 pyramids that are clear engineering marvels.



**c.711AD MOORISH GENIUS**

The Moors ruled Spain and Portugal for 7 centuries. They introduced their architecture and mathematics to Western Europe and it is known that some Britons attended their university during this time.



**c.1400BC ANCIENT AFRICAN EGYPTIAN MIRACLE**

Able to carry a dead weight of 2,500 tons, estimated to be 95 metres in length, the Obelisk barges of Queen Hatshepsut were said to dwarf many ships at that time.



**1848-1928 LEWIS HOWARD LATIMER**

**Light of inspiration**

Lewis Latimer took Thomas Edison's original inventions of the telephone and light bulb and improved them by the use of filaments. He not only patented his invention but he is one of the reasons that electric light was able to become popular for use at home and elsewhere.



**b.1949 LONNIE JOHNSON**

Lonnie Johnson is an African-American inventor, aerospace engineer, and entrepreneur. His work history includes a U.S. Air Force term of service and a twelve-year stint at NASA, including the Jet Propulsion Laboratory.



**1942-2019 PATRICIA BATH**

**Eye innovator**

Patricia Bath pioneered the use of laser cataract surgery which is used by millions today. A ophthalmologist by profession her list of achievements is long: first woman to lead a post graduate program in ophthalmology; first female member of the Jules Stein institute; the first African-American to be New York universities resident ophthalmology.



**1856-1910 GRANVILLE WOODS**

**Engineer pioneer**

The first African- American mechanical and electrical engineer after the civil war Granville Woods was to show how once given the opportunity, talent can flourish. He was an autodidact who did not attend college or university but was able to create as many as 60 patents in the areas of trains and streetcars.



**1893-1961 FREDERICK MCKINLEY JONES**

**Long haul brilliance**

Frederick Jones inventions made it possible to refrigerate perishable goods in long haul transportation that has helped to so revolutionise our world. A winner of the National Medal of Technology he has been inducted into the National Inventors Hall of fame.



**1920-1982 OTIS BOYKIN**

**Saver of lives**

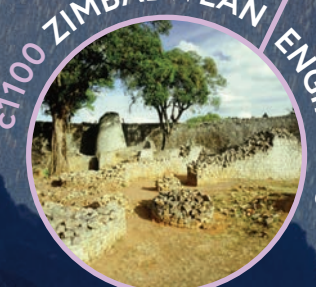
Otis Boykins inventions have saved millions of lives and increased the speed at which our every computing appliances work. He is an inventor who amongst other things has improved the electrical resistors used in pacemakers and in computers. A true role model.



**c.2980BC IMHOTEP**

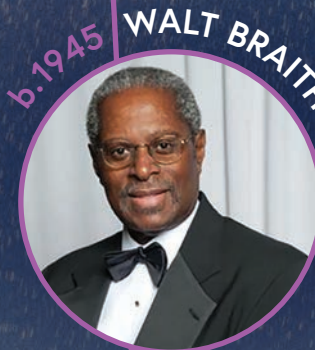
**One of the fathers of engineering**

Ancient Egyptian engineer, Imhotep, created the step pyramid in places like Saqqara. His work was studied across the ancient world. He is credited with building the first pyramid, the principles of which are still not entirely understood today. One of Ancient Egypt's most outstanding engineers, he introduced a way to build pyramids out of stone instead of bricks.



**c.1100 ZIMBABWEAN ENGINEERS**

The giant stone cities of Zimbabwe illustrate sophisticated engineering that existed at this place at this time. It is not known who or why they were built but these ruins show that Africans had attained a good level of engineering knowledge.



**b.1945 WALT BRAITHWAITE**

**Design pioneer genius**

Walt was a member of the team that expanded the use of CAD at Boeing and was the developer of a date exchange protocol that became a National Standard and impacted CAD/CAM use the world over. Braithwaite led the development of the first CAD/CAM Integrated Network at Boeing. Jamaican born, he oversaw Information Technology applied to all airplane programs in the Commercial Airplane Group. The 777 was the first commercial airplane to be entirely designed using CAD.



**b.1954 WANDA M AUSTIN**

**President and CEO**

Wanda M Austin led the US national security programs for a number of years. She was both president and CEO of The Aerospace Corporation (the first African American and woman to hold such a prestigious position). She has left her imprint on national security within space travel and the aerospace industry in general.



**b.1958 URSULA BURNS**

**Xerox innovator**

Ursula Burns is a member of the board directors for Uber who made her name at Xerox. Brought in to save a project that had gone wrong Ursula Burns not only turns the project around but develops a multi functional copier that goes on to be Xerox's bestseller. In 2007 she assumed the role of president of Xerox.

**YOU The future engineer that solves Climate Change and Covid 19 (born between 1999-2015)**

After realising that you had the potential to do anything you have read here you decide to find out what it takes to become an engineer. After contacting the Institution of Engineering and Technology and/or finding out for yourself how to become an engineer YOU succeed. YOU are instrumental in developing the equipment that delivers the Covid 19 vaccine when it is found. YOU then go on to develop the engineering theories and equipment that solves the climate change challenge in 10 years. Your friends and family are proud of YOU and YOU inspire a whole new generation of engineers who create the technology for humans to travel beyond Mars...

For further information on YOUR GREAT FUTURE contact: [www.theiet.org](http://www.theiet.org)



**1670-1761 ABRAHAM HANNIBAL**

**Great Engineer**

Abraham Hannibal was adopted by a Russian Tsar and sent to France to learn about engineering. When he returned he was the lead engineer (later becoming a master engineer) on projects in Siberia. He was the great grandfather of the celebrated Russian poet, Alexander Pushkin.



**1843-1929 ELIJAH MCCOY**

**Engineering marvel**

Elijah McCoy is famous for having 57 patents to his name. Most of his inventions related to the lubrication of steam engines and he is credited with inventing many household items e.g. the ironing table and the lawn sprinkler.



**1873-1956 WILLIAM HUNTER DAMMOND**

**Signal engineer genius**

William Hunter Dammond has achieved a number of firsts: he invented an electrical signalling system for railways engineers that has probably saved 1000s of lives because it alerts drivers to the presence of other trains. He was the first African American graduate of Western University of Pennsylvania (now Pittsburgh university). He received the patent for his signal invention.



**1877-1963 GARRET MORGAN**

**Inventor of the prototype of the gas mark**

An outstanding genius Morgan invented many of the things we see around us today. For example, the 3 position traffic signal and his smoke hood invention is said to have saved many lives.



**DR OLLIE FOLAN AND DR NIKE FOLAN**

**The founders**

Dr Ollie and Dr Nike Folan founded The Association for Black and Ethnic minority engineers in the UK in 2007. Both from engineering backgrounds the organisation was founded with the aim of raising the profile of black engineers and encouraging young people to choose engineering. Still going strong it organises seminars, talks, and helps organisations reaching out to disadvantaged groups.



**DR AMBER HILL**

**Medical engineer innovator**

Dr Hill works in the area of neuroscience and works to improve digital/creative approaches to healthcare challenges. In describing herself she says: "I design, deploy and scale new software to support research, development, impact, and engagement. I also turn my intellectual property into businesses as an engineering entrepreneur." She is interested in how AI and virtual reality might widen access to research.



**b.1984 YEWADE AKINOLA**

**Engineering winner**

Yewande Akinola won the IET young woman Engineer of the Year award in 2012. She has studied at Warwick and Cranfield university with her area of expertise being creating new ways to guarantee water supplies. She also won the Public Health Engineers young engineer of the year award. She works on the design and construction of innovative buildings and structures for the built environment.

References and Acknowledgements: Author and creative director: Gaverne Bennett. Designer: Urvasi Pantakar. Books and internet references Black Scientists and Inventors in the UK Williams and Amalemba. Blacks in Science Ancient and Modern; edited by Ivan Van Sertima. The Search for Africa; Basil Davidson; Africa Counts; Claudia Zaslavsky. The African origins of civilisation; Diop. The Economist. The Olmecs America's First Civilisation Richard Diehl. Between Two Worlds: The story of black British scientist Alan Goffe. The Oxford Companion to Black British History; edited by David Dabydeen, John Gilmore and Cecily Jones. www.bbc.co.uk/caribbean/news/story/2008/07/080723\_goffeengoffe. www.history.mcs.st-and.ac.uk/Biographies/Hypatia. https://www.dlstatelinc.com/articles/7-unsung-black-engineers-you-should-know. https://www.linkengineering.org/Explore/LE\_Blog/52515.aspx. Black Scientists and Inventors Book 1 Ava Henry and Michael Williams. Black Scientists and Inventors Book 2 Michael Williams and Ava Henry. Black Scientists and Inventors Volume 1 Michael Williams and Djehuti-Ankh-Kheru.