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An extract from the Chronicle &
sample of the Wallbook from
**The What on Earth? Wallbook
Timeline of Science &
Engineering**

Written by
**Christopher Lloyd & Patrick
Skipworth**

Illustrated by
Andy Forshaw

Published by
What on Earth Publishing Ltd

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Rocket train kills MP

BY OUR ENGINEERING EDITOR,
Liverpool, 16 September 1830

FORMER CABINET MINISTER and Member of Parliament for Liverpool William Huskisson died yesterday when he was run over by a steam locomotive during the opening ceremony of a 35-mile-long railway connecting Liverpool and Manchester.

The accident happened at Parkside station – about halfway along the line – after the engine he was travelling on stopped to take on water. Mr Huskisson was one of a number of dignitaries who disobeyed officials and crossed the lines to approach another waiting train which had been laid on especially for the Duke of Wellington.

It is thought Mr Huskisson, who is known to have fallen out politically

with the Duke, was hoping for a rapprochement by going over to the Duke’s carriage to greet him. But as he approached the Duke’s train, he failed to notice an oncoming engine and, despite a desperate attempt to clamber inside the Duke’s compartment, he fell onto the tracks and one of his legs was horribly crushed. He died in hospital a few hours later.

High-pressure steam technology was pioneered by Richard Trevithick, a mining engineer from Cornwall, almost thirty years ago when he first demonstrated how the power of steam can be harnessed to provide a new means of transport.

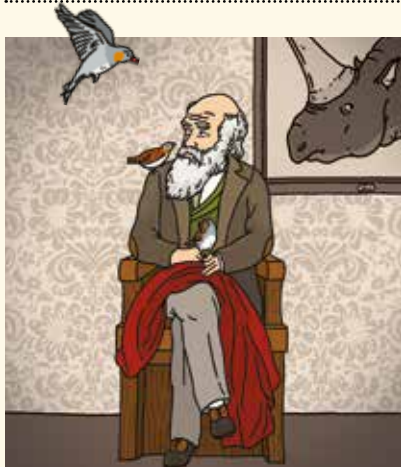
The dangers of steam technology were clear even then, when Mr Trevithick’s prototype road engine, the *Puffing Devil*, was destroyed after boiling dry and overheating.

The Cornishman blamed the incident on the negligence of the engine’s operators, who had retired to a nearby pub for drinks and a meal.

Even before this latest incident resulting in Mr Huskisson’s death, people up and down the country have been divided about the pros and cons of steam railways. Many are worried about the noise and pollution of the countryside, while others foresee economic benefits.

The engine by which Mr Huskisson was fatally injured, the *Rocket*, was constructed by Britain’s premier steam engineer, George Stephenson.

Last year the *Rocket* became famous after winning a series of trials held at Rainhill, Lancashire, to determine which design of steam engine should be used on the new Liverpool to Manchester railway.



People are apes, says Kent natural scientist

BY OUR NATURE EDITOR,
Downe, Kent, 1859

A NEW BOOK claiming to reveal the inner workings of life on Earth has been published by Charles Darwin, a naturalist living in Downe, Kent.

The book makes the astonishing claim that all forms of life share a common ancestor – including humans,

whose most recent biological relatives are, he says, prehistoric apes!

Mr Darwin’s book, *On the Origin of Species by Means of Natural Selection*, proposes that life evolves over many generations through a process in which those living things best adapted to environmental conditions thrive, while those less well adapted suffer, eventually becoming extinct. “From so simple a beginning,” he writes, “endless forms

Elementary idea solves order of chemicals

BY OUR RUSSIA STAFF,
St Petersburg, 7 March 1869

A SIBERIAN CHEMIST last night unveiled an ingenious new way to order the chemical elements, by placing them in a table that makes sense of their properties.

Dmitri Mendeleev was amazed to notice a series of recurring patterns within the sixty-three known elements while writing a new textbook called *Principles of Chemistry*. He is said to have made his discovery while playing patience with a pack of cards.

He realised that by ordering all the elements by increasing atomic weight, a pattern emerged in which every seventh element lined up into a group with other elements that shared similar characteristics. Gaps in the table suggest the existence of various new elements that have yet to be discovered.

By looking at the places where the gaps occur, Mr Mendeleev believes it may be possible to predict the properties and reactivity of the missing elements. Mr Mendeleev says his greatest inspiration has been gained from hard work. “Pleasures flit by, they are only for yourself,” he says. “Work leaves a mark of long-lasting joy.”

Scientists predict that this Periodic System – as Mr Mendeleev has called it – will underpin a new understanding of the elements.

1 H	
3 Li	4 Be
11 Na	12 Mg

most beautiful and most wonderful have been, and are being, evolved.”

The book is causing uproar among religious leaders, who refuse to accept that people are descended from apes, as the Bible clearly states that humans are made in the image of God. They also argue that since – according to the Bible – the world is only 5,000 years old, there is not enough time for Mr Darwin’s ‘evolution’ to have occurred.

Bell rings for long-distance telephones

BY OUR US BUREAU, 11 March 1876

LONG-DISTANCE VOICE communications between people all over the world may soon become a reality thanks to the efforts of Scottish-born inventor Alexander Graham Bell.

A patent granted by the United States Patent Office describes a device that allows a person to speak into a machine at one end of a telegraph line and another person to hear their words at the other end of the line.

Yesterday, in Boston, Mr Bell was able to make his device work for the first time, relaying a message to his assistant in an adjoining room. “I shouted into M [the mouthpiece] the following sentence: ‘Mr Watson, come here, I want to see you!’ To my delight he came and declared that he had heard and understood what I said.”

Meanwhile, a row has broken out between Mr Bell and Elisha Gray, an American engineer from Barnesville, Ohio, who claims that Mr Bell stole a design for a water-based variable resistor mechanism used to turn sound waves into electromagnetic signals.

Lawyers representing both parties are now arguing over the validity of Mr Bell’s claim to have invented the telephone.

Wrights' Bikes

DAYTON, OHIO

“IT’S THE NEW HORSE!”



Prolific inventor makes light work

“I have not failed, I have found ten thousand ways that do not work,” said electric pioneer

BY OUR TECHNOLOGY EDITOR,
New York, 5 September 1882

THE RELENTLESS determination of American inventor Thomas Edison paid off yesterday when he announced what may be his biggest achievement yet – a privately owned electricity transmission network connecting fifty-nine households in Pearl Street, New York City.

“At last the era of fumbling around in the dark to find matches to light candles is coming to an end,” said one happy customer last night.

Thanks to earlier work carried out by Mr Edison, electric light bulbs connected to the new network can be used by customers to replace candles and gas lamps. Mr Edison publicly demonstrated this revolutionary technology three years ago at his world-leading research centre at Menlo Park in New Jersey.



Mr Edison has a huge reputation as one of our most persistent inventors. Once, when a journalist challenged him as to why he had failed to invent a light bulb that didn’t explode every time it was attached to an electrical circuit, Mr Edison is said to have exclaimed, “I have not failed, I have found ten thousand ways that do not work!”

It is to such persistence that many attribute Mr Edison’s numerous achievements to date. These include the quadruplex telegraph (allowing more than one signal to be sent over a telegraph wire at a time), the carbon microphone (for use in telephones), a durable, reusable incandescent electric light bulb (using a filament made of carbonised bamboo), the phonograph (for recording and playing back sounds), and ticker tape (for transmitting the prices of stocks and shares over telegraph lines).

Four years ago Mr Edison created the Edison Electric Light Company, which now owns his many patents. Funding from powerful US businessmen such as J.P. Morgan and the Vanderbilt family has allowed Mr Edison and his team to follow their dreams of developing electrical transmission.

“We will make electricity so cheap that only the rich will burn candles,” the inventor has said. With such ambition, Mr Edison and his engineers look set to light up the world.

Aviators take Wright turn

BY OUR AVIATION EDITOR,
Kitty Hawk, 18 December 1903

A PAIR OF BICYCLE shop owners from Dayton, Ohio, yesterday demonstrated the first-ever machine-powered, heavier-than-air human flight. They made two sorties, lasting 12 seconds and 59 seconds, in an experimental aircraft called the *Flyer*, which took off and landed safely at Kitty Hawk in North Carolina.

Five onlookers witnessed the remarkable propeller-powered plane take to the air. Its innovative lightweight engine was designed and built by the Wrights’ bicycle workshop mechanic, Charlie Taylor.

Wilbur and Orville Wright have spent the last four years in their bicycle workshop trying to discover how to power and control an aircraft that can carry a human being. They even drew inspiration from the celebrated Renaissance artist Leonardo da Vinci,



who is famous for having drawn detailed sketches of futuristic flying machines.

To stabilise their aircraft, the Wright brothers have devised a ‘wing-warping’ control mechanism that mimics how birds change direction in flight by angling the ends of their wings. A system of cables pulls the ends of the aircraft’s wings in opposite directions

so the plane can bank more easily when changing direction, increasing its stability.

For the last three years, the Wright brothers have been conducting secret test flights with a series of homemade gliders at Kitty Hawk. US officials are now said to be interested in the technology’s military potential.

1995 - The first synthetic hologram is set up by Francis Reissler using an electrostatic generator applied to eight miles of wire

1220s - Swedish engineer and architect Thorens



1820 - George Stephenson, a mechanical engineer from

The world's first railway powered without animals, on an eight-mile stretch from Fenton Colliery in County Durham to Sunderland.

1826 • German Baron Karl von Drais patents the first commercially successful two-wheeled human-propelled

3016 - John McAdam, a Scottish engineer, pioneers a new concept for building roads by layering crushed stone and gravel on top of a base of large stones, and introducing a lambar to remove

conductivity method - known as "macadamisation" - is first used on the Bristol turnpike but rapidly spreads around the world



MCJ4 – French mathematics suggests that some are

398 - René Lathière, a French physician working at the Polyclinic in Paris, invents the stethoscope for diagnosing chest infections. It leads

1879 - French chemist Henri Moissan isolates fluorine.

the first synthetic polymer - polystyrene - a highly explosive substance used in warheads. His process becomes known as hydrolysis, derived

WED - Hans Christian Oersted discovers that an electric current produces a magnetic field (also the word, meaning to swirl)

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Through a magnetic field, his experiments pave the way for the development of the dynamo, the transformer and electric motor.

1820 - John Stewart and Jean-Baptiste Biot determine the value of μ_0 .

1820 - Franz Georg von Reichenow (1820-1898) is the first to use the term "magnetism" to describe the force of attraction between two magnets.

Marie Angélique, a French mathematician, showing how the strength of an electromagnetic field is inversely proportional to



Math **1021** • **Mathematical-Chaos** **Baltus** assisted by **Ada Lovelace**, designs an early built, a mechanical computer improve significantly the computational logarithmic tables, 1663 improved book *The Difference Engine No. 2* is available <http://www.kellogg.nyu.edu/courses/1021>

1820