Trust Trail: Scientific York

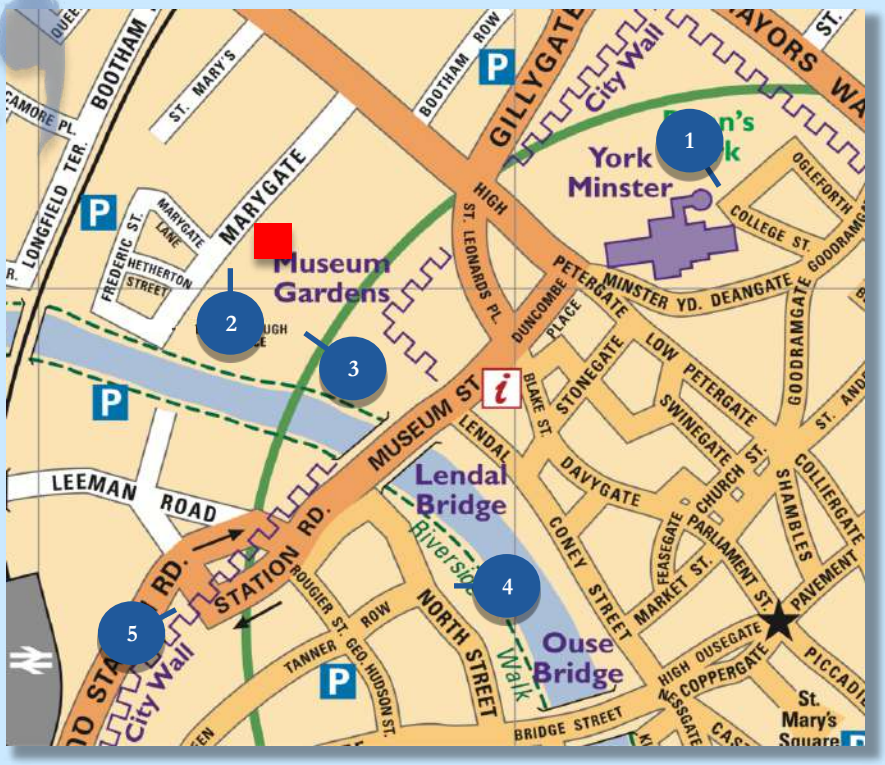
York is a city of science, and today the University of York is an international leader in Biotechnology and Environmental Sustainability and Resilience. Two hundred years ago, York scientists were leading the way in our scientific understanding of medicine, Earth sciences and measuring the universe.

This historical science trail explores the life and achievements of some of these remarkable men and women.

Their stories share a set of life experiences that still resonate today, each one working to overcome disadvantage in the form of poverty, lack of opportunity, ill-health or disability with support from their family, friends and communities.

Starting at Treasurer's House, the tour will take you past the Minster, through the Museum Gardens, on to North Street, and end up in front of the Railway Station.

Map



Key

Plaques

Points of interest

Stop 2: John Goodricke (1764 - 1786)

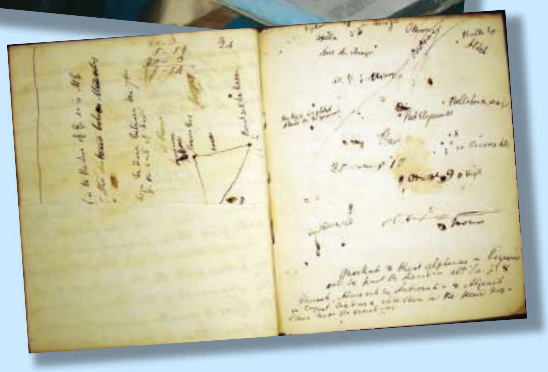
Treasurer's House, Minster Yard

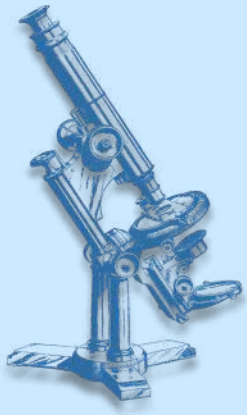
John Goodricke excelled in Mathematics as a child. He attended a pioneering school for hearing and speech problems in Edinburgh. Goodricke had been deaf since the age of five. He received his early scientific education at Warrington Academy, a school for children from non-conformist Protestants. At the age of 15 he was recording the constellations with such accuracy that the dates on which he made his sketch drawings in his schoolbooks can be worked out by astrophysicists 250 years later.

Rather than attend university, Goodricke returned home to live with his parents here at Treasurer's House. He struck up a friendship with Edward Piggott, whose father had built 'the finest private observatory in England' in the garden of his home at 33 Bootham.

Between 1781 and 1783 the pair made some ground-breaking astronomical observations. Together they observed and measured the changes in brightness of some stars (*as seen in Goodricke's notebooks; right*) - most notably the binary star Algol in the constellation Perseus. Goodricke suggested that this could be caused by a large body (a planet) revolving around Algol. The scientific community preferred the theory that such variable brightness was caused by dark spots or some internal motion. It turns out Goodricke was right! He went on, with Piggott, to observe and measure different forms of variable stars that did actually pulsate.

Together the two men laid down the observational groundwork on which later astronomy and astrophysics was built.





Continue to the Museum Gardens
(via the entrance next to St. Olave's Church on Marygate)

Stop 2: John Phillips (1800 - 1874)

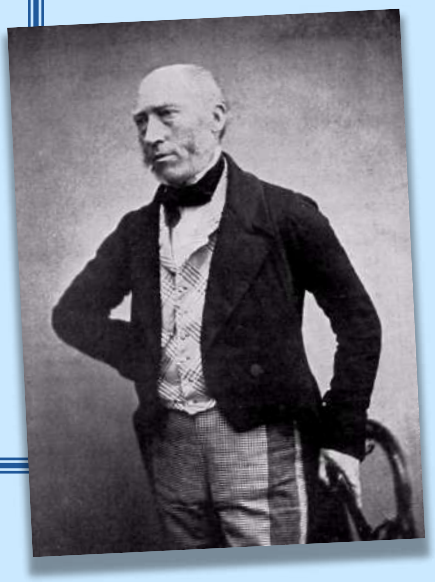
St Mary's Lodge, Museum Gardens

(building on the right when entering the gardens from Marygate)

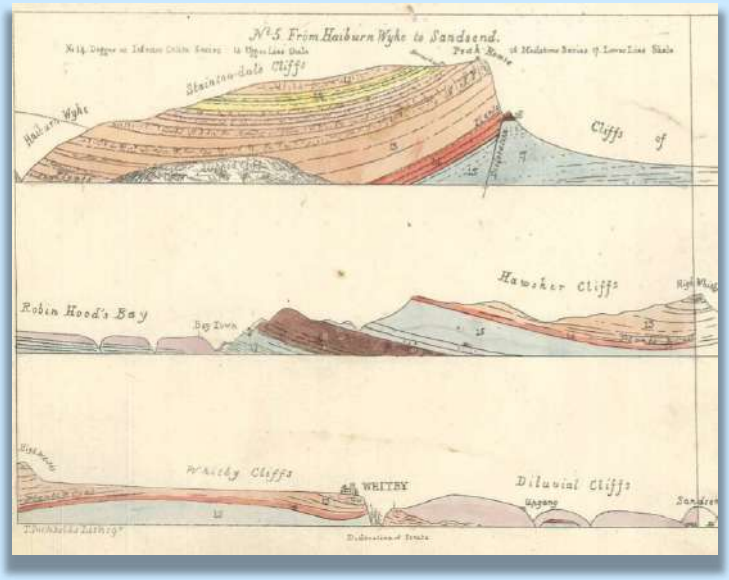
John Phillips, an orphan from the age of 7, was brought up and educated by his uncle, the pioneering but penniless geologist, William Smith.

From the age of 15, Phillips and his uncle toured the country as itinerant surveyors as they grappled with understanding the geological science that had shaped the country. They ended up in York and Phillips's talent was spotted by the newly created Yorkshire Philosophical Society, one of the country's leading scientific think-tanks.

In 1825, the Society appointed John the Keeper of their museum of natural science – the Yorkshire Museum. Whilst at the museum, Phillips was appointed Professor of Geology at the Universities of Dublin, London and then Oxford. He continued to unravel, record and publish the geological strata of England (*pictured below*). His long and distinguished career ended in 1874. On the day of his funeral, in his honour, the Minster rang its
bells for 90 minutes!



There is a Civic Trust blue plaque in honour of Phillips on the gardens-side of the lodge.



While you're here…

LOOK BEYOND THE ABBEY RUINS (and towards the back of the Art Gallery) **~ Geological Mosaic Map (2015)**

This beautiful 4m² artwork is a walk-on pebble mosaic depicting the Yorkshire section of William Smith's famous geological map of 1815, which is housed in the Yorkshire Museum nearby. Smith's map was the first ever geological map of a whole country.

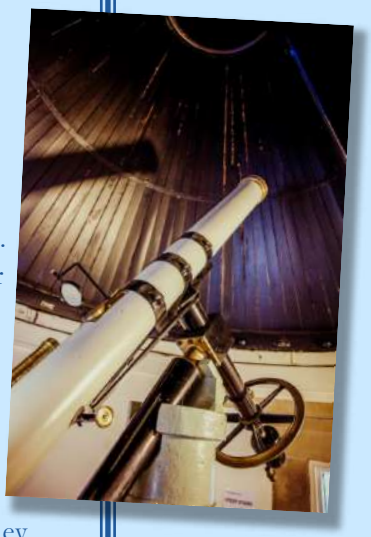
The mosaic includes fossils and discarded stone from the Minster – to represent the ideas which Smith was demonstrating in his map.

Continue to the York Observatory in the Museum Gardens
(found besides the path below the Yorkshire Museum's lawn)

Stop 3: Thomas Cooke (1807 – 1868)

York Observatory, Museum Gardens

A year before John Phillips was appointed Keeper of the Yorkshire Museum – a 17-year old Maths teacher – Thomas Cooke – was appointed to a school on Micklegate. Cooke from a family of shoemakers in Pocklington was keenly interested in the study of optics. Although the family business was not for him – it demonstrated his precision and skill in design and manufacturing that would define his career.



Cooke and his wife, Hannah, opened a start-up business on Stonegate (now no.18) making and selling optical instruments – including telescopes. The industry was at an embryonic stage and Thomas even had to engineer and manufacture his own precision machines and grind his own lenses. The company was a success as it built on the economic growth and fashionable interest in scientific enquiry. Thomas Cooke and Co. became the leading name in the manufacture of scientific optical equipment. They supplied the York Observatory with telescopes (*pictured right*).

From their newly-built factory – the Buckingham Works at Bishophill - they supplied the leading professional scientists of the day, including John Phillips, and amateurs, including Prince Albert. In 1862 they built the largest reflecting telescope in the World, still in use today at the Penteli Observatory in Athens.

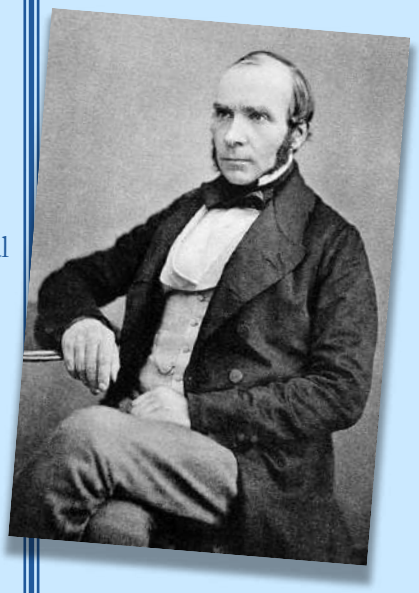
Continue over Lendal Bridge to North Street Riverside Gardens

Stop 4: John Shaw (1813 - 1858)

North Street riverside gardens

William Snow, a coal-yard labourer, and his wife Frances lived on North Street in one of the poorest parts of the city – rife with disease and squalor. They were determined to provide their nine children with the best opportunities that they could, and for all of them to escape the poverty in which they found themselves.

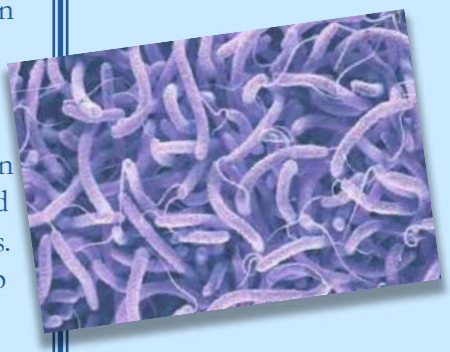
Their eldest son John attended school on a scholarship for the poor. In 1827, aged 14, he left York and was apprenticed to a surgeon-apothecary (chemist) in Newcastle-upon-Tyne. The first of a number of Cholera pandemics that would claim tens of thousands of lives broke out in 1831 and Snow was in the thick of it working in the poor areas of the city.



Having saved enough money to attend the Great Windmill School of Medicine in London, he qualified as a surgeon and licenced apothecary in 1838. He designed and engineered pioneering medical equipment, including one of the first ventilators to remove fluid from the lungs.

A lack of pain relief was something that doctors, surgeons and especially patients had to deal with constantly. Snow became interested and pioneered the use of ether and chloroform and became one of the leading anaesthetists in the country, even attending Queen Victoria at the birth of two of her children.

Cholera was still rampaging through the country, and Snow, from working with the most affected communities, had formed his own research conclusion that the disease was spread by water and was not air-born. The medical establishment would not accept his research. In a show of research-in-action, he removed the handle of a water pump that was at the centre of one of the outbreaks in Soho, preventing its use. The numbers of infected cases dwindled as people were forced to use other uncontaminated water sources. (This act is celebrated by the blue plaque here, with a water pump handle positioned on the floor. Can you find it?)

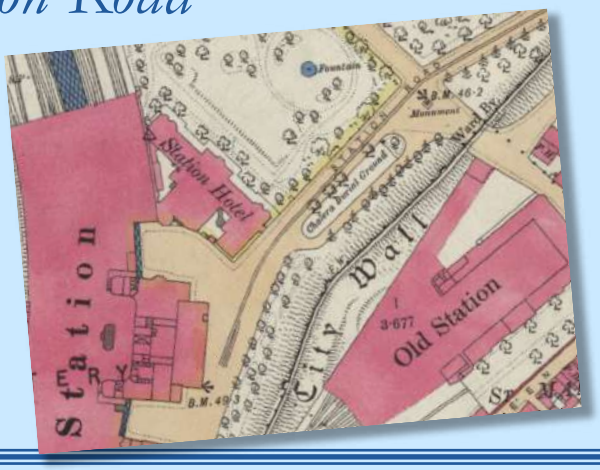


In 2003, John Snow was voted the Greatest Physician of all Time.

Continue to Station Road (which is en route to the railway station)

Stop 5: The Cholera Burial Ground (1831-32)

Station Road

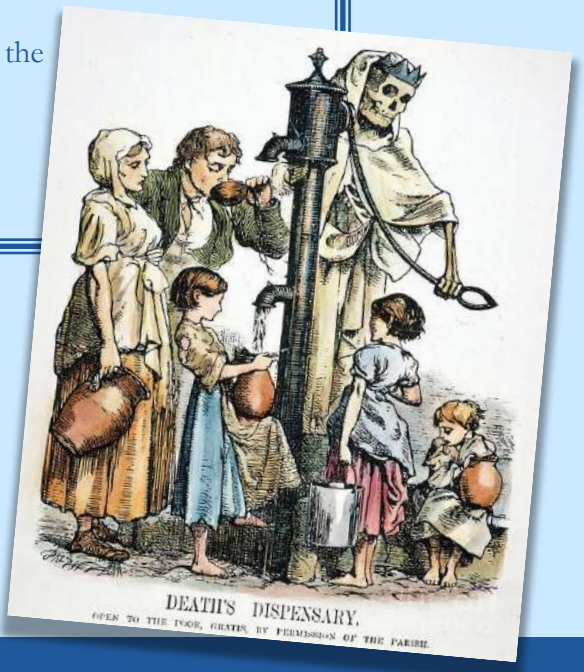


The impact of past pandemics can be felt in places across the world. Smallpox, Cholera, Typhoid and Influenza have claimed many millions of lives over the centuries.

It is only through the work of John Snow, medical professionals and scientists like him trying to understand the transmission of these diseases and to find vaccinations for them that we can keep up with them.

This small graveyard is the final resting place for the 185 people who died in York during the Cholera outbreak of 1831-2.

Today there are 20 surviving memorial stones.



End of Trail

We hope you enjoyed it and learned a lot. Click the link below to view our other Trust Trails!

https://yorkcivictrust.co.uk/heritage/trust-trails/