

Heroes and Heroines of Wales

Sidney Gilchrist Thomas



 Cadw



Llywodraeth Cymru
Welsh Government

In the early 1800s, south Wales was the most important iron-producing region in the world. Blaenavon Ironworks was at the centre of this industrial revolution. But by the time of our story – the 1870s - the Welsh iron industry was in decline, struggling to survive against competition from abroad...

Sidney Gilchrist Thomas

Secret experiments that changed the world



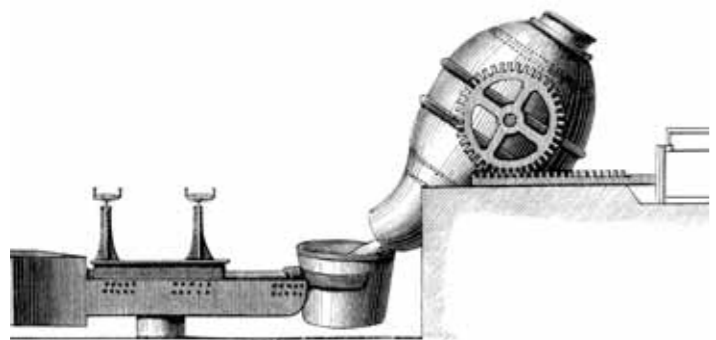
Sidney Gilchrist Thomas put Wales on the map as an industrial nation
Source: National Museum Wales

Sidney Gilchrist Thomas was fascinated by chemistry. In 1876, he began working on secret experiments at Blaenavon Ironworks. This led to a discovery that changed the steel manufacturing industry worldwide. It brought Thomas fame and fortune. But it also led to his early death...

Before he found fame, Thomas worked as a clerk with the Metropolitan Police Courts in London. But his real passion was for chemistry. When he was 19, he joined evening classes, and it was here that he heard from a tutor about a major problem in the steel industry.



Blaenavon Ironworks



Sidney and his cousin Percy carried out experiments using a Bessemer converter

The problem

During the 1850s, a scientist called Sir Henry Bessemer had developed a process which mass-produced steel from pig iron. But the steel from the 'Bessemer converter' was very brittle because the iron ore contained high levels of phosphorus. So steelworks had to import expensive phosphorus-free ores.

The tutor told his students that if they could find a way for the Bessemer converter to remove phosphorus, they would make their fortune.

Thomas rises to the challenge

Thomas was determined to solve the problem. He teamed up with his cousin, Percy Carlyle Gilchrist, a chemist at Blaenavon. Every weekend, Thomas travelled to Wales and carried out secret experiments with Gilchrist.

When the general manager at the ironworks heard of their activities, he offered them the use of a Bessemer converter.

Success for the scientists

Thomas and Gilchrist's hard work paid off. In 1879, they announced that they had removed phosphorus from the ore by lining the converter with limestone bricks.

Andrew Carnegie, an American steel tycoon, wrote: 'These two young men, Thomas and Gilchrist of Blaenavon, did more for Britain's greatness than all the Kings and Queens put together.'



Aerial view of the ironworks



Interior of a workers' cottage



People both lived and worked at Blaenavon World Heritage Site



Monument commemorating the two scientists at Blaenavon World Heritage Site.

Fame is sweet – but short

Thomas found fame and fortune from his discovery, but it cost him his health. The effects of his experiments damaged his lungs and he died in 1885, aged just 34. Gilchrist lived on to the age of 84.

There is a monument in Blaenavon commemorating the work of the two scientists.

The legacy - Welsh industry suffers then shifts

The discovery brought a boom in steel manufacture in Europe and America. But this later backfired on Welsh industry. As the foreign steelworks became more efficient, Blaenavon and other Welsh companies struggled to compete.

Gradually south Wales specialised in the production of coal rather than steel, bringing a new era in Welsh industrial history.

Weapons of war

An unfortunate outcome of Thomas's discovery was that it boosted steel production in Germany. This enabled the country to equip itself with weapons which it used in the First World War.

Follow the footsteps

You've read the story of Sidney Gilchrist Thomas and Percy Carlyle Gilchrist, now take yourself back to their world.



Explore the workers' cottages

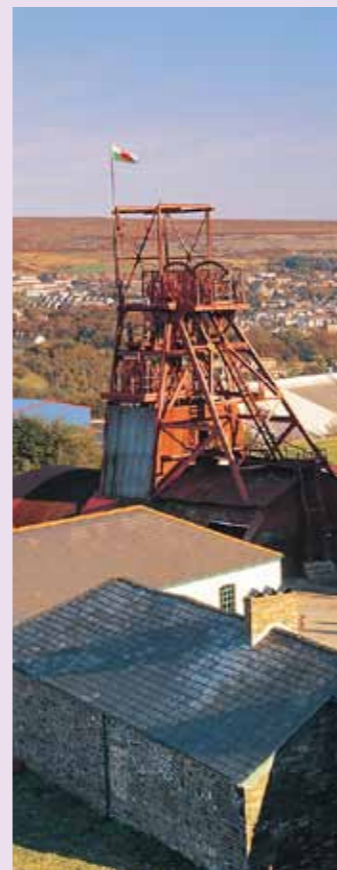
Blaenavon Ironworks

Blaenavon's Industrial landscape is now a World Heritage Site. It tells the story of the Industrial Revolution, when the iron and coal industries of south Wales were of worldwide importance.

- Explore the valley and imagine the landscape in Thomas's day. Tall chimneys spewing out black smoke, fumes filling the air and the roaring of furnaces ...
- See the engine houses, furnaces and foundry that would have been in use when Thomas and Gilchrist were doing their secret experiments.
- Explore the workers' cottages – where the BBC filmed its docu-drama *Coal House*.
- Walk through the village and discover the Workmen's Hall, church, shop.



Interior of a workers' cottage: where the BBC filmed its docu-drama *Coal House*



Big Pit

Big Pit

Big Pit opened in 1880, just after Thomas and Gilchrist had made their great discovery. When the steel industry began to die down in Wales, the coal industry took over, and Big Pit was the main colliery in the area.

- Go 300 feet underground with a real miner and see what life was like for the men who worked at the coal face.
- See the machinery of the mine and find out how it worked.
- Walk around the bath house where the grubby miners cleaned themselves after work. You can even hear them singing as they scrub!



Travel underground with a real miner.

Visit www.cadw.wales.gov.uk to explore the sites.