



WaterWords

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OWNERSHIP OF IMPORTANT ARTEFACTS TRANSFERRED TO THE WATERWORKS MUSEUM

25 years after they arrived in Hereford, the Waterworks Museum is delighted to report that the Simpson beam engine, the overshot waterwheel and Wilson Hartnell Dynamo are now in permanent ownership of the museum. Cared and maintained by volunteers since their installation, these artefacts are synonymous with the museum and will continue as integral exhibits for visitors to enjoy on open days. The beam engine and waterwheel are iconic symbols of the success of the museum which is celebrating its 50th anniversary in 2024.

Since 1999, these historic artefacts have been on long term loan from the National Museum of Wales, now known as Amgueddfa Cymru. Previously, they had been donated to the Welsh Industrial and Maritime Museum in Cardiff Bay where they were on display from 1977 until its closure in 1998. Fast track to September 2023, and after a lengthy period of discussions, the Board of Trustees at the National Museum of Wales have de-accessioned the loan items from their collection and transferred ownership of them to the Waterworks Museum.

Museum Chair, Jill Phillips, said: "We are so grateful for the opportunity to become permanent custodians of these important artefacts. That we should receive formal ownership of them in the year that the Waterworks Museum celebrates its 50th anniversary seems to be very apt given their significance to the story that we tell."



A **Simpson beam engine** worked in Bay 5 at Broomy Hill pumping station from 1862 until it was scrapped in the 1930s and replaced by an electric pump.

When the museum was created in 1974 significant effort was made to find a beam engine to install in Bay 5. In those early years at least nine were inspected across the UK but the only ones that weren't too large were, after discussion, retained in situ.

But the ambition of the Trustees to have a beam engine in motion at the Waterworks Museum never went away. Twenty five years later, with the sad demise of Cardiff's Welsh Industrial and Maritime Museum, that dream came true.

That would have been significant enough on its own but the beam engine we are now privileged to own is a Simpson design pumping engine of the same date, size and basic design as Hereford's 1862 Simpson engine. When built it was installed in a pumping station at Ely to pump water for the first public water supply to Cardiff which started in March 1852. It is, therefore, integral to telling the story of two important historic water supplies.



The **overshot waterwheel** has dominated the Museum's grounds since its arrival. It is the first thing visitors see as they arrive down the drive and if the water is flowing and the wheel is turning visitors know that the Museum is open.

Built in 1907 by the Eagle Foundry in Aberystwyth, the waterwheel was used at Home Farm on the Dolaucothi Estate in Carmarthenshire to drive workshop machinery.



The **Wilson Hartnell Dynamo** came from Barry Urban District Council's refuse destructor where it was installed when it opened in March 1901.

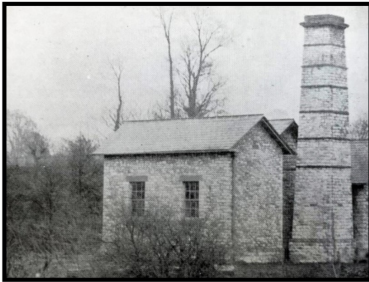
At the Waterworks Museum it is used to show the working of a dynamo by its attachment to a National Gas Engine from Ross on Wye with its electric output indicated by a voltmeter and an incandescent lamp.

Some more about the artefacts

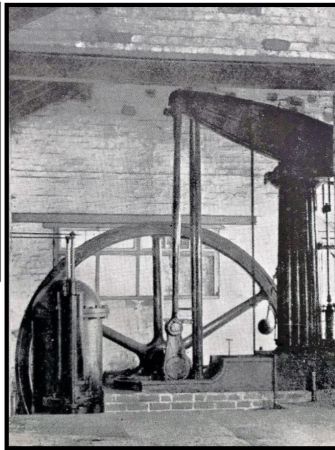
The Simpson Beam Engine

This beam engine pumped water for the people of Cardiff for nearly 70 years. It was built to the design of Simpson's of Piccadilly under licence by Harvey's of Hayle in Cornwall.

From March 1852 water was taken from the River Ely and roughly filtered before being pumped to a reservoir near Llandaff. From here, water flowed by gravity to the town and Cardiff docks. This water was much purer than that which could be obtained from the polluted River Taff or the Glamorganshire Canal.



These undated images show the Cardiff Corporation's Waterworks at Ely and one of its two beam engines late in the 20th century.



The works at Ely were expanded twice but within 30 years Cardiff's demand for water meant that new supplies were being developed. The beam engine was taken out of service at Ely between 1882-84 when it was moved to Llanishen to support the building of, and then pump water from, a new reservoir. It worked here for 30 years before being permanently taken out of service in 1921.

It remained in situ until Cardiff Water Works Committee decided that the engine should be preserved for public display and it was moved into storage. Placing it on display did not happen until 45 years after this decision when it was installed at the Welsh Industrial and Maritime Museum.

The engine was moved to Hereford and its display was officially opened in July 1999 on the occasion of the 25th anniversary of the Waterworks Museum.



This image shows the Managing Director of Welsh Water and the Mayor of Hereford at the inauguration of the beam engine in July 1999.

The Overshot Waterwheel



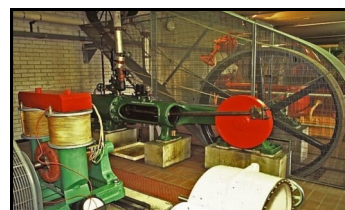
This image is from the National Trust archive. It shows the wheel in situ at Dolaucothi in December 1973.

Buildings at Home Farm on the Dolaucothi Estate in Carmarthenshire included barns, stables and, unusually, a sawmill powered by a waterwheel. Water to power the wheel came from the River Cothi via a leat that had been diverted to run next to Home Farm.

The Dolaucothi Estate was transferred to the ownership of the National Trust in 1941, who donated the overshot waterwheel to the Welsh Industrial and Maritime Museum in December 1976, where because of its size it was prominently located outside the museum's main entrance.

Moving a 48 bucket waterwheel that weighs 2.5 tons and has a diameter of 14 ft was a major engineering exercise.

The Wilson Hartnell Dynamo



This is the dynamo as it was displayed at the Welsh Industrial and Maritime Museum in Cardiff

A dynamo converts mechanical energy supplied by a driving engine into direct current electrical energy.

In 1900 their most common use was in connection with public street lighting schemes, as it was used in Hereford, but at Barry in South Wales it was used in an early scheme linked to a waste destructor (a facility that burned town waste).

The energy created was used for lighting the Barry waste destructor and an adjacent abattoir, and later for a newly built council school and an apprenticeship training facility.

The destructor cells could burn up to 30 tons of town and market waste every day, which was not then going to landfill.

Installing the artefacts in Hereford

The Simpson Beam Engine

Bay 5 at the Waterworks Museum was the obvious place to site the Simpson beam engine because of its history but it required significant structural alteration. Hereford's long scrapped 1862 beam engine had sat at the well level some 7 feet below floor level, so it meant constructing piers and placing steel beams to support the new engine.

Careful planning and engineering drawings were needed as the engine is so big, both to get its dismantled parts into Bay 5 through the existing door and to ensure there was space for safe public viewing of the engine.

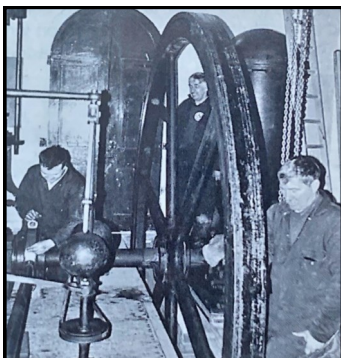


Inspecting the new floor to receive the engine and manoeuvring the massive central column through the narrow doors



Before work could proceed all existing exhibits had to be removed from Bay 5 and repositioned elsewhere in the museum. This was done by volunteers using hauling gear, rollers and greased plates over the course of several months.

The contract for re-assembly of the engine was then placed with the company that had dismantled it in Cardiff and it was transported to Hereford by Welsh Water who stored it locally until the Waterworks Museum was ready to proceed.



Contractors from Penybryn Engineering Ltd of Hengoed installing the beam engine in 1999.

The overshot waterwheel



The waterwheel seen arriving at the Museum in late 1999 and at its inauguration in June 2000.



The waterwheel had to be removed within days of the museum in Cardiff closing as contractors were waiting to demolish it. Brought to Hereford in June 1998 it remained in storage for over a year as the beam engine was the priority project.

The wheel was in good condition so volunteer effort focused on where to site it for best effect and then on obtaining the necessary planning consent. Work started on the foundation and supporting structure in November 1999, just four months before the waterwheel turned for the first time.

Formal inauguration of the new exhibit took place when Anna Southall, Director of National Museum Wales, switched on the water supply at a Gala Day in July 2000.

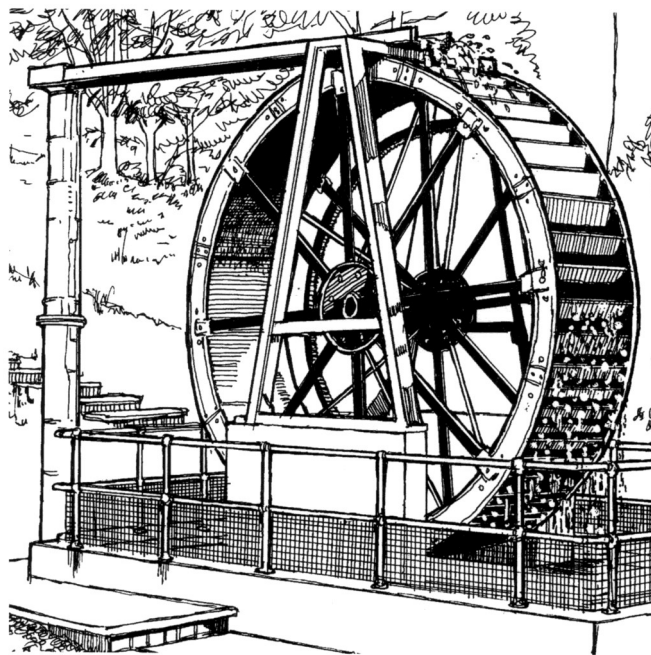
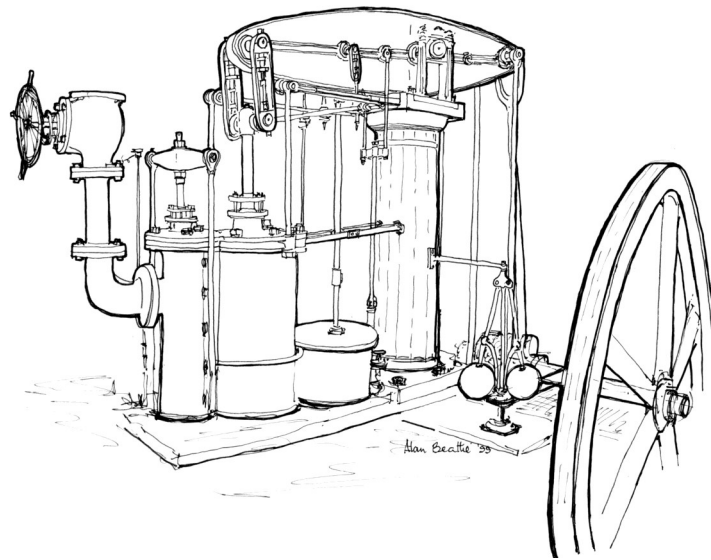
The Wilson Hartnell Dynamo



Summer 2001: volunteer engineers running tests on the dynamo.

The dynamo was in excellent condition when it arrived at the Museum so the focus was on how to display it so that visitors could see it in operation (generating electricity) powering a voltmeter and an incandescent lamp.

The installation of the dynamo was supported by a grant from the local branch of the Institution of Electrical Engineers shortly after its members enjoyed a group visit to the museum earlier in 2001.



About Us

The Waterworks Museum Hereford is an independent working museum concerned primarily, but not exclusively, with the story of the supply of water for public consumption from earliest habitation to the close of the 20th century. The Museum's vision is to be recognised as a specialist museum that brings industrial heritage to life. It is run entirely by volunteers.

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