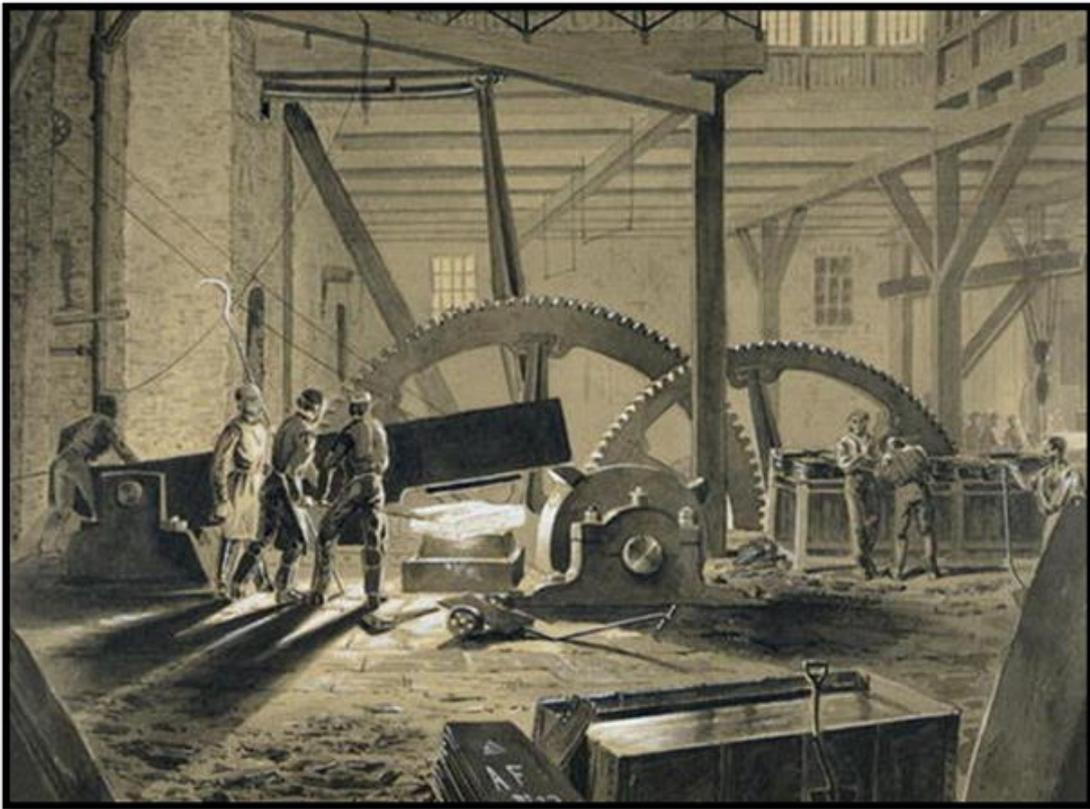


Plas Kynaston Iron Foundry

The Plas Kynaston Iron Foundry was built by William Hazeldine to be able to produce the Iron Work for the Pontcysyllte Aqueduct as commissioned by Thomas Telford. In the construction of such he used the latest ideas of the time such as the steam powered beam engine which had recently been invented by James Watt. This enabled him to locate the foundry at a level that would eventually be suitable for the export of iron work along the Ellesmere Canal, allowing the castings from his foundry to be transported for use throughout the country on a nationwide basis. His foundries at Plas Kynaston, Cefn Mawr and Coleham near Shrewsbury, where at the leading edge of iron production for their time and this was reflected in both the engineering tasks undertaken and the quality of the iron work produced at the Plas Kynaston Iron Foundry, and hence his nick name, "Merlin" the wizard Iron Master.

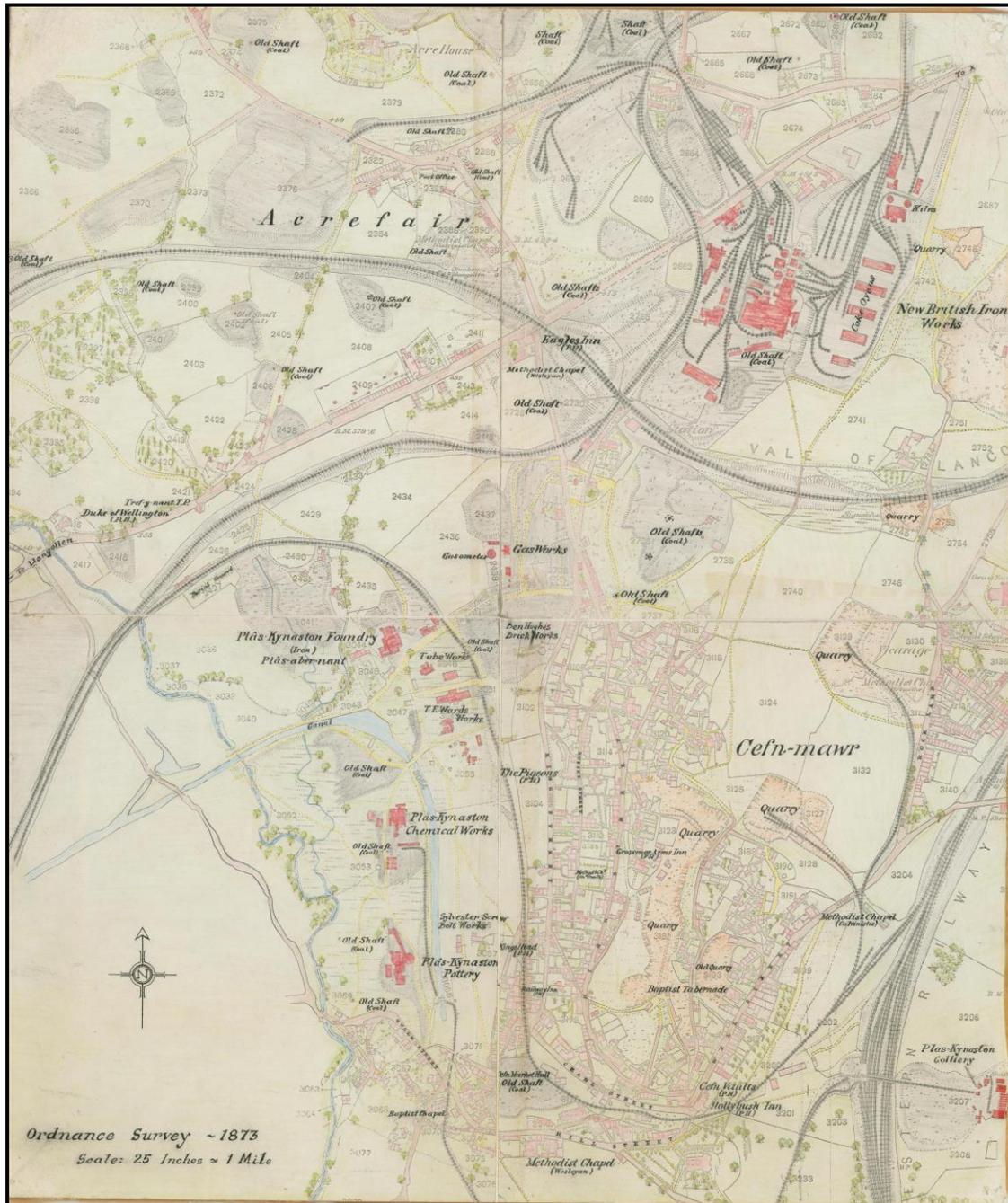


Steam Powered Beam Engine driving a Shingling Hammer and what the Plas Kynaston Foundry may have looked like, although strictly speaking shingling hammers are used in forges rather than foundries where the iron is cast.



The Plas Kynaston Iron Foundry and Plas Kynaston Blast Furnace as shown on the Plan of the Wynnstay, Plas Kynaston and Cefn Collieries dated, 1865. They are adjacent to what was known as Wards Warf on the Plas Kynaston Canal. It was at the Plas Kynaston Iron foundry that the castings for the Pontcysyllte Aqueduct were once poured.

Plas Kynaston Iron Foundry

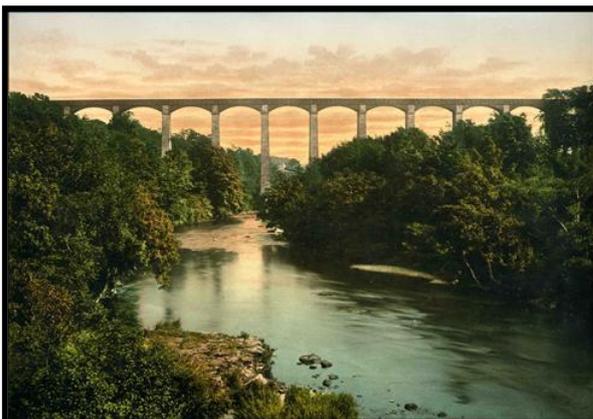


The Ordnance Survey publication of 1873 shows all the Plas Kynaston works around Cefn Mawr that were served by the Plas Kynaston Canal, i.e. the Plas Kynaston Foundry, the Plas Kynaston Chemical Works, the Plas Kynaston Pottery, Plas Kynaston Hall and the Plas Kynaston Colliery. The Plas Kynaston Colliery was connected to the Plas Kynaston Canal via the Plas Kynaston Railway Line, a simple horse drawn railway or tram road; please see the Plas Kynaston Canal Story on this website for more information on this. The Plas Kynaston Hall in Cefn Mawr represents another challenge for architectural heritage in the restoration of the building to its former prominence as the ancestral seat of the Kynaston Family and Estate.

Plas Kynaston Iron Foundry



These pictures taken in the 1937, prior to the Second World War show the Plas Kynaston Foundry just before its closure, demolition and site clearance, to make way for the expanding Monsanto Chemical Works, between the two world wars.



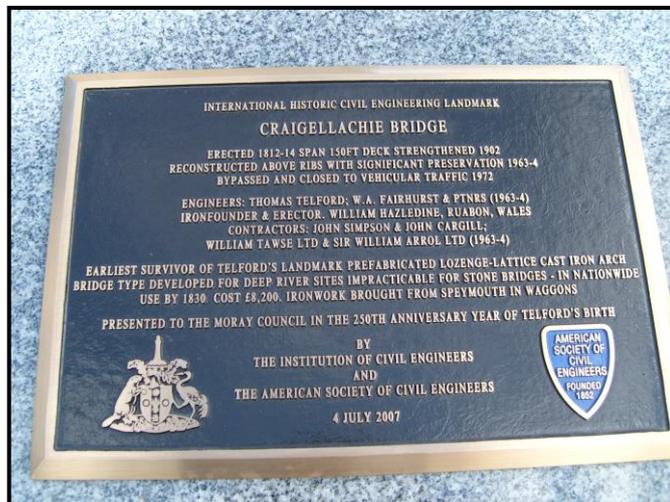
During the early years of the Plas Kynaston Iron Foundry when William (Merlin) Hazeldine was working in partnership with Thomas Telford some fine examples of iron work were made at the Plas Kynaston Iron Foundry, in conjunction with Hazeldine's other works at Coleham in Shropshire, and some are still very much in use today in addition to the Pontcysyllte Aqueduct.

Plas Kynaston Iron Foundry



The Craigellachie Bridge, erected between 1812 & 1814 with a span of 150ft on the River Spey in Scotland. This bridge was cast and forged at the Plas Kynaston Iron Foundry, Cefn Mawr, and then shipped across the Pontcysyllte Aqueduct along the Elsmere Canal, or what is the now called the Llangollen Canal and on to Chester, where it was then loaded onto a sloop for shipment by sea to Spey mouth.

The bridge was revolutionary for its time, in that it used an extremely slender arch which would not have been possible using traditional masonry construction. The ironwork was cast at the Plas Kynaston Iron Foundry at Cefn Mawr, near Ruabon in Denbighshire by William Hazledine. The bridge remained in regular use until 1963, when it was closed for a major refurbishment and is now in good condition, still open to pedestrians and cyclists. The bridge has been given Category A listed status by Historic Scotland and has been designated a civil engineering landmark by the Institution of Civil Engineers.



Plas Kynaston Iron Foundry



The Moy Swing Bridge on the Caledonian Canal at Moy was cast at the Plas Kynaston Iron Foundry. This last remaining example of the original cast iron twin leaf swing bridges manufactured by William (Merlin) Hazledine at the Plas Kynaston Iron Foundry in North East Wales was transported in “kit” form to Moy via Chester and Corpach and was constructed on site in time for the opening of the Caledonian Canal.

When they planned the Caledonian Canal, Thomas Telford and William Jessop decided to adopt cast iron swing bridges, or "turn-bridges", for canal crossings. They once again engaged William Hazledine and he was made responsible for the ironwork on the western reaches of the canal. Telford admired Hazledines' skill and in 1796 called him “the Arch conjuror himself, Merlin Hazledine”.

The bridge is operated by crank handles which are housed in short metal pillars, and the mechanisms are below the bridge at each side of the canal. Because each half has to be swung separately, until recently, the keeper had to row across the canal each time the bridge was operated. Following a major refurbishment in 1995 the bridge received Scheduled Ancient Monument status (No. 3447).



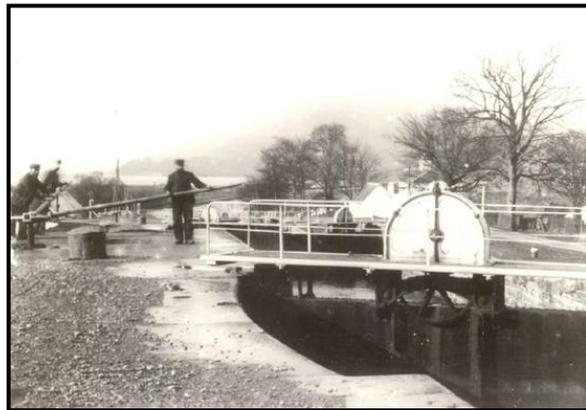
Plas Kynaston Iron Foundry



Neptune's Staircase is a staircase lock system comprising eight locks on the Caledonian Canal, built by Thomas Telford and William Hazeldine as Iron Master between 1803 & 1822. It is the longest staircase lock in Britain. The original iron work for this was once cast at the Plas Kynaston Iron Foundry as was most of the iron work for the western half of the Caledonian Canal.

It has eight locks, each 180 feet (55 m) by 40 feet (12 m). The rise in the system is 64 feet (20 m) over the eight locks and it takes about 90 minutes to pass through the system. The current lock gates weigh 22 tons each.

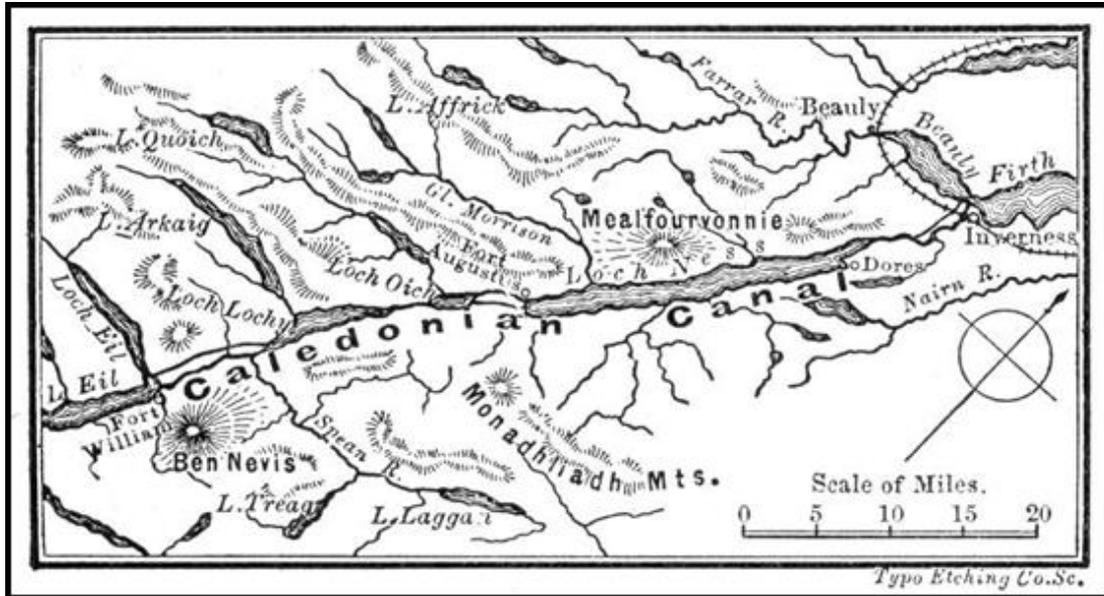
Prior to mechanisation, the locks were operated by capstans, each with four poles, which had to make seven full revolutions to open or close a gate. Each gate leaf had two capstans, one to open it and another to close it. There were 36 capstans on the flight, and 126 revolutions were required for a boat to travel up or down the complete flight.



With the advent of hydraulic rams and push-button control, transit times through the lock system have been reduced from just over half a day to 90 minutes. The base plinths of the original capstans can still be seen, although the capstans themselves have been removed.

Plas Kynaston Iron Foundry

The Caledonian Canal was started in 1803 with William Hazeldine's works, the Plas Kynaston Iron foundry supplying the iron work for the western half of the canal in accordance with plans produced by Thomas Telford following survey work by James Watt, and was opened in 1822. This was followed by a second phase of construction undertaken between 1844 and 1847 which increased the depth from 14ft to 18ft which was closer to Telford's original proposal of 20ft.



The Caledonian Canal follows the great Glen across Scotland and provided the long hoped-for route between eastern and western Scotland. This allowed vessels to avoid the long and often hazardous passages round the west of Scotland and through the Pentland Firth. The irony was that by the time the canal was finally complete, steam ships could make the passage around Scotland much more easily than the sailing ships in whose era it was designed. Nonetheless, until the railway reached Inverness the quickest way from there to Glasgow was by steamer via the Caledonian and Crinan Canals, probably calling at Oban en route.

Of its 60 mile length, 38 miles are along Loch Lochy, Loch Oich and Loch Ness, with the remaining 22 miles being through canals proper. The biggest problem faced by the designers and builders was one of level; and along the length of the canal there are no



fewer than 29 locks and half of them were originally supplied with iron work from the Plas Kynaston Iron Foundry, Cefn Mawr.

The Caledonian Canal seen at Corpach with Ben Nevis in the background, the canal continues on through 60 miles of Highland Splendour enroot for Inverness.

Plas Kynaston Iron Foundry



Thomas Telford's extremely attractive iron bridge at Betws y Coed is called the Waterloo Bridge. It was built in 1815, the castings for which were made at William Hazeldine's Plas Kynaston Iron Foundry, Cefn Mawr. It now carries the A5 across the River Conwy and bears the cast iron inscription "This arch was constructed in the same year the battle of Waterloo was fought". This was as a part of the original London to Holyhead Road that Telford was commissioned to construct.



The iron work here has once again withstood the test of time since it was first made at Hazeldine's Plas Kynaston foundry in Cefn Mawr almost 200 years ago. This is a testament to the quality of workmanship that William Hazeldine got his name from and has now been recognised by Institute of Civil Engineers.

ICE Cymru has commemorated the achievements of the extraordinary engineering team behind the Waterloo Bridge in Betws y Coed made at the Kynaston Iron Foundry and a commemorative panel was presented by the Institution to the Welsh Government. This was to celebrate the contributions of the famous civil engineer Thomas Telford and his colleague William Hazledine.



Plas Kynaston Iron Foundry



The Conway Suspension Bridge was built by Thomas Telford, and the iron work once again supplied by William Hazeldine from his Plas Kynaston & Coleham foundries and Upton Forge. The bridge completed in 1826 replaced the River Conway ferry at the same point. The western end of the suspension bridge is situated at the foot of the medieval Conwy Castle. During construction of the bridge, part of the

Conwy Castle was demolished so that the suspension chains could be anchored into the rock on the west side of the river. The bridge's wrought iron suspension chains are supported on two pairs of towers similar in design to those of the castle. Each pair is linked by castellated walls incorporating 3m wide arches over the carriageway.



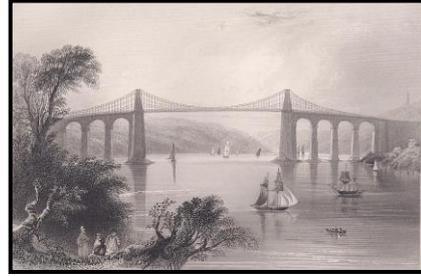
The main bridge spans 99.7m between chain supports on the towers. The deck is carried by vertical rods suspended at 1.5m intervals from the joining plates. The original deck was replaced in 1896, and was probably timber planks carried on a light iron framework braced with bars on its underside. The structure originally a toll bridge, replacing the ferry carried the coast road, A55 until 1958 when a new road bridge was opened.

The Conway Suspension Bridge, was one of the first road suspension bridges in the world and required the highest quality iron work once again produced at Hazeldines works at Plas Kynaston, Coleham and Upton. It is located in the medieval town of Conwy in Conwy County Borough, North Wales and is now in the care of the National Trust.



Plas Kynaston Iron Foundry

The Menai Suspension Bridge first proposed by Thomas Telford in 1818 and begun in 1820 had the longest span in the world, 176 metres, when it opened in 1826. It was designed as a part of the London to Holyhead Road Scheme which he had been appointed for. The bridge's design had to conform to Admiralty requirements, which insisted on 30 metres of clearance so that sailing ships with tall masts could sail under it, a remarkable feature for the day. Telford exploited the high ground on both sides of the Menai Strait, which coincided with one of the narrowest stretches of water along the Strait. However, significant stone approach viaducts and pillars had to be built on both sides before work could begin on installing the iron chains from which the road deck would be suspended. Each of the 16 chains was secured at one end before the other end was hauled manually up to the top of the pillar on the opposite shore.



Once again the iron work was supplied by William Hazeldine from his works at Coleham Foundry, Plas Kynaston Foundry in Cefn Mawr and Upton Forge, these being some of the leading iron work producing facilities in the country at that time. Finance for the scheme was justified by the importance of the sea crossing from Holyhead to Dublin and the bridge also helped with the local economy and safety.

The Isle of Anglesey, off the northwest coast of Wales, is separated from the mainland by the narrow and treacherous Menai Strait. The strait had been crossed by ferries since ancient times, but the difficult currents could make passages perilous. During a previous crossing in 1785, a ferry had capsized, stranding 55 passengers on a sandbar in the strait. Rescue parties were launched in small boats, but the currents and approaching darkness made it nearly impossible to reach the ferry's passengers and only one person survived, therefore the bridge proved a big improvement for local people as well.



Plas Kynaston Iron Foundry



All that remains of William Hazeldines Plas Kynaston Iron Foundry in the former Monsanto Chemical Works of Cefn Mawr, in the Pontcysyllte World Heritage Site, North East Wales, so little of yet so much that has gone before and still stands today.

