= Kidwelly and Llanelly Canal =

The Kidwelly and Llanelly Canal was a canal and tramroad system in Carmarthenshire , Wales , built to carry anthracite coal to the coast for onward transportation by coastal ships . It began life as Kymer 's Canal in 1766 , which linked pits at Pwll y Llygod to a dock near Kidwelly . Access to the dock gradually became more difficult as the estuary silted up , and an extension to Llanelli was authorised in 1812 . Progress was slow , and the new canal was linked to a harbour at Pembury built by Thomas Gaunt in the 1820s , until the company 's own harbour at Burry Port was completed in 1832 . Tramways served a number of collieries to the east of Burry Port .

In 1832 engineer James Green advised on extending the system , and suggested a line with three inclined planes to reach Cwmmawr , further up the Gwendraeth Valley . Although Green had experience with inclined planes on other canals , he underestimated the cost and could not complete the work . He was sacked in 1836 , but the canal company finished the new route the following year . The canal was moderately successful , and shareholders received dividends from 1858 . In 1865 the company changed its name to become the Kidwelly and Burry Port Railway , amalgamated with the company running Burry Port in the following year , and the canal became the Burry Port and Gwendraeth Valley Railway in 1869 .

Kymer 's dock at Kidwelly continued to be used for the export of coal by coasters for another 50 years . It was used as a rubbish dump during the 1950s , but together with a short section of the canal was restored in the 1980s . A few of the structures of the canal can still be traced in the landscape , and the route of the now closed railway can be followed for most of its length .

= = History = =

The area around Kidwelly is rich in coal reserves and contains ironstone . It was to exploit these reserves that the canal and tramway system was built . Much of the coal was good quality anthracite , although other grades were also mined .

= = = Kymer 's Canal = = =

Thomas Kymer began mining at Pwll y Llygod and Great Forest (near Carway) in 1760 , and sought parliamentary approval to construct a canal at his own expense in early 1766 . The Act of Parliament was granted on 19 February 1766 . The canal was to run from his coal pits at Pwll y Llygod on the banks of the Gwendraeth Fawr river to Ythyn Frenig , about half a mile (0 @.@ 8 km) to the west of Kidwelly , where he built a dock on the southern bank of the Gwendraeth Fach river . The Act included powers to divert the course of the Gwendraeth Fawr from Pwll y Llygod to Pont Spwdwr , where the Kidwelly to Llanelli turnpike road crossed the river . The canal was operational by May 1768 .

As built , the canal was about 3 miles (4 @.@ 8 km) long , and the channel was approximately 26 feet (7 @.@ 9 m) wide . Wider sections were constructed at Morfa and at Muddlescombe , to allow barges to pass one another , and there was also a wider section below the terminal wharf at Pwll y Llygod , to allow the barges to be turned . From the wharf , a tramway crossed the Gwendraeth Fawr to connect with the coal pits .

The canal served the mines well for almost 30 years , but the dock and river were affected by silting . A new channel across the sands was created in 1797 , but this too was affected by silting , and by 1809 navigation to Kymer 's dock was becoming dangerous .

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A series of meetings took place in 1811 to consider how the situation could be improved . Two engineers , Edward Martin and David Davies , proposed an extension of the canal to the top of the Gwendraeth valley , and another which would cross Pinged marsh and would terminate at Llanelli . This would pass through Pembrey , providing improved access to the harbour . The proposal was

adopted , and an Act of Parliament passed on 20 June 1812 created The Kidwelly and Llanelly Canal and Tramroad Company . The Act envisaged an upper terminus beyond Cwmmawr at Cwm y Glo , and a series of feeder canals or tramroads to connect to the pits and levels where extraction of coal was taking place . It listed a total of 13 collieries which would be served in this way . Wharfs at the Llanelli terminus would be built next to the dock owned by the Carmarthenshire Railroad Company . Special provision , including the construction of a lock and weir , was made for the point where the new canal would cross the existing Ashburnham Canal .

The newly formed company was required to complete the extension from Pwll y Llygod to Pontyates and the first section of the Llanelly branch to the point where it crossed the Ashburnham Canal within six years . Anthony Bower was the engineer , and construction was contracted to Pinkerton and Allen . The canal reached the new aqueduct across the Gwendraeth Fawr in 1815 , but little progress was made between then and 1817 . Much of the limited capital raised had been spent on attempts to re @-@ open the harbour , with little success . A second Act of Parliament was obtained on 28 May 1818 , which extended the time limit for building the canal and removed the requirement to clear the river channels to the harbour . Pinkerton and Allen pressed on with construction , completing the routes to Pontyates and the Ashburnham Canal crossing in 1824 , while the company directors asked the engineers John Rennie and Edward Bankes to examine the issue of a suitable harbour . Rennie suggested extending the canal towards what is now Burry Port , and the construction of a new harbour on the sands at Tywyn Bach .

= = = Pembrey Canal = = =

While Pinkerton and Allen were building the southern extension , Thomas Gaunt had been active in the area . He was extracting iron ore to be processed in new furnaces at Pembrey , had obtained Kilrhedyn colliery , and had constructed a harbour on the sands at Pembrey . Rennie and Bankes had dismissed the idea of a connection to Gaunt 's harbour , as it was not felt to be adequate for the likely volumes of coal traffic , but Gaunt was keen for a canal link . Between late 1823 and April 1824 he built two miles (3 @.@ 2 km) of canal , including a lock at Cross Lane cottage . At its northern end it joined the Kidwelly and Llanelly canal at Ty Gwyn , just to the north of the disused Ashburnham Canal , and at its southern end , a short tramway linked its terminus to Gaunt 's harbour . The Cambrian newspaper carried reports of a ceremonial opening on 30 April 1824 , and a formal opening on 26 May . By 1843 , the canal had become disused , with traffic going to the new harbour at Pembrey instead .

= = = Pembrey New Harbour = = =

An Act of Parliament dated 10 June 1825 created the New Harbour Company , with powers to build the harbour at Tywyn Bach , on the sands near Pembrey . The Act included powers to build a short section of canal to link with the line of the Kidwelly and Llanelli Canal . The new harbour was completed in 1832 . The community of Burry Port did not exist in 1825 , and it was not until 1835 that the name of the company was changed to the Burry Port Company by another Act of Parliament .

= = = James Green 's extensions = = =

Once the construction of a new harbour had begun , the Kidwelly and Llanelli Canal Company constructed a tramway from Llanelli to Pwll colliery . Another tramway was built from Burry Port to the coal levels at New Lodge , with a branch to Kilrhos . The company planned to link New Lodge to Pwll in due course , so that there would be a tramway link from Burry Port harbour to Llanelli ; the connection was eventually opened on 8 July 1837 .

In 1832 , the canal company asked the engineer James Green to advise on further extensions to the system . His first report was critical of much of the work completed by Pinkerton , and recommended completing the link from the Ashburnham Canal to the new Pembrey harbour . This

would require a lock at Ty Mawr , with water supplied by the Dyvatty brook and a new reservoir to be constructed at Cwm Capel in the Dyvatty valley . A second report , supplied three months later , recommended an extension along the Gwendraeth valley , and the construction of three inclined planes to reach a terminus just above Cwmmawr . Water supply for the upper sections would be from a new reservoir to be built above Cwm y Glo .

The idea of using inclined planes was an innovation that Green had pioneered elsewhere . He had been the engineer for the Bude Canal , which included six planes , five powered by water wheels and one by a descending bucket mechanism . He was at the time the engineer for the Grand Western Canal , which included seven vertical boat lifts and an inclined plane at Wellisford , again to be powered by a descending bucket mechanism . The rise on the final section of the canal to Cwmmawr was 190 feet (58 m) , and three inclined planes would be much quicker and use much less water than the alternative of 20 or more locks .

The wooden Pontnewydd aqueduct , which was prone to the river flowing over its top , was replaced by an iron one built on a slightly higher level to provide more room for the river to flow under it . Pinkerton 's two locks were rebuilt , and the banks of the Kymer canal were raised by 2 feet (0 @.@ 6 m) , to allow the water level to be raised . This had also required the Kidwelly basin walls to be raised . At the southern end , access to Burry Port harbour required a deep cutting to be constructed , and this was completed by March 1835 .

Above Pontyates , two more locks were built , followed by an inclined plane with a rise of 52 feet (16 m) at Capel Ifan , one with a rise of 53 feet (16 m) at Pont Henry , and a third with a rise of 85 feet (26 m) at Hirwaunissa , with level sections of canal in between . The upper terminus consisted of a walled basin , 200 by 50 feet (61 by 15 m) , reached by another aqueduct over the Gwendraeth Fawr . In October 1835 Green announced that he was unable to complete the inclined planes because of cost overruns . The company raised more capital to finish the work by calling on shareholders , and on 30 January 1836 dismissed Green as engineer . The Grand Western Canal Company had taken a similar action three days earlier , when the Wellisford inclined plane had failed to work because of a design fault in the sizing of the descending bucket . All construction was completed by 1837 .

= = = Inclines = = =

Details of the inclined planes have been the subject of some speculation , largely because contemporary documents from the time of their construction are unknown . A local writer called Ap Huw stated that " the inclined planes were manipulated by hydraulic pumps which were considered to be great discoveries " . He also noted that only two of the inclines were used , but whether this was because Hirwaunissa was unfinished or because there was no traffic on the upper section is not clear . The railway engineer W. Robinson described " balance caissons with hydraulic brakes apparatus to check the barges in their descent and to arrange that the full ones coming down pull the empty ones up " . The Colliery Guardian carried an eye @-@ witness report of their operation , in which they were described as self @-@ acting inclines , and it is stated that all three were in operation at the time .

The other main sources of information are maps , particularly those published at the time the canal was to be converted into a railway . These clearly show twin @-@ track inclines at Capel Ifan and Pont Henry , and because most of the traffic was in the downhill direction , a simple counterbalanced system was probably employed , although it has also been suggested that the barge may have been balanced by a water tank on the second track to more easily control the speed of descent . The Hirwaunissa incline was longer and narrower than the other two , and only included a single track . Recent research has suggested that the incline was powered by a water wheel , with the waste water running down the incline in a side channel , in order to supply the lower levels of the canal .

= = Subsequent development = =

No further changes were made to the canal after the extensions were completed , and satisfactory levels of traffic were carried . Fifty @-@ two barges were operational in 1835 , although their size is unknown . The canal was dredged in 1858 , and shareholders began to receive dividends on their investments that same year . Most of the traffic was anthracite coal , which was shipped through Burry Port . Some culm was still shipped through Kidwelly . Major users in 1863 consisted of two collieries at Pwll y Llygod and one at Pontyberem . Success was short @-@ lived , however , as railways started to appear in the region . Faced with the threat of the Carmarthenshire Railway building a branch to Pontyberem , the Canal Company obtained a new Act of Parliament , and became the Kidwelly and Burry Port Railway Company in 1865 . The following year , the Burry Port and Gwendreath Valley Railway company was formed , by amalgamating with the Burry Port Harbour Company . (The spelling of Gwendraeth was wrong in the Act of Parliament .) The new company built a railway from Burry Port to Pontyberem , along the towpath over Pinged marsh , and on the bed of the canal elsewhere . This opened in July 1869 . An extension to Kidwelly harbour followed in June 1873 , and one to Cwmmawr in June 1886 .

Although the main canal was replaced by the railway , Kymer 's dock continued to be used for the transfer of coal to coastal ships for another 50 years . Principal destinations included Laugharne , Carmarthen , St Clears and Llanstephan . The Kidwelly Corporation took out a lease on the dock in 1872 , and the railway built a branch to it in 1873 , which ran alongside the old canal . Most of the traffic had transferred to the railway by 1914 , but some coasters continued to transport coal ; the last recorded sailing was in the early 1920s , and was bound for Llanstephan .

= = Legacy = =

Kymer 's dock was used as a refuse tip in the 1950s . In 1988 , a two @-@ year scheme funded by the Manpower Services Commission excavated and restored both the dock and 0 @.@ 6 miles (1 km) of the canal , from the dock to the point where its course is cut by the South Wales Railway . The Gwendraeth Fawr aqueduct is still in situ , as are parts of the Hirwaunissa inclined plane and the final aqueduct below Cwmmawr .

= = Route = =