

# The Plas Kynaston Canal

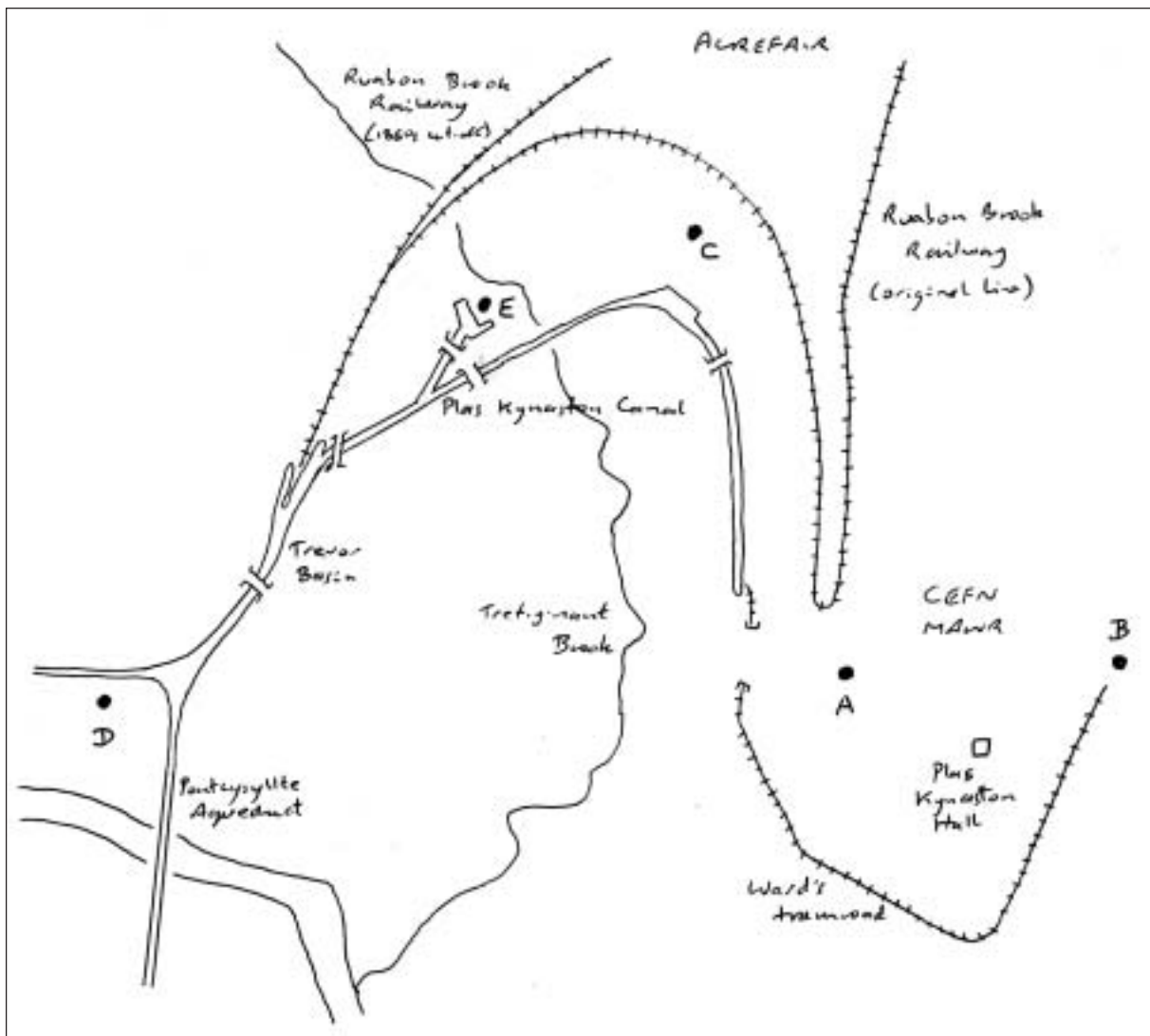
## The context

Pontcysyllte Aqueduct opened in 1805, making Trevor Basin the head of navigation from Ellesmere Port. The feeder canal past Llangollen to the Dee at Horseshoe Falls was completed three years later.

Between Trevor Basin and Cefn Mawr — appropriately meaning ‘big ridge’ — is a valley through which runs the Tref-y-nant Brook, which was then the boundary between the large parishes of Llangollen and Ruabon. The land between Trevor Basin and the stream was owned by Rice Thomas of Coed Helen (near Caernarvon). This had come to him as a result of his marriage to Margaret, the daughter of John Lloyd of Trevor Hall. He died in

1814, she in 1826, the Trevor Hall estate being left to six co-heirs.<sup>1</sup>

On the east side of the Tref-y-nant Brook was the Plas Kynaston estate, in 1805 owned by William Mostyn Owen. He had inherited it from his father of the same name, who had been one of the original promoters of the Ellesmere Canal. However, his father had been a reckless spender and gambler, leaving huge debts which his son endeavoured to pay off. The estate was advertised for sale in 1813 but two days before the auction was due to take place it was withdrawn and at least a large part of it was sold by private treaty to Sir Watkin Williams Wynn, the owner of the nearby Wynnstay estate.<sup>2</sup>



Map 1: The Plas Kynaston Canal in context.

- |                                   |                                       |
|-----------------------------------|---------------------------------------|
| A — Cefn Colliery (Pickering)     | C — Plas Kynaston Foundry (Hazledine) |
| B — Plas Kynaston Colliery (Ward) | D — Pontcysyllte Forge (Pickering)    |
| E — Limekilns (Pickering)         |                                       |

The Plas Kynaston estate was a rich source of minerals, particularly coal and ironstone, and a location for several small mines and the Plas Kynaston Foundry, owned by William Hazledine, which provided ironwork for Pontcysyllte Aqueduct, the Conway and Menai suspension bridges, Waterloo Bridge at Betws-y-coed and lock gates on the Caledonian Canal, amongst other places.<sup>3</sup>

From Trevor Basin the Ellesmere Canal Company built what was usually referred to as the 'Ruabon Brook Railway' as far as Acrefair in time for the opening of Pontcysyllte Aqueduct. Probably a plateway, and of unknown gauge, it took a curving route climbing steadily round the valley to the village of Cefn Mawr where there was a hairpin bend at a point later referred to as 'The Crane', from which it continued its climb to collieries at Acrefair. Part of the route is thought to have followed that of the tramway used to bring stone from the quarry at Cefn Mawr for the construction of the aqueduct.<sup>4</sup>

The railway was extended to Ruabon Brook in 1809, and further extensions and branches were made in subsequent years. This was a vital feeder of traffic to the canal, many coal mines, iron works and brickworks being served. In 1864–7 the main line of the plateway was rebuilt as a conventional standard gauge railway in 1864–7, several years after the main line network had opened to Ruabon (1846) and had passed to the east of Cefn Mawr (1848), and shortly after the opening of the branch from Ruabon via Acrefair to Llangollen (freight 1861, passengers 1862). The rebuilt railway took a shorter, steeper and more heavily engineered route between Trevor Basin and Acrefair, avoiding the long loop via 'The Crane'. Probably at the same time, but certainly within the next decade, the eastern part of this loop, along what is now King Street, was taken up.

### The Pickerings

The Pickering family were entrepreneurs based in Cefn Mawr. There were three men with the name Exuperius Pickering — father, son and grandson — and one cannot always tell who was responsible for any particular project.

Exuperius Pickering senior (c1760–1838) usually described himself as a 'coal master', leasing various mines over the years; for example, in 1802, together with two other men, he leased 'all mines of coal and ironstone under commons called Cefn Mawr, Cefn Bychan and Rhosymedre in Ruabon' for 21 years.<sup>6</sup> With Edward Rowland he patented a flotation canal lift which was trialed in 1796 at a (now unknown) location in the Ruabon area; it worked successfully but was not thought robust enough for daily use by

boaters.<sup>7</sup>

Exuperius Pickering junior (c1785–1835) became a partner in the lease of Oernant slate quarry in the Horseshoe Pass about 4½ miles north-west of Llangollen in 1807. He acted as agent for Sir Watkin Williams Wynn with regard to his coal and other interests in the Ruabon area, at least from 1819 until 1829.<sup>8</sup> He seems to have had a wider range of industrial interests than his father. For example, in 1823 he was given permission to erect a blast furnace on land at Trevor on the south side of the feeder canal between the first bridge and where the footbridge is now, on what may have been the site of the construction yard for the aqueduct; he probably did not actually smelt iron there but certainly built a rolling mill and forge.<sup>9</sup> As is noted later, he also became involved in lime burning.

The Pickerings developed a thriving business supplying coal to as far away as Newtown and Nantwich.<sup>10</sup> One or both was also responsible for the building of the Chain Bridge over the river Dee near the Horseshoe Falls in 1817 (not 1814 as is



*Exuperius Pickering's grave in Llantysilio churchyard. (SJ196435) In his will of 1832 he asked that his body 'be deposited without the slightest parade or ceremony in the corner of the garden of the house in which I now reside if leave can be obtained from Sir Watkin Williams Wynn'. As the side of the tomb states, he wrote the epitaph himself.*

usually stated)<sup>11</sup>, which enabled coal to be taken up the valley to Corwen.

Some time in the 1810s, perhaps after the sale to Sir Watkin Williams Wynn, the Pickerings came to be tenants of much of the Plas Kynaston estate, including occupying Plas Kynaston Hall. However, they had left the Hall by 1830, later documents usually having the address of Newbridge Cottage, Ruabon.

Exuperius Pickering the younger (born 1809, died some time after 1861) is mentioned as being a partner with his father in Cefn Colliery in 1832 — this was on land leased in 1830 jointly by the Pickerings, senior and junior, for 37 years from Sir Watkin Williams Wynn.<sup>12</sup> For some reason which has not been discovered he did not appear to be involved in the family business after his father's death, his younger brother John taking over responsibility for the Cefn Colliery.<sup>13</sup> In 1842 he is recorded as a coal master of Bagillt (two miles north-west of Flint) and in 1861 he described himself as a mining engineer.<sup>14</sup>

After the death of the two elder Pickerings and with the general economic depression the businesses seem to have run into trouble. Owed some £20,000, the North & South Wales Bank took possession of Cefn Colliery in 1843. The ironworks had been sold by 1838, the lime works probably shortly afterwards.<sup>15</sup>

### **Thomas Edward Ward**

Rather less is known about T E Ward (c1780–1854), the other leading entrepreneur of the Cefn Mawr area in the first half of the 19th century. In 1805 he leased the Black Park Colliery, Chirk, from the Chirk Castle estates, and is said to have spent £30,000 on developing the mines; by the middle of the century it had annual sales of 50,000 tons and employed 200 men.<sup>16</sup> In the 1820s he began developing the Plas Kynaston Colliery which lay on the east side of the Cefn Mawr ridge. A later colliery with the same name (active 1865–97) was to the east of Cefn Station on the GWR's Chester–Shrewsbury line; Ward's colliery was probably immediately west of the future position of the line.

Like the Pickerings, he used the Ellesmere & Chester Canal to distribute his coal, probably mainly sourced from Black Park Colliery, and like them diversified into ironworks. In the long run his businesses proved more successful. However, he sounds a harsh employer. When interviewed in 1841 by H Herbert Jones on behalf of the Children's Employment Commission he stated that he was averse to extending education amongst the lower orders as he had never known any good come from teaching them writing and arithmetic.

### **Construction of the canal**

It has not been possible to prove exactly who did what and when. The records show what was intended, not necessarily what actually happened, so the following account of the construction of the canal includes several inferences and a little guesswork.

In 1820 the Ellesmere & Chester Canal Company gave Exuperius Pickering junior permission to make a canal from Trevor Basin to the site of his projected new colliery. So far it has not been possible to prove beyond doubt which colliery this was, but the most likely is Cefn Colliery, one of the largest collieries in the area in the middle of the 19th century and which certainly was operated in the 1830s and early 1840s by the Pickering dynasty.<sup>17</sup> It is possible that the map in The Waterways Trust archive at Gloucester [map 2] shows Pickering's intentions, and that the double line at right angles to the end of the curve of the canal referred to a proposed inclined plane.

The principal objection to this suggestion is that Cefn Colliery lay not far from the hairpin bend on the Ruabon Brook Railway; it also lay at virtually the same height as the bend, whereas the canal was some eighty feet lower. Thus the colliery already had reasonable transport facilities. Of course, Pickering may have preferred to transship the coal at the wharf at Cefn Mawr rather than at Trevor Basin, where several other coal-owners' coal would be needing to be transhipped.

Pickering would be allowed to use his canal free of charge, but if others used it instead of the Canal Company's Ruabon Brook Railway, compensation equivalent to the lost revenue would have to be paid. This would have been relevant for the Plas Kynaston Foundry which lay close to the intended route of the canal and also near the railway which passed behind the foundry, a little higher up the hill. Thus if the foundry used the canal in preference to the tramroad it would pay more but avoid the necessity for transshipment at Trevor Basin. The Canal Company reserved the right to buy the canal at cost or at valuation.<sup>18</sup>

The minutes and the surviving records in the archives do not mention any agreements with the owners of the land on which the canal was built: Margaret Thomas of Trevor Hall for the first 400 yards from Trevor Basin, and Sir Watkin Williams Wynn of Wynnstay for the rest.

The 1820 agreement refers to the possibility of a lime works, so Pickering obviously had it in mind at that time. In fact, the only part of his proposed canal which he seems to have built was about 300 yards to a bank of limekilns on the west (Trevor) side of the Tref-y-nant Brook. This may have done in 1825 when he leased some limestone quarries at





*Map 2: Map possibly showing Pickering's intended canal of 1820, drawn on the 1803 map of the proposed Ruabon Brook Railway. (South is at the top.) [The Waterways Trust Archive, Gloucester, BW95/2/3]*

Llanymynech. A directory of 1835 records him as a lime-burner as well as a coal proprietor.<sup>19</sup>

In 1825 the Canal Company agreed that Thomas Ward could extend Pickering's canal 'of a length of 1,700 to 1,800 yards' to his Plas Kynaston Colliery which lay on the east side of the Cefn Mawr ridge.<sup>20</sup>

A map in the Denbighshire Record Office [map 3] shows Pickering's canal from the northern end of Trevor Basin going only as far as his limeworks. It also shows a proposed canal, not joining Pickering's canal, but instead starting further south in the basin, duplicating Pickering's canal going north-east before curving round to the south following the contour on the hillside; it then curves round the end of the ridge before continuing north-east, terminating near the Plas Kynaston Colliery. If the proposed canal had joined Pickering's canal in the obvious place, it would have been just short of 1,800 yards long, corresponding with the length mentioned in the minutes. One can only speculate about the reason for the duplication, but the most likely explanation is that Pickering refused to cooperate with his rival.

On 6 August 1829 the General Committee of the Ellesmere & Chester Canal Company decided 'that

Mr Lee and Mr Stanton on the part of this Company be authorized to endeavour to effect an arrangement with the representatives of the late Mrs Thomas to enable the Company to complete the Canal between Plas Kynaston Works and the Ellesmere & Chester Canal so as to render application to Parliament in the ensuing session for that purpose unnecessary'. The minute should not be taken as implying that the foundry was now the intended destination of the canal, merely that the route of the first section as far as the foundry was in doubt.

As mentioned earlier, the Trevor Hall estate owned the freehold of the land west of the Tref-y-nant Brook. No doubt they had objected to two canals over their land, when the obvious natural solution was that which Ward had originally proposed: an extension of Pickering's canal. Map 3 was the statutory deposit map, proving that the negotiations were not initially successful, but clearly the matter was settled before it came before Parliament. It is possible that the Canal Company entered into a lease of the land between Pickering's canal and the Tref-y-nant Brook as a later map has an annotation stating that in 1832 the Company agreed not to erect any



*Map 3: Map showing Ward's intended canal of 1829, before the agreement was made to extend Pickering's canal. [Denbighshire Record Office, Ruthin, QSD/DC/11]*

lime kiln or wharf by this section of canal without consent. However, in 1838 the tithe assessment shows Ward as being the occupier.<sup>21</sup>

Thus it seems that Ward built some 800 yards of the 1,000 yard length of the Plas Kynaston Canal, though he did not continue it for the full distance originally envisaged. The canal was taken from a junction about 200 yards along Pickering's canal, north-east across the Tref-y-nant Brook into the Plas Kynaston estate lands, then south-east, with a wharf at the bend. It terminated just before a spur off the Cefn Mawr Ridge, near where the Queen's Hotel was built a few years later. A tramroad 1,000 yards long was constructed from the end of the canal, through a short tunnel, and round the end of the ridge to the colliery. This was presumably a simpler and cheaper option.<sup>22</sup>

The new canal was lock-free, at the 310ft summit level of the Ellesmere & Chester Canal. As construction was relatively simple, it was probably completed in 1830 or shortly afterwards. The maps consulted do not show a winding hole at the end, so the boats were probably pulled backwards to where the canal widened at the bend.<sup>23</sup>

### **Industrial developments**

Before the Ellesmere Canal came, the area was undeveloped except for several small coal mines. The opening of the canal in 1805 provided the essential transport link to Liverpool, prompting rapid

economic growth through the development of the coal and iron industries, and later through the brick and chemical industries. Between 1811 and 1821 the population of the parish of Ruabon, which then included Cefn Mawr and Acrefair, increased by 50% from 4,800 to 7,300; by 1831 it was 8,400; then in the decade following the opening of the Plas Kynaston Canal there was a further 35% increase to 11,300.<sup>24</sup>

After the demise of the Pickering empire, Thomas Ward became the dominant local industrialist until his death in 1854. By 1873 his tramroad had been extended, bridging over the canal near its end, then running alongside the canal past the Plas Kynaston Pottery to the Plas Kynaston chemical works.

Records have not survived concerning the actual usage of the canal. Nevertheless it seems reasonable to suppose that as well as Pickering's and Ward's own operations it was used by the various business which were located canalside but never rail-connected. The Plas Kynaston Foundry remained in Hazledine's ownership, possibly until his death in 1840; it continued in operation until the 1930s. Later canalside industries included the Plas Kynaston Pottery, the Sylvester Screw Bolt works and a tube works.<sup>25</sup>

The canal was certainly used to convey both the raw materials and the finished products of the Plaskynaston Chemical Works which was founded in 1867 by Robert Graesser (1844–1911) to extract



paraffin oil and wax from shale, a waste product of the local collieries. After cheap oil started coming from America he developed processes to distil phenols and cresols from coal tar acids. The plant was successively expanded, products including dyes and an ingredient for making explosives. Until the 1890s, over half of Britain's phenol production was at Cefn Mawr; after that date the United States and Germany came to dominate the world market, though Graesser's phenol continued to command a premium because of its quality. The early years of the 20th century saw increasing outlets for phenol, notably when Bakelite, the world's first synthetic plastic, was developed in 1907–9.

After the First World War, Monsanto, the American chemical firm, bought a half share in the works. The product range expanded to include saccharin (which ceased after only three months), vanillin and aspirin, and phenol-based synthetic resins were developed. The joint company came to an end in 1928, Monsanto continuing on this site. Expansion continued, and the site was increased by the purchase of the former Plas Kynaston Foundry. At its peak over 2,000 people were employed. Rubber-processing additives were developed in the 1950s; towards the end of the 20th century these became the main products produced. In 1994 the rubber chemicals businesses of Monsanto and Akzo Nobel were combined with the formation of a new company, Flexsys; this later became a subsidiary of Solutia Inc, a divestiture from Monsanto.<sup>26</sup>

### The last years of the canal

It is not known when a boat last travelled loaded on the Plas Kynaston Canal. It is shown on a map produced by the Shropshire Union Canal in 1896 but is not mentioned in *Bradshaw's Canals and Navigable Rivers of England and Wales*, published in 1904. The 1912 Ordnance Survey map shows the part beyond the bend as filled with water plants, so presumably no longer navigated. Part of this section was cleared about 1916 so that boats could reach the sodium nitrate store; this is depicted as reed-free in a site plan of 1921. However, a postcard said to be dated 1918 depicts the wharf at the bend, known as Ward's Wharf, as full of reeds, implying that it had not been used for several years.<sup>27</sup> The 1938 OS map has the canal still in water for its full length; none appears to have been in-filled by then.

One of the reasons why the Llangollen Branch of the Ellesmere Canal stayed open despite being formally closed by Act of Parliament in 1944 was because it was supplying water to the Monsanto works and other industries for cooling purposes. A second Act required this water supply to have ceased



*The bridge at the entrance to the Plas Kynaston Canal from Trevor Basin. (SJ272424)*



*Remains of the bridge on the lane from Trevor to Cefn Mawr, demolished when the present Queen street was built in the 1960s. (SJ274425)*



*The bricked-up remains of the bridge within the Flexsys site. (SJ277426)*

within ten years. Monsanto acted promptly; a breach of the canal between Llangollen and Trevor in 1945 which temporarily deprived the plant of its water may have made them appreciate the fragility of their supply, and in that year a pumphouse was built to lift water direct from the river Dee.<sup>28</sup>

### **The present and the future**

Closure of Flexys's Cefn Mawr site was announced in 2008; production ceased in 2010.<sup>29</sup> The site is huge, comprising virtually all the land contained within the loop of the Ellesmere Canal's original Ruabon Railway, including some of the farmland to the south of the former factory. It is arguably the most important vacant site in north-east Wales but it will not be easy to redevelop because of chemical contamination and because the levels of the land have been significantly altered by excavation and fill. The site lies within the 'buffer zone' of the Pontcysyllte Aqueduct & Canal World Heritage Site because it is the back-drop to this internationally

important asset, being highly visible from across the valley. Indeed, it is possible that part of the site will be used for a car park and visitor centre for the Aqueduct.

The Plas Kynaston Canal is buried within the site, with few easily visible remains. The bridge at the entrance from Trevor Basin survives, as does about a six yard length of stonework of the base of the former bridge on the old lane from Trevor past the Mill Inn to Cefn Mawr. (The new road, built in the mid-1960s, follows a straight-ened version of the line of the lane.) Deep within the site there are the bricked-up remains of one side of another stone bridge.

One of the options to be considered is whether the Plas Kynaston Canal should be reopened as an environmental asset forming the central feature of the redeveloped site, and to help the social and economic regeneration of Cefn Mawr by encouraging visitors to the Llangollen Canal and the World Heritage Site to go to the village.



*The Plas Kynaston Canal was evidently not being used by boats when this photograph of the Monsanto Works was taken, which was probably about 1930. The canal bridge in the centre of the photograph was still there in mid-2010. (Wrexham Archives, DFL2/7/79)*

## Notes and references

Special thanks are given to Howard Paddock and Dave Metcalfe who willingly shared their great knowledge of the area and provided information about various sources.

1. Welsh Bibliography Online, yba.llgc.org.uk/en/s-THOM-COE-1500.html (as at 20 May 2010); *The Gentleman's Magazine*, May 1826; title apportionment for Trevor Isa, 1838
2. *Chester Chronicle*, 20 January 1813 & 26 February 1813; Howard Paddock, *The Squires of Plas Kynaston, Denbighshire (1700–1820)*, unpublished degree thesis, University of Wales, 2007, 7
3. Edward Wilson, *The Ellesmere and Llangollen Canal*, 1975, 41–2
4. Ifor Edwards, 'History of Monsanto chemical works Site', *Denbighshire Historical Society Transactions (DHST)*, vol 11 (1962), 133
5. Ellesmere and Ellesmere & Chester Canal Companies' minutes, especially 30 June 1802 & 9 March 1808: National Archives (NA), RAIL827/2&3 and RAIL826/4&5; Derrick Pratt, 'Withered branches: Wrexham's vanished railways', *DHST*, Vol 57, 122–4. Prior to constructing the railway, Telford and two companions had viewed the plateways connected with the Peak Forest Canal; following their report the Committee resolved 'that similar rail ways may be adopted in various parts of the Ellesmere Canal with great advantage to the company'. David Gwyn, '“What passes and endures”: the early railway in Wales', *Early Railways* 4, 2010, 128, also considers that the Ruabon Railway was probably a plateway. The edge rails in situ at Trevor Basin are not original.
6. Denbighshire Record Office, Ruthin (DRO), DD/WY/5183
7. *Richard Dean*, '“The Machine”: a boat lift mystery solved?', *RCHS Journal*, December 2007, 750–8
8. Estate correspondence: DRO, DD/WY/5757; Dennis Davies, *A Short History of Plas Kynaston*, revised 1964
9. Ellesmere & Chester Canal Company Committee, 27 February 1823: NA, RAIL826/4; *Pontcysyllte Aqueduct & Canal Nomination Document*, 2008, 63; Samuel Lewis, *A Topographical Dictionary of Wales*, vol 2, 1830; Pigot's Directory, 1835
10. *Pigot's Directory* 1828; Ellesmere & Chester Canal, Chester Sub-Committee, 30 May 1817: NA, RAIL826/8
11. Ellesmere & Chester Canal, General Committee, 31 July 1817: NA, RAIL826/4. Unpublished researches by the Royal Commission on the Ancient and Historic Monuments of Wales have shown that the chains in the present bridge are almost certainly the original ones re-used, which would make them the oldest suspension chains in the world which are still in use. The chains could not have been made by Pickering's iron works because that was not constructed until several years later.
12. Will of Exuperius Pickering junior: DRO, DD/DM/1032/2; lease: DRO, DD/WY/5193
13. Dennis Davies, *A Short History of Plas Kynaston*, revised 1964
14. Conveyance: DRO, DD/WY/865; 1861 census
15. Tithe map and apportionment for Trevor Isa, 1838
16. Samuel Lewis, *A Topographical Dictionary of Wales*, 1849; Edward Wilson, *The Ellesmere and Llangollen Canal*, 1975, 65
17. Ellesmere & Chester Canal, General Committee, 10 August 1820: NA, RAIL826/4; surface plan of Wynnstay, Plas Kynaston and Cefn Collieries, c1865: Flintshire Record Office, Hawarden, CB/5/2
18. Ellesmere & Chester Canal, General Committee, 10 August 1820: NA, RAIL826/4
19. Uncatalogued papers, Denbighshire Record Office, Ruthin (per Nigel Jones, Clwyd Powys Archaeological Trust)
20. Ellesmere & Chester Canal, General Committee, 24 February 1825: NA, RAIL826/4. Rather confusingly, the Plas Kynaston Colliery was *not* near the Plas Kynaston Ironworks, Pottery or Canal.
21. LNWR Estate Office map, 1895: The Waterways Trust, Gloucester, BW152/19/1; tithe map & assessment for Trevor Isa, 1838
22. Ordnance Survey, 1:2,500 map, 1873
23. Tithe map for Cefn Mawr, 1845: Ordnance Survey, 1:2,500 map, 1873
24. Unfortunately because of boundary changes it is difficult to compare this census data with more recent population statistics.
25. Ordnance Survey, 1:2,500 map, 1873; Ifor Edwards, 'History of Monsanto chemical works', *DHST*, vol 16 (1967), 135–8
26. *R Graesser Ltd 1867–1967*: DRO, NTD/98; Ifor Edwards, 'History of Monsanto chemical works', *DHST*, vol 16 (1967), 128–48; Edward Wilson, *The Ellesmere and Llangollen Canal*, 1975, 43; Patrick Raleigh, 'Plant visit: Flexsys', *Process Engineering*, 30 September 2007
27. Ifor Edwards, 'History of Monsanto chemical works', *DHST*, vol 16 (1967), 144 & 148; Ifor Edwards, *Cefn-Mawr in Old Picture Postcards*, 1989
28. Peter Brown, 'How the Llangollen Canal was saved', *Waterways Journal*, Vol 9, 2007, 42; *Five Walks around the Cefn Mawr Heritage Trail*, Cefn Mawr, Rhosymedre and Newbridge Community Association, ?2005, 15. It is said that the first sign the breach in 1945 was when someone at the Monsanto works noticed a drop in the water level; he contacted the man in charge of the sluice gates at Horseshoe Falls who further opened the sluices to let more water thorough. (As told to the author by Ron Davies, an ex-GWR railwayman.)
29. Steve Bagnall, '163 jobs to go at Flexsys factory in Wrexham', *Daily Post North Wales*, 22 May 2008