

The Douglas Navigation

Until 1700, most of England's early river navigations were built to supply London with food which was carried downstream from the agricultural lands of southern England. Pre-eighteenth century navigations included the Thames, Wey, and Lea. In northern England, the growth in industrialisation in Lancashire and Yorkshire in the late seventeenth century led to increasing demands for improved transport facilities. At the start of the eighteenth century, several river navigations were built by innovative and entrepreneurial local merchants and land owners to solve their transport problems, particularly for heavy bulk goods such as coal, limestone and grain, and to help develop their trade in manufactured products. The Aire & Calder Navigation, opened in 1700, was the first, and plans were soon in place to make the Don, Derwent, Weaver, Mersey, Irwell and Douglas navigable. Problems with finance and organisation meant that some did not open until the 1740s. However, they do mark the beginning of the industrial revolution as they were the first large-scale financing of the local infrastructure by the merchant class to help develop trade. Their success certainly influenced the Duke of Bridgewater when he looked at ways to improve transport from his Worsley mines.

The technology used for these first 'industrial' navigations was similar to earlier 'agricultural' navigations, with simple chamber locks and short cuts being built to avoid existing water mills and where the slope of the river demanded. The lock cuts were generally built as short as possible, though a long cut was sometimes built, usually to avoid a particularly shallow section of river.

The Douglas is around thirty miles in length and rises on the western slopes of the Pennines near Chorley then flows south along the edge of high ground to Wigan. There are several water mills on this section of the river, the last of these in Wigan, and from here the river turns north-west and for the next five or six miles it is confined to a valley before reaching the coastal plain. The Douglas Navigation used the lower reaches of the river where water mills were unusual; there there may only have been ones at Bispham and Parbold. The river must have been prone to flooding in the valley as even today roads keep to the high ground on either side and, apart from roads crossing the valley, it is fairly isolated. Its gradient here is rather shallow which may account for only a few water mills being built, though the lack of extensive agriculture in the valley was another factor. Leaving the valley, the river crosses the coastal plain, reaching the Irish Sea via the Ribble estuary below Tarleton. The tidal sections of the Douglas are also known as the Asland.

The route of the navigation.

In the late seventeenth century, Liverpool was beginning to establish itself as a major port, particularly for trade with the colonies. There were many industries in the town associated with this trade - a sugar refinery, pottery, copper works and anchor-smiths - all of which needed coal. It was also used for cooking and heating, both on land and on board ships. Coal was brought from the shallow coal mines at Prescot around ten miles away, but during the winter the road became virtually impassable. The road was turnpiked under an Act of 1726, but there continued to be difficulties in winter so a more regular supply route for coal was sought. There were other suppliers, such as the collieries of Flintshire in North Wales, and those around Whitehaven, but most coal from these went to the rapidly growing market in Dublin, leaving Liverpool undersupplied.

Despite their problems with coal supplies, about 1707 merchants in Liverpool decided to build a wet dock where vessels in the colonial trades, which were seasonal, could be laid up and repaired. The engineer eventually chosen to build this dock, which laid the foundation for Liverpool's success as an international port, was Thomas Steers. He realised that the port would only be successful if it was linked with its hinterland by a good transport system. Within three years of arriving in Liverpool in 1709, he had surveyed the Rivers Mersey, Irwell and Douglas and put forward proposals for making them navigable, and he was probably involved with the early proposals for the Weaver. Steers was to

become one of Britain's most important waterway engineers, building the Newry canal, the first summit level canal in the British Isles, and surveying the Calder & Hebble, his survey being used subsequently by Smeaton when the rivers were made navigable.

The area around Wigan was well known for its supplies of coal and this was an important reason for building the navigation, though the supply of limestone for agriculture was another factor. Wigan merchants were involved with the pottery, pewter, brass-founding and textile industries, so they must have envisaged these products being carried as well. Another example of a possible cargo was yarn and wool which were being imported from Ireland.



The Act of Parliament

Liverpool men were involved with promoting the navigation, so the town must have been considered a good market, though when the navigation opened the majority of the coal passing downwards went to Ireland, the other big market at the time. It was possibly Thomas Steers who was behind the Bill for the navigation in 1712, which was presented to Parliament by Mr Shuttleworth, Sir Roger Bradshaigh and the Earl of Barrymore. The latter two were concerned with Wigan coal mines. They failed to obtain an Act because of opposition from local landowners, concerned for the safety of their lands as the river below Parbold was already notorious for flooding. In Steers' scheme, locks were proposed at Rufford (5'-8"), Wanes Blades (6'-5.5"), Parbold (6'-9"), Appley Bridge (17'-1.5"), Crooke (15'-6"), Adams Bridge (10'-2") and Henhurst Bridge (13'-5") giving a total rise of 75 feet 1 inch. Some of the locks would probably have been double or triple risers, and the Wigan terminus, at Wild Mill, was to have been further up the river than eventually constructed.

A second application was made in 1720, this time successfully. Sir Roger Bradshaigh again seems to have been involved, while Thomas Hesketh opposed on behalf of local land owners. After the Act was passed, Steers' partner in the project, William Squire, went to London to raise finance, but unfortunately his visit coincided with the South Sea Bubble. The value of shares in the navigation rose

from £5 to £70 in a couple of weeks and then fell to less than £5 just as rapidly, with Squire losing most of the money invested by share trading in other companies. A few hundred pounds were sent to Steers who began work on the navigation, building a lock and bridge at Rufford and the sea lock at Croston Finney. He also straightened the river between Rufford and Croston Finney, a section of the river with several loops and bends, before work ceased in 1721 due to lack of money. This short section may have been used by coastal sailing vessels at this time, but no regular traffic developed. And what of Squire? Although he came from an established Liverpool family, he does not seem to have returned north, disappearing along with the money. He may have been the William Squire who was sought by Customs officers after defrauding a London charity in the early 1730s.

Interest in constructing the navigation did not return until 1731 when Alexander Leigh and Alexander Radcliffe, the former represented by five other local men, replaced Steers and Squire. Alexander Leigh was to become the driving force behind the navigation. He was an attorney in Wigan and agent for the Earl of Balcarres who owned the coal mines around Haigh, a couple of miles to the north east of Wigan. An extension of the eleven years set out for constructing the navigation in the original Act had been agreed by the navigation's commissioners. At first, the possibility of building the navigation across Martin Mere as part of a land drainage scheme was examined in 1733. William Palmer, engineer for the Ouse Navigation in Yorkshire, produced an estimate of the expense of making the Douglas navigable both down the river to Tarleton and across Martin Mere with locks 12 feet by 60 feet. The Martin Mere scheme would have avoided the section where Steers had already begun work, but would have drained the wetlands which could then have been used for arable farming. The plan was not carried through, and Martin Mere was not drained until after the opening of the Leeds & Liverpool Canal from Liverpool to Parbold in 1774. (The reclamation of wetlands in Lancashire seems to have relied upon a good transport infrastructure, not for the actual drainage, but for a supply of night-soil and manure from the rapidly growing Lancashire industrial towns which was used as a fertiliser. Chat Moss was not developed until the Bridgewater Canal was built, while Marton Mere, near Lytham St Annes, was only improved after the construction of the railway to Blackpool.)

An estimate for building the navigation using the original plan and dated 1733 suggests that eleven locks with a total rise of 68 feet were to be constructed costing around £344 each. The total for the whole work, including alterations to bridges, erection of dams and setting out a towing path was £6684-13s-0d. Locks and lock cuts account for over half of the total cost. However, no work was undertaken at this time.

Construction of the Douglas Navigation finally restarted around 1737, with only five years remaining of the extended term set out by the commissioners for the navigation to be opened. Alexander Leigh now owned five-sixths of the shares in the navigation, Radcliffe's share having been sold to Leigh's father-in-law, Robert Holt. Construction was pushed ahead with Thomas Steers being called in from time to time to advise. By mid-1739 the river was navigable to Bispham, with coal from Lord Derby's mine being sent to the River Wyre. The idea of draining Martin Mere by the navigation was revived and a Bill made ready for Parliament in 1740, but nothing further seems to have been done. Perhaps the construction work was already too far advanced, particularly as the lower section of the river, which would have been by-passed, was already open. However, Steers and Leigh did inspect the coastal sluices which controlled drainage from the mere in 1742. Although Leigh did much of the management himself, for many years Robert Howard acted as his agent on the navigation. The River Douglas' tidal section was difficult to navigate and they could have been considering avoiding it by crossing the mere as this was a shorter and safer route to the sea.

The Completed Navigation Described

The navigation was in full use by 1741, just in time to comply with the Act, though it was not fully completed for another two years. It had cost £9866-8s-6d. A full account of the cost of the navigation

was drawn up in 1768 (Possibly as a result of the proposed Leeds & Liverpool Canal) when the actual expenditure, exclusive of Parliamentary charges, was found to be £12,385-12-0.5d. Improvements costing about £1300 were added in 1747-8, and 5% interest charge was also added annually (about £830), the clear profits being subtracted from the total. By 1768 the total cost of the navigation had risen to £32,226-5s-1.5d It had occasionally made a small profit, though never seems to have made a regular profit. The returns from the navigation suggests that it was economically more important for navigation proprietors and colliery owners as a way of opening up markets for coal from Wigan.

There were probably thirteen locks on the navigation as built, with four sections of canalised river avoiding bends. Most of the lock cuts were very short, perhaps 100 to 150 yards long, with just those at Parbold and Rufford, at around 450 yards, being of any length. The cut avoiding the bends below Gillibrands was about half a mile in length, the others only being about 150 yards long. The river sections avoided were reduced in length by about one half, so were probably more concerned with avoiding difficult corners and possibly reducing the chance of flooding rather than shortening the route. The whole navigation was about ten miles in length, with just one and three quarters of a mile being man made. However, judging from the accounts, considerable work had to be done on the natural river sections to make them deep enough and to widen them.

Unfortunately the surviving accounts for the construction and maintenance of the navigation are difficult to interpret. Much detailed information is given, but charges for work are often given without a specific site being mentioned or work on two sites is amalgamated. However, extracting information for Gillibrands Lock suggests that Richard Fell was paid about £53 for stonework, with £93-6s-8d paid to a Mr. Eden, possibly for the purchase of the land. Fell was also paid various sums amounting to £89-9s-0d for unspecified work over a six month period at the same time as Gillibrands Lock was being built. Work on the cut above Pool Bridge, probably the terminal basin and one of the longest man-made sections, cost around £30, with a further £8 possibly being spent on this, though there will have been other work carried out hidden amongst the unspecified accounts. Just £7-5s-0d was paid towards Crook Meadow cut, and this may represent the cost of straightening and deepening a short stretch of the river. Whatever the actual amounts, much more was spent on building locks than on cuts and straightening. If the 1737 estimate is to be believed, over £5000 would have been needed just for the locks, around half of the actual total cost.

In Britain, because ownership was well established, any land had to be purchased or access arranged before work on the navigation could start. If there were any arguments over this, such as the value of land taken, Commissioners, usually other land owners or tenants living in the area, were empowered to make a legal judgement. They met regularly, the Undertakers of the navigation paying any costs as shown in the accounts:

6 Oct 1741: Pd the Expenses of the Meeting of the Com'rs and Jury at Rufford the 30th of Sept £2-12s-5d

Land purchase is also shown:

30 Oct 1740: Pd Mr Rich'd Prescott for Allers [Alders] and Land Cut £6-9s-0d

4 Dec 1741: Pd Mr Gillibrand for Land Cut and Taken for a Lock and Island in his Meadow £19-16s-6d

As is any payment for materials or damages to land not required for the navigation:

2 Jan 1740: [1741] Paid Timothy Fairhurst for Damages in his Meadow by Carting Stones to Dean Lock and Dam 10s-6d

The levels for the river had to be set out so that the required depth of water was obtained above each dam, with Mr Eyes, a Liverpool surveyor who was trained by Thomas Steers, undertaking this work. Mr Gilbody, who may also have been trained by Steers, occasionally came over from the Mersey & Irwell Navigation to advise, while Thomas Steers himself was called in from time to time:

17 March 1740: [1741] Pd Mr Steers for Coming over to Advise us about the Bason and Crook Lock £3-3s-0d

Work on improving the natural sections of the river are itemised fairly simply:

25 Apr 1741: Pd Daniel Kannan for Opening the Old River Along Crook Meadow £7-5s-0d

15 Aug 1741: Pd Spademen at Crook Opening the River £2-15-0

The payments for new cuts are similar, but after they had been built it was important for the land owner to have his land restored for agricultural use, and this had to be paid for:

5 Sept 1740: To Mr. Gillibrand for the Charges of Levyling the Banks of the New Cut in his Land £2-12s-6d

The construction of the new cuts also created problems with soil, not just in moving it, but also from the inconvenience it could cause local people:

23 May 1741: Pd Jeffrey Barrow for Carting Soil at the New Cut above pool Bridge £3-12s-0d

13 June 1741: Pd Daniel Sargent & Company for Cleaning the Strines and Highway to pool Bridge from Soil £4-4s-0d

After the navigational works had been built there was a period when there was settlement of the earth which had been disturbed and any damages had to be repaired:

16 Jan 1740: [1741] Paid Richard Fairclough for four Days Work Repairing the Banks at Dean Lock 3s-4d

13 Oct 1741: Pd Wm Robinson and Company Making Up a Breach in the Banks at Crook £2-17s-6d

On the Douglas, the locks were generally made from stone quarried locally, though some brick could have been used as large numbers were made specifically for the navigation. Timber piles were probably used for foundation work and quantities, some from the Chester area thirty miles away, were purchased for construction work. The standard of work was not very high as the navigation was in a poor condition by the 1770s, though this was not unusual for early eighteenth century navigations built by merchants as they were still far from confident that their investment would be financially successful. The narrow canal system was developed because of the same concern about the beneficial return from investment.

Several improvements were made to the navigation, particularly at its lower end. The tidal river could only be navigated at high tides, so a half-tide wear was built at Tarleton in 1745, though local landowners complained that it caused flooding. Other wharfs had been developed around the coast. Freckleton was the first in 1739, with Poulton being added in 1745, Milnthorpe (for Kendal) in 1747, and Preston in 1750. It was suggested that the navigation be extended to Hindley, above Wigan, in 1749, but nothing seems to have undertaken. The tidal river and the lock at Tarleton continued to be a problem, so the navigation was extended downstream around 1760 by building a canal, still in use today, from Rufford to Sollom. No towpath was provided, and land had to be purchased for one some years after after the canal bypassing the navigation was built from Burscough to Rufford.

Boats on the Navigation

The boats which used the navigation can be divided into two types - small open boats which carried about 20 tons and which were confined to the navigation or the Ribble estuary, and boats, probably with covered hatches, capable of carrying a slightly larger tonnage and which could carry goods on short coastal passages. They could have been around fourteen feet in width and sixty feet long, though many were certainly smaller than these dimensions. Exact dimensions of the locks are not known, but as mentioned above, in the 1730s dimensions of 12 feet by 60 feet were suggested. They may have had square sails, though this was around the time of the introduction of the fore and

aft rig and this too may have been used. On the navigation towage was by manpower, and stiles were provided in fences alongside the navigation.

When the navigation opened, Alexander Leigh had to fight the proposal for a tax on coals carried around the coast. He also had worries about the safety of his boatmen as this letter to Sir Roger Bradshaigh, dated 20 March 1741 suggests:

*I am in hope that we may have occasion ere long to visit the port of Liverpool with slate and flags or some other goods that we may way some small advantage from the carriage of; if we could have a safe passage thither and home again? But I am told that there are two tenders there that ingross all the sailors that come into the port. I should take as much pains as anybody to man His Majesties fleet with able mariners but our boats are managed by none but superannuated [sailors] and boys, and none of the boats have more than four men and a boy; I speak as though we had a multitude in our fleet, which consists of no more than three flatts which are called the **Resolution**, the **Dispatch** and the **Speedwell**, the first carries 20 tons and the other two 30 tons each. If I could prevail on you to obtain for the protection for the men on board these boats, I shall be very thankful for the service you do me, and so will the rest concerned with me.*

These boats may be shown as belonging to the proprietors of the Navigation of the River Douglas alias Asland.

By 1747 the navigation had seven decked or covered flats, which could carry around 40 tons, called **Resolution**, **Dispatch**, **Speedwell**, **Concord**, **Three Sisters**, **Three Brothers**, and **Laurel**, and five open flats, probably capable of carrying around 20 tons, called **Success**, **Assistance**, **Supply**, **Tender** and **Pink**, as well as the **Pleasure Boat** - an early inspection boat? The decked flats worked around the coast while the open flats worked up the Douglas and around to Preston.

Some accounts survive from the 1760s for the **Success**. She usually loaded around 15 tons of coal at Tarleton or Gathurst for delivery to places on the Ribble where the load had often mysteriously increased by two or three tons. Limestone was sometimes the return cargo, usually being delivered to Wigan, though often the flat returned light for a new load of coal. The flat was hauled down stream from Gathurst to Tarleton for about 11s-3d while hauling from Tarleton to Preston would cost around £1-5s-0d. Going up river cost some 3s-0d light or 14s-0d if loaded with limestone for Wigan. The exact price depended upon the tonnage carried, and up to four trips could be made each month. About 2s-0d would be paid for unloading. Amongst the fixtures and fittings in 1771 were two wheeling planks, two wheelbarrows, two new beds and one old one, one pitch pot and one for victuals, a water cask, and two new spades.

By 1777 the river below Sollom was causing problems due to silting. An inquiry by the Leeds & Liverpool Canal committee gives some idea of how the tidal section and that immediately above Tarleton lock was used at that time. Robert Cookson, lockkeeper at Sollom, when asked about the effect of Tarleton wear, was reported as saying:

...That the boats had gone up and down the river all the year round in Spring tides, as customary, nor had any vessel been stopped from going to the North Country with coals on that account; and that the open river boats often make two trips in a Spring with coals to Tarleton and the coal yards about half a mile below the lock where there is above one foot more water, which is a great advantage to those sloops in the coal trade to load and discharge there when they cannot get up higher. Since the wear was taken down, a good deal of coals have been discharged at Sollom at Neap as well as Spring tides, which are carried from thence by the flat vessels to Preston and Freckleton[the port here was owned by the Douglas Navigation].

Private traders also had boats on the river. In the early 1750s, the *Liverpool* flat carried around 45 tons of coal per trip from Tarleton to Poulton, Lancaster, Peel, and Duddon, usually returning with barley or limestone to Tarleton. The limestone was then carried up the navigation by the open flats *Expedition* or *Experience*, three or four trips being needed for each load discharged by the Liverpool at Tarleton, suggesting a load of 12 to 15 tons for the open flats. The *Liverpool* flat cost £195 and the *Expedition* £104-9s-11d. The owners also had a third flat, the *Sincerity*, which cost £237-18s-0d which was probably too large to work onto the Douglas.

In the early 1770s there were several owners of flats working on the navigation. Amongst these Mr Briggs owned the *Brothers, Sisters, Experience* and *Loyalty*, Thomas Wigan the *Thomas*, Samuel Bold the *Sally, Expedition, Jenny, Swan, Tender* and *Fortune*, James Bradshaw the *William and Betty, True Blue, James* and *Lancaster*, John Swan the *Swan* and *Agnes*, Richard Fox the *Sincerity, George and Peggy*, and *Henry and Jenny*, Mr. Halliwell the *Halliwell, Ellen, Unicorn, Molly* and *Cicely*, and Thomas Dale the *Batchelor, Endeavor, Thomas and Betty* and the *Unity*. In 1777, Samuel Bold was reported as having been a carrier on the navigation for thirty years and that he brought 2000 tons of limestone to Wigan each year. At the time he was asking for a rebate so that he could compete with limestone from the Sankey and the Bridgewater at Worsley.

The Leeds & Liverpool Canal

In 1773, Holt Leigh took at least £489-18s-6d in tolls from boats using the navigation which, at a shilling a ton, amounts to just under 10,000 tons. Two years later, the Leeds & Liverpool Canal committee decided that all boats on the navigation should be weighed to ensure accurate tonnages were recorded for tolls. In 1776, Henry Berry, who was trained by Steers in Liverpool and was Engineer for the Sankey Navigation, stated that 12,000 tons were being carried annually, about two thirds to Ireland and the rest up the Ribble or to the Fylde. Traffic to this latter destination had declined as roads improved. Interestingly, he does not mention Liverpool as a destination. The majority of goods carried was coal though some limestone was brought up river and lime kilns were erected at one or two points in the coal mining area. Food stuffs were another cargo with vegetables being carried downstream and grain upwards.

It was Alexander Leigh and Robert Holt who had paid for building the navigation in proportion five to one. Holt died in September 1740 and his share was divided into six amongst his wife, four children and Leigh, his son-in-law. Subsequently Leigh seems to have sold a 36th share to each of Sir John Savile and David Poole, possibly for political reasons. By the time the Leeds & Liverpool Canal was being promoted, Alexander Leigh had 29 shares, his son Holt Leigh having five shares and Edward Holt two. Leigh sold his shares to the canal company in 1771 for £14,500. His son then purchased back one share in 1772, offering to sell his six shares and the Edward Holt's ones for £1000 a share in 1774. The company offered £800, but this was refused, and it was not until 1781 that they finally purchased the six shares for the original offer price. The two Holt shares remained outstanding, so the navigation had to remain in being. For almost all of the nineteenth century, the canal company accounts show the Douglas Navigation as a separate entity, charging a different set of tolls to the main canal. Finally, in 1893, the two shares were purchased. This was possibly as a result of the railway and canal tolls legislation which came into force then. Tolls were to be standardised, so the separate Douglas toll had to be abolished.

By the time the Leeds & Liverpool Canal was being promoted in the late 1760s, the navigation was being improved such that it could be used by larger boats with fixed masts. Five fixed bridges had already been made into swing bridges, and a further six were suggested for conversion. The proposed canal aqueduct over the river at Parbold was seen as a major obstruction. To overcome it, a flight of locks was proposed from the canal at Parbold into the river below the aqueduct. A branch canal 12

yards wide and 5.5 feet deep, called Leigh's Cut on some maps, would then be built from the canal to the navigation above the aqueduct. Unmasted boats would have to pay a toll, but masted boats could pass free of charge. Although the navigation was purchased by the canal company in 1771, the branch canal was still built as it provided access to the Wigan coalfield. Little of the coal carried down the navigation went to Liverpool, so the new canal would serve a market ready for development. The main canal at this time was envisaged as continuing northwards from Parbold towards the Ribble Valley and, in 1772, to bypass the navigation and create a link to Manchester the canal's engineer, Longbotham, was asked to survey the route from Parbold to Worsley via Wigan.

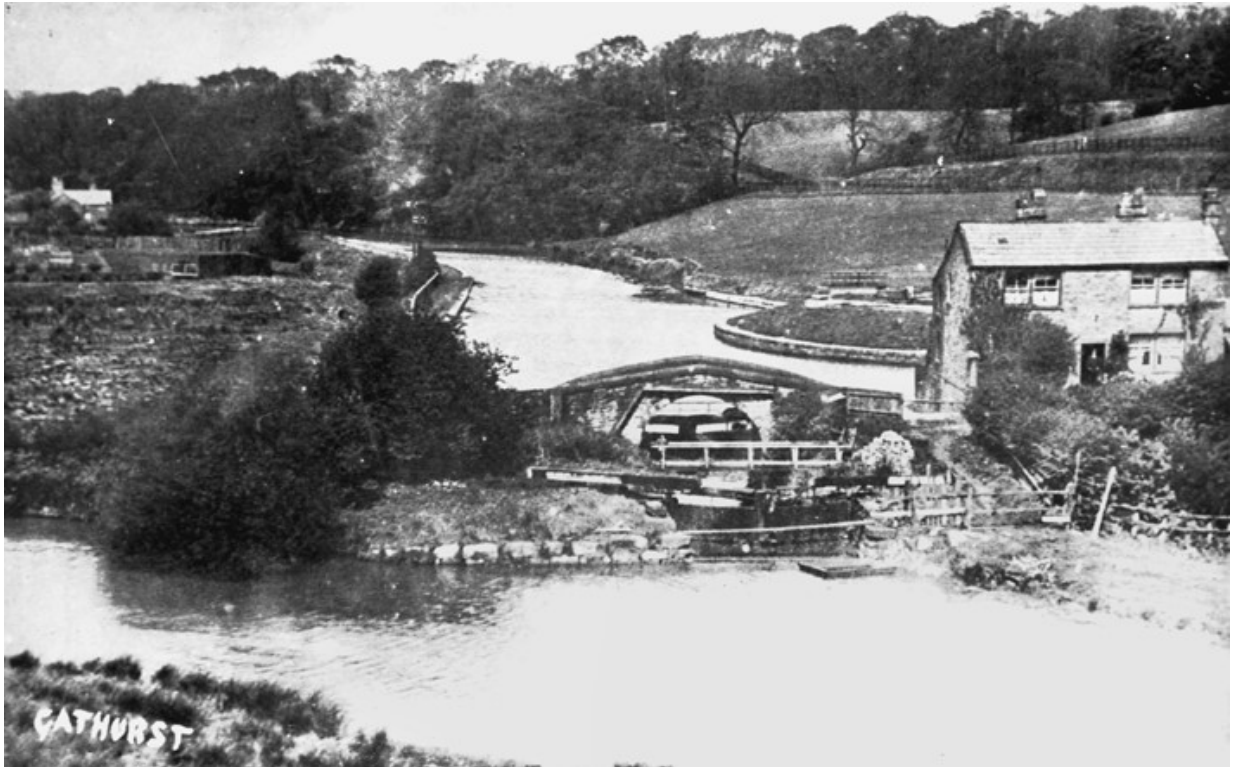
Construction of Leigh's cut began in July 1772, and two years later the river above Gathurst was repaired to allow access from Wigan to Liverpool. At first, the lock at Appley Bridge was the only one on the Liverpool end of the canal. It was 12 feet deep as there was no problem with water supply which came directly from the river. It was built 72 feet in length for the Liverpool canal committee to suit the flats then in operation around Liverpool, locks built for the Yorkshire committee being 66 feet long to suit the keels then working up the Aire & Calder Navigation. The basin at Wigan seems to have suffered a lack of water and, in 1775, following a survey by Longbotham, Hindley and Ince Brooks were diverted to feed the head of the navigation.

Despite the opening of the canal from Liverpool in 1774, the navigation remained in use and sufficient clearance was provided under the aqueduct for unmasted boats. However, the navigation was in poor condition. The old wear at Tarleton was causing sand banks to develop at Bank Bridge, and as flats could reach Sollom easily on Spring tides, it was decided to remove the wear to improve matters. The Eller Brook at Rufford was a different matter as it had caused river banks to collapse creating sandbanks. The Rufford-Sollom canal was also leaking badly and damaging the surrounding land. The land owners were complaining about this despite the fact that it was their land drainage schemes which may have caused the problem. It was thought that by lowering the sill on Sollom Lock and deepening the canal they would reduce such damages.

Along the whole navigation between £5000 and £7000 needed to be spent to bring it up to standard, and even then further work would soon be necessary. Instead it was decided to bypass the whole navigation in 1776 by constructing canals from Gathurst to the basin at Wigan (with the canal from Gathurst to Parbold it was called the Upper Douglas Navigation), and from Burscough to Rufford (with the Rufford to Sollom canal, this was called the Lower Douglas Navigation). The Upper section was built for the Liverpool committee with 72 feet locks, while the Lower was built for the Yorkshire committee with 66 feet locks. They were completed by 1782, as the gates were authorised for removal from the navigation locks in that year.

At Gathurst, the old lock into the river remained as it provided access to coal wharfs on the opposite side of the river. It also provided water for Appley Lock, the locks above being much shallower. Eventually, in 1792, it was bypassed by two new locks, though it remained in use unless there was a severe drought as traffic on this section was so heavy that two sets of locks were required. At Gathurst, the old navigation lock was replaced by a sluice, the wears remaining to provide enough depth of water for boats. The lock, now called a regulating lock as it controlled water levels, probably remained in use until early in the twentieth century. At least one boatman suggested to the author that his father worked onto the river to load coal.

The regulating lock at Dean connected the new canal with the old navigation. Much of the lock structure still survives, but the towpath bridge has been removed.



The Navigation Today

Today little survives of the navigation. Coal mining subsidence has made it difficult to ascertain its exact levels and subsequent flood prevention work has obliterated virtually all the old works. However, it is often possible to see the course of the old river from maps as it still forms many parish boundaries. In Wigan, the canal basin is slightly altered from the original one built by the Douglas Navigation, the right angle bend at the Liverpool end being the result of the new canal meeting the old navigation.



One of the original navigation weirs at Dean locks still survives, close to the present towpath. It was built in 1741.

At Gathurst, a stone weir survives next to the canal towpath below the lock, and the replacement sluice on the navigation lock site could be seen some years ago. The regulating canal lock has been filled in, but its copings are visible, and the lock house at Gathurst is unusual as it faces the river and not the canal, a reminder of its former occupier's job controlling the river level.

One lock site has been identified at Douglas Chapel and it seems likely that there are some remains underground. There is a large hole in the field where the lock once stood. An excavation here would hopefully answer the question as to the maximum size of boat which could use the navigation.

This hole in a field is the site of the lock at Douglas Chapel.



On the Lower Douglas, the canal built by the navigation from Rufford to Sollom is still in use, though its water level has been lowered under the Leeds & Liverpool Canal's 1787 Act. The surrounding wetlands have been drained since it was built and the subsequent contraction of the land still causes problems with leakage here. The stone lock at Sollom is now on one level following the construction of the Yarrow drainage in 1805, but its walls remain with right-angled corners at its entrance. *Sollom Lock*.

The original line of the river before the lock was built c1760 followed the road on the left, with the first lock near the trees in the distance.



As canal engineering developed in the late eighteenth century, the entrances to locks were built with rounded corners which caused less damage to boats. Some of the stone for the present Tarleton lock probably came from the original navigation lock which was 15 chains lower down the river. A lock house and wharf-master's house survive at the original site, which was also the original site of Mayor's boatyard.

1. Locks

Wigan/Harrison Platt; Ell Meadow; Crooke?; Gathurst; Upholland; Appley; Gillibrands; Douglas Chapel; Newburgh/Parbold; Paddock/Bispham; Waines Blades; Rufford/Holland; Croston Finney

2. Natural river and man-made sections, lengths in chains (

| | | |
|--|-----|----------|
| Wigan basin to river | 130 | man-made |
| To lock at Hell Meadow | 300 | natural |
| Hell Meadow Lock | 20 | man-made |
| To Gathurst | 530 | natural |
| Gathurst Lock | 15 | man-made |
| To Rannicar's | 150 | natural |
| Rannicar's Lock? | 15 | man-made |
| To Appley Bridge | 200 | natural |
| Appley Lock | 15 | man-made |
| To first cut | 100 | natural |
| Cut avoiding bend (Length of bend 25) | 10 | man-made |
| To Gillibrands Lock | 90 | natural |
| Gillibrands Lock | 15 | man-made |
| To second cut | 20 | natural |
| Cut avoiding bends (original length 140) | 80 | man-made |
| To third cut | 15 | natural |
| Cut avoiding bend (original length 25) | 15 | man-made |
| To Douglas Chapel Lock | 25 | natural |
| Douglas Chapel Lock | 15 | man-made |
| To Parbold Lock | 140 | natural |
| Parbold Lock cut | 60 | man-made |
| To Paddock Lock | 320 | natural |
| Paddock Lock | 10 | man-made |
| To Wains Blade Lock | 230 | natural |
| Wains Blade Lock | 15 | man-made |
| To Holland Lock | 380 | natural |
| Holland Lock | 65 | man-made |
| To Finney Lock | 250 | natural |
| Finney Lock | 15 | man-made |

Total length of natural river used 2750 chains

Total length of man-made cut 495 chains

5.555 times more natural river than man-made cut

Original length of river avoided: 190

New length of river: 105

55% reduction in length of these sections.

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