Chapter 2

Origin & Historic Development

Top: 30 Manor Row, Bradford as it appeared in 1957. Built c.1835, this building was the headquarters of the Leeds & Liverpool Canal Company until relocation to Liverpool in 1852. Source: Biddle, 1977.

Above: The canal basin at Bradford, c.1840. The stagnant, polluted water of the Bradford Canal was a health hazard. Bradford Cathedral (then the Parish Church) is in the background. Source: Clarke, 1990.

Left: A pen and ink sketch of Saltaire from from the canal c.1892 showing the mill and United Reformed Church. Source: Bradford Arts, Museums & Libraries & Archives.

AT 127 1/4 MILES (204KM) IN LENGTH, the Leeds and Liverpool Canal is the longest single canal in Britain and has been described as the region's single most important transport facility as it aided and influenced the growth of industry, the development of towns and villages and even influenced agricultural practices along its length.

Since the initial settlement of northern England, the Pennines have acted as a barrier to east-west movement and this influenced the trade patterns of Yorkshire and Lancashire. Yorkshire traditionally 'faced east' and traded woollen textiles via London with the main trade centres of Europe, while Lancashire 'faced west' and had a textile industry based on the linen trade with Ireland, while its wool markets were only local *(Clarke, 1990)*.

The woollen industry became established in Yorkshire and Lancashire during the 17th century, with weaving being carried out as far north as Kendal, as far west as Colne, and in the opposite direction, along Airedale and Calderdale. The wool used came locally from Pennine sheep, producing a coarse but cheap cloth. The merchants in Yorkshire wanted to expand into the fine wool trade, which at the time was centred in East Anglia and the West Country, where wool was of a better quality. In order for Yorkshire to obtain fine wool, it would have to be shipped over from the continent or along the Lincolnshire coast, but getting the wool from Hull or Selby to the West Riding was costly and time consuming. Bills to make the River Aire navigable by boat were presented to Parliament in 1621, 1625 and 1679 before a Bill of 1698 was passed in 1699, allowing the creation of the Aire and Calder Navigation. This allowed the industries of the landlocked West Riding compete with textile producers elsewhere, but even so the shallow depth of the Navigation in places restricted the weight of what could be transported. As well as wool, the Aire and Calder Navigation was used to transport coal, lime and corn, the latter being transported from East Anglia to feed the growing industrial population of the West Riding *(Clarke, 1990)*.

Lime was another important commodity for both agriculture and urbanised areas. When limestone is burnt with coal, lime is produced. This material can be used as a fertiliser and as a building material (in lime mortar or as decoration/rendering). Lime became a sought after commodity as the population of the West Riding increased, generating the need for more buildings and an increased supply of food locally. Bingley was a main centre for lime and the town's two main dealers, a Mr Lister and a Mr Mawd sold around 23,000 horse loads of lime per year in the 1740s *(Clarke, 1990)*. However, by the mid 1700s, the limited supply of limestone at Bingley was running out and lime merchants looked towards Skipton as a new source of limestone, but in order to tap this supply, the River Aire would need to be made navigable between Cottingley Bridge and Craven. A petition of 1744 to this effect was put to Parliament, but was unsuccessful *(Clarke, 1990)*.

By the late 17th century, Liverpool had become established as the north of England (and Ireland's) main port for trade with British colonies in the Americas. Liverpool's wharfs became crowded as trade grew and a new wet dock (the second in the country) was built in 1710 to cope with the levels of traffic in the port. The expanding manufacturing and shipping at Liverpool needed a supply of cheap coal and improved links with Lancashire's growing industrial regions where a new textile, cotton, was being produced using cotton which arrived from America via Liverpool *(Clarke, 1990)*.

Bradford's industrialists and tradesmen desperately wanted access to the colonial trades working out of Liverpool and this was one of the main reasons for the promotion of a canal between the West Riding and the port of Liverpool. This became particularly pressing as the Bradford area gradually took over from East Anglia as the most lucrative worsted trading centre in Britain. Closer to home, a canal could supply the Bradford area with limestone from Skipton which could be burned with locally mined coal to produce lime for building and increasing agricultural output. A side effect of this would be the ability of Bradford's collieries to cheaply supply Airedale and Craven with coal *(Clarke, 1990)*.

The construction of a Canal between the West Riding and Liverpool was set in motion by John Stanhope, who was lord of the Manors of Thornton and Horsforth and owned several collieries in the region. Stanhope hired the engineer John Longbotham of Halifax to survey a possible route in 1766, following the success of a short canal built by the Duke of Bridgewater to transport coal away from collieries in his ownership *(Firth, 1999)*. The first meeting to promote the canal was held in Bradford on 2nd July 1766, which was chaired by Stanhope and was attended by over 100 subscribers *(Clarke, 1990)*. Longbotham's completed survey was presented to the subscribers at the Sun Inn, Bradford on 7th January 1768. A Yorkshire Canal Committee was appointed with John Hustler and Richard Markham empowered to collect subscriptions. It was not until August 1768 that a Lancashire committee was formed by the 40 subscribers

there. By this time the Yorkshire Canal Committee had approached John Brindley, engineer, to check Longbotham's survey.

Longbotham accompanied Brindley as he checked the original survey and persuaded him that the canal should be built to dimensions which suited vessels already in use on the Aire and Calder Navigation and the Douglas Navigation (near Wigan) *(Firth, 1999)*. These boats measured 60' by 14' and in the end, boats using the Leeds-Liverpool Canal were all 62' long and 14'4" wide. Today fewer than 10 examples of traditional short boats survive in authentic condition, of which only 5 are still in use on the canal. Only two wooden boats are thought to survive *(Clarke, 1990, British Waterways et al, 2001)*. Brindley estimated costs of £259,777 to construct the canal, hence the Committees issued 2,600 £100 shares to finance construction of the Leeds-Liverpool Canal. Support for the Leeds-Liverpool Canal was always strong among Bradford's business community and in 1806, 46 people in Bradford held 210 shares in the Leeds and Liverpool Canal Company *(Cudworth, 1876)*.

Throughout the planning stage of the canal, there was a running dispute between the Lancashire and Yorkshire Committees over the proposed route through Lancashire. The Yorkshiremen wanted the quickest route across Lancashire, ensuring an efficient link between their businesses and the port of Liverpool. The Lancashire Canal Committee insisted on a longer route which would better serve the county's coalfields and expanding industrial towns. To this effect, subscribers from the Liverpool end of the proposed canal withdrew their funds from the scheme in late 1769 and only rejoined the following year on condition that works began at both ends of the canal simultaneously. This condition satisfied both Committees, as the Leeds-Gargrave stretch which was excavated would be able to supply Bradford with Craven limestone, while in Lancashire the manufacturing and shipping at Liverpool would be able to cheaply tap the coalfields around Wigan, with the Lancashire stretch of the canal running from Liverpool to Dean, near Wigan *(Clarke, 1990)*.

In the autumn of 1769, John Stanhope became terminally ill and handed over overall responsibility for the proposed canal to another Bradford man, John Hustler. Hustler, a Quaker wool merchant, was also the treasurer of the Canal Company from its inception until his death in 1790. Hustler was instrumental in getting the canal Bill through Parliament as he canvassed landowners along the proposed length of the canal (whose opinions Parliament placed great weight on) to support the scheme. The Bill swiftly passed through Parliament and received Royal Assent on 19th May 1770. Work began immediately and the Leeds-Gargrave portion was completed by 1777 *(Clarke, 1990)*.

This Leeds-Gargrave portion of the canal has what Clarke *(1990)* described as 'Brindley features' as they are motifs found in other canals where he was hired as engineer. These include aqueducts, such as that at Dowley Gap near Shipley; the canal being carried over a road, such as at Silsden. The latter pieces of engineering were considerably more expensive than swing bridges, which were used on stretches of the canal built later and at other crossings along the Leeds-Gargrave portion. It was observed as early as 1799, that although they were cheap to build, swing bridges were difficult to maintain as the runners easily became blocked by stones, etc. The older age of this section of the canal is also evident as it tends to follow the contour, unlike the later stretches of canal which incorporate large-scale engineering works such as tunnels and embankments.

The first stretch of canal to be opened ran between Bingley and Skipton 8th April 1773, perhaps reflecting the priority of transporting limestone to the Bradford area. The canal was officially opened by two boats carrying coal from Bingley to Skipton. By October 1773, 23 miles of canal had been completed in Yorkshire, with 31 miles in Lancashire, *(Clarke, 1990)* perhaps reflecting differences in terrain.

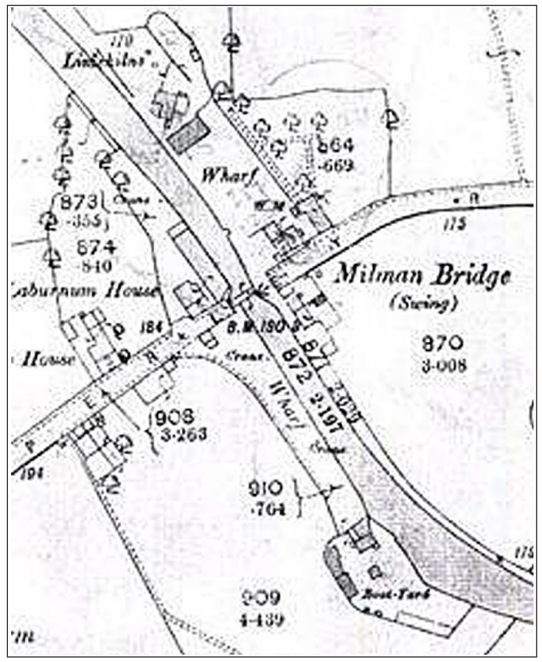
By March 1774 the Yorkshire portion of the canal stretched from Skipton to Thackley, with the first boat using the five-rise locks at Bingley passing through in 29 minutes. The event drew many spectators and was more of a celebration with music provided by the local band and ceremonial gun firing from the local militia *(Firth, 1999)*. This section of the canal linked with Bradford via the Bradford Canal, allowing limestone to easily and cheaply arrive at the town and for coal to leave it. The local lime burning industry was such that there were around 40 limekilns built along the Leeds-Liverpool Canal between Skipton and Bradford *(Clarke, 1990)*.

The Bradford Canal was first promoted in 1770 by 14 local merchants, including John Hustler and Abraham Balme, who were also important members of the Leeds-Liverpool Canal committee. The Bradford Canal Act was swiftly passed on 29th April 1771. Its 3½ mile length linked the town centre (at the modern day Forster Square) down 10 locks to the Leeds-Liverpool Canal at Shipley. The line was probably surveyed by John Longbotham and the Bradford Canal

Left: A typical Bradford fly boat, in this instance captained by Mr Alty moored at the top of Bingley Five Rise. Date unknown. Source: Clarke, 1990.

Upper: Bingley Five Rise locks, drained while repair works are being undertaken c.1900. Source: Clarke, 1990.

Lower: Canal basin and warehouses, Shipley c.1937. The warehouse had only recently been built. Source: Clarke, 1990.



Top: 1892 map of Milman Bridge area.

Above: Bingley Five Rise Locks. Designed by Halifax engineer John Longbottom and built by three Bingley based contractors using stone from Wilsden, Firth

Right: 'Tiger' was one of many horse-drawn barges working on the Leeds & Liverpool Canal. Seen here (date unknown) with her crew. Source: Clarke, 1990.

probably opened at about the same time as the Leeds-Liverpool Canal was constructed through Shipley. The Bradford Canal was independent from the Leeds-Liverpool Canal, despite being a branch from it *(Clarke, 1990*).

The construction of the Leeds-Gargrave and Liverpool-Parbold sections of the Leeds-Liverpool Canal cost £232,016, which was well above the original estimate. A further £53,434 had been spent by the Company in purchasing the Douglas Navigation (near Wigan). Thus, by 1777, the year that the Shipley-Leeds stretch of the canal opened and a link to the Aire and Calder Navigation at Leeds was completed, the Leeds-Liverpool Canal Company had ran out of funds for construction. The situation was made worse by the American War of Independence which had caused interest rates to rise (raising the cost of borrowing money) and also denied British industry the raw materials and market of America.

The result was that no further canal building occurred between 1777 and 1790. During this period, the income and profits of the canal continued to grow. The main carrier along the Yorkshire part of the Leeds-Liverpool Canal was Messrs Preston, Hird & Co. who were involved in the Bradford Limekiln Company and Low Moor Ironworks Company and were hence the major consumers of Craven limestone (Clarke, 1990). John Hustler served as engineer between 1775-1777 and 1782-1790 with Richard Owen filling the years in between. Following the death of Hustler in 1790, Robert Whitworth, who at the time was engaged as engineer at the Forth and Clyde Canal, was hired as engineer. In the years between 1777 and 1790, there had been two key changes. Firstly, advances in engineering meant that the canal could pass through long tunnels or along embankments and would hence not have to follow the contours of the land to stay level. Secondly, despite the depression in trade caused by the American war, the industrial towns of East Lancashire had continued to grow in size and stature and therefore the case for diverting the canal to serve towns such as Burnley, Accrington and Blackburn and the nearby coalfields won out.

As work resumed on the Leeds-Liverpool Canal, with the channel being dug to the west of Gargrave towards Lancashire, 'canal-mania' was underway across Britain, with various plans for branch canals and new navigations drawn up. One of the more realistic schemes was the Rochdale Canal, which opened in 1804, linking Manchester to Sowerby Bridge, where it joined another canal running to Hull via Leeds, forming the first coast-to-coast waterway where the route from Liverpool to Leeds was shorter and quicker. There was an immediate fall in the use of the Leeds-Liverpool Canal, but the directors did nothing to compete with the Rochdale Canal, perhaps realising by this time that most of the canal's income would be generated by the textile and cotton industries along it, rather than cross-country traffic as originally envisaged.

By 1810 the Leeds-Liverpool Canal stretched from Leeds to Blackburn, including the costly Foulridge Tunnel which was completed in 1796, and by 1816, the Yorkshire portion was joined to the Lancashire portion at Wigan. The celebrations were greater than when any of the earlier sections were completed (or towns reached) and a barge called John Hustler travelled from Leeds to Liverpool, stopping overnight at Skipton, Burnley and Haigh Hall near Wigan *(Clarke, 1990)*. The completed canal, plus the construction of a branch to Tarleton, Lancs., and the purchase of the Douglas Navigation near Wigan mean the completed waterway cost £887,616, over three times Brindley's estimate of £259,777. The cost of the works is placed at £7,500 a mile. By this time the Company had large debts of c.£400,000 and the tolls charged for transporting goods had not changed in some 40 years *(Clarke, 1990)*.

In 1821 it was proposed to build a branch canal from the Leeds-Liverpool Canal to Keighley, including a 12-arch aqueduct across the River Aire. The estimated cost was £31,455, which is presumably the reason why no further action was taken *(Clarke, 1990)*.

The Leeds-Liverpool Canal was the region's main transport artery and directly and indirectly brought development with it. Within the present day conservation area in the Bradford District, the Leeds-Liverpool Canal Company built its own warehouses and stables at Silsden, Stockbridge, Bingley, Bradford, Shipley and Apperley Bridge, plus stables at Dowley Gap and Field Lock *(Clarke, 1990)*.

The boats were pulled by horses which were driven along the towpath. The pubs and wharfs along the canal incorporated stables to accommodate horses, with a fee charged for overnight stabling. Despite the later introduction of steam and then diesel engines, horses continued to be used well into the 20th century, with the last working horse boat finishing in 1960 *(Clarke, 1990)*.

In all, 30 boatyards, where canal boats were built and repaired, have been identified along the length of the canal. Among these were the Leeds-Liverpool Canal Company-owned boatyard at the depot at Apperley Bridge, and the privately owned boatyard of G E Ramsey of Shipley, which was one of the four main boat building and repairing firms along the canal *(Clarke, 1990)*.

At its height, 2.5 million tons of cargo were carried along the Leeds-Liverpool Canal, with coal the single most common commodity. Merchandise (i.e. finished goods) were equally important as it attracted a much higher toll. The extensive limestone traffic envisaged never happened. The canal was its most financially successful between 1825 and 1850 and many improvements along the line (such as the enlargement of warehouses) happened during this time. By 1824, the line had earned profits of £94,423 and by 1840 the Leeds and Liverpool Canal Company had paid off all of its debts *(Firth, 1999)*. Such was the financial success of the Leeds-Liverpool Canal, that shareholders received a dividend each year between 1786 and 1919 inclusive *(Biddle, 1977)*.

During the first half of the 19th century wool would be transported from Liverpool to Yorkshire (presumably at first by canal, by road and then by canal again) where it was spun into thread before being sent to East Lancashire, where the thread was woven by hand into cloth pieces. However, over the course of the 19th century, the water-powered spinning mills of the Bradford area gradually changed to steam power as the textile industry continued to expand. According to Clarke *(1990)*, in 1801 there was one steam-powered mill in Bradford, by 1815 there were 10 and by 1850 there were 129. Each steam powered mill needed water and coal, both of which could be supplied by the canal, with condenser engines returning water which had been extracted from the canal. The Leeds and Liverpool Canal Company charged the mills for using their water and so it was coal rather than lime that proved to be the most commonly transported cargo along the canal *(Clarke, 1990)*.

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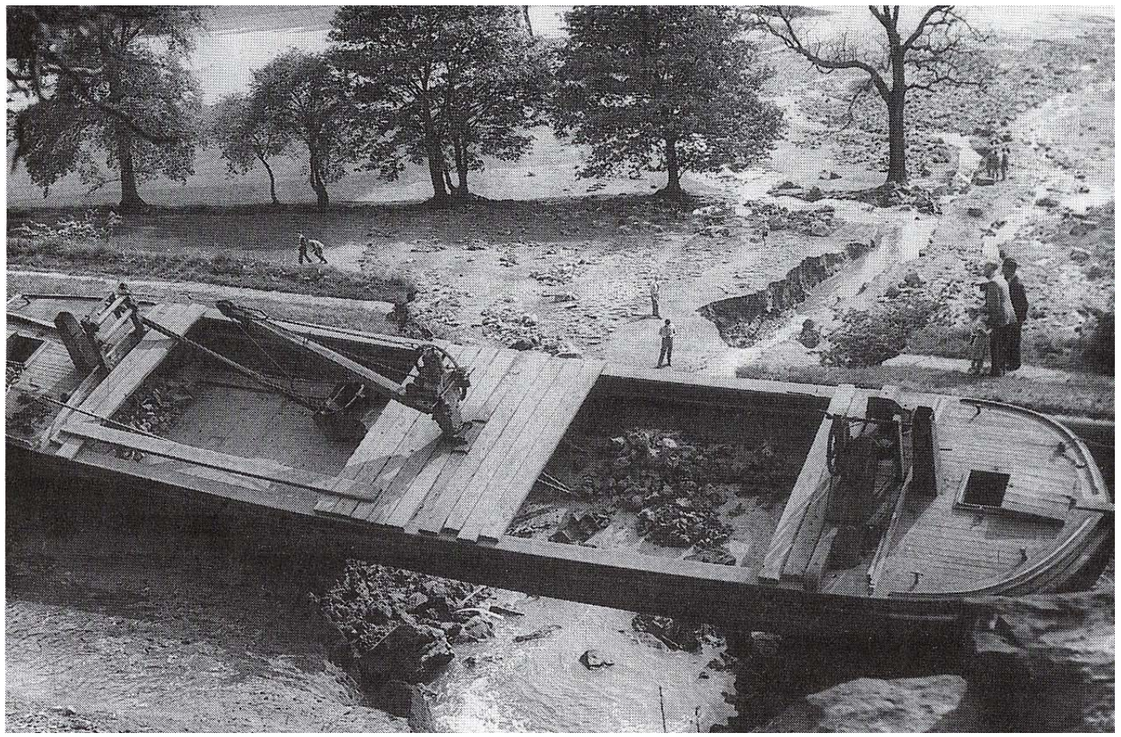
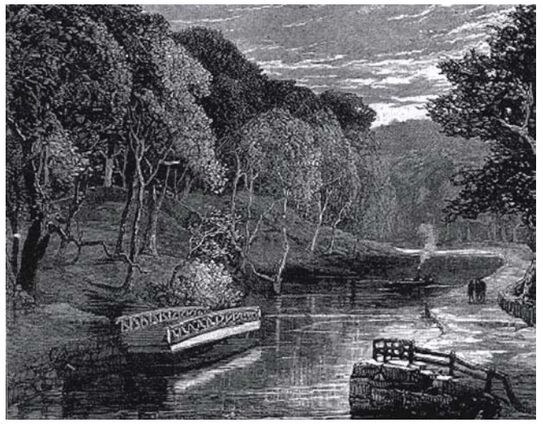


The importance of coal to the Leeds-Liverpool Canal Company is a sea change from 1768 when coal was seen as a minor commodity, as apart from domestic use, it was primarily used for burning limestone to produce lime, which was seen as the most important commodity by the original investors in Bradford. The change in the use of coal to improve agriculture to increasing industrial output was called by Clarke *(1990)*: *'the beginning of the Industrial Revolution and the Leeds and Liverpool Canal was a significant catalyst.'*

Coal was transported to industrial and domestic users by local coal merchants, such as James Glover of Bingley or William Oldfield of Riddlesden. Most of these firms ceased to use the canal after the Second World War, using the roads instead.

The improved transport link provided by the canal and the availability of cheap limestone led to the establishment of the Low Moor Ironworks in 1788 by Preston, Hird and Co and men like Hustler and Balme who were all key shareholders in the Leeds and Liverpool Canal Company. The increased demand for coal created by the ironworks led to the importation of coal to the Bradford area from mines to the south of Leeds via the Leeds-Liverpool Canal *(Clarke, 1990)*.

The quarries at Skipton and Craven had satisfied most of the demand in the Bradford area for limestone, but the use of limestone in the process of iron smelting at the Low Moor Ironworks meant that this firm became the main consumer as its consumption dwarfed that of agriculture, another indication that the Industrial Revolution was well underway. More quarries were established near Barnoldswick and Thornton-in-Craven, with limestone transported along the canal to Bradford.



Top: Lime kilns, such as these at Micklethwaite Lane are evidence that limestone was one of the most commonly transported cargos in the early years of the canal.

Above: Pen and ink sketch taken from the scrapbook of William Scruton, c.1982 of the swing bridge over the canal at Saltaire. Source: Bradford Arts, Museums, Libraries & Archives.

Left: Boats carrying coal past the warehouses on Wharf Street, Shipley in 1936. (Source: Firth, 1999).

Far Left: Canal breach at Keighley, 1952. The maintenance boat was dramatically washed down onto the golf course. Source: Clarke, 1990.

Upper Right: View from the stern of a pleasure boat as it passes between the mills at Saltaire, 1986. Source: Bradford Arts, Museums, Libraries & Archives.

Lower Right: Junction House, Junction Bridge and Junction Mills, Shipley. These buildings and the bridge stand at the junction of the Leeds & Liverpool Canal and the Bradford Canal. Junction House contained a tall office (nearest the bridge), was the premises of an engineering firm and was a home for old boatmen.

Below: Late 19th century warehousing built by the Canal Company at Wharf Street, Shipley. The modern boat is a pleasure craft.

Bottom: Junction Mills, Shipley seen from the end of what remains of the Bradford Canal. The cheap and reliable transport link provided by the canal meant it was a magnet for industrial development since it opened.

As well as raw materials and goods, the canal was also of value in an age before sewers. Over the first half of the 19th century c.50,000 tons of 'night soil' and manure were carried annually along the canal. By the 1880s and 1890s the larger urban population raised this figure to 150,000 tons. This waste, which was mixed with household refuse and ashes, was transported to farms where it was used as a fertiliser, and hence the fields along the canal and near bridges where the cargo was unloaded were farmed the most intensively. The resultant produce would then be taken from the fields to market via the canal. Manure traffic continued into the 1930's *(Clarke, 1990)*. This perhaps explains why the sewage treatment works built near Esholt in the early 20th century has a basin where boats could be unloaded at its centre.

The Leeds-Liverpool Canal experienced varying fortunes with the prospect of competition in the form of railways from the mid 19th century onwards, with the Leeds-Manchester line opening in 1836 and the Leeds-Bradford line opening in 1846. The canal had the advantage in that many existing factories, gasworks etc. were already based along side the canal, while the railways could often only serve new industrial areas. As it happened, the railways became much more successful as a passenger transport system rather than a bulk cargo carrier, the opposite of what was intended.

The profitability of both the railways and the canal suffered due to intense competition. The transportation of merchandise (i.e. finished goods) along the canal was undertaken by a number of private carriers, with firms of various sizes. The railways undercut many of these firms, particularly the smaller carriers. In 1847 an Act of parliament allowed canal companies (such as the Leeds and Liverpool Canal Company) to borrow money to finance their own carrying companies and by 1848 the Company had bought boats from many of the struggling private carriers along the canal, and created a large carrying business called the Leeds and Liverpool Canal Carrying Company. The economies of scale meant that bulky cargo such as coal and minerals could be transported more cheaply than by rail *(Firth, 1999)*.

In 1853, the sole right to transport merchandise along the canal for a period of 21 years was taken up by the railways with a payment of £31,000 made to the Canal Carrying Company each year *(Clarke, 1990)*. The railways perhaps understandably ran an inefficient merchandise service along the canal, causing such traffic to fall. It was not until 1874, when the Canal Company regained responsibility for

merchandise traffic, that there was a sudden resurgence in such traffic along the canal as the service improved and overdue investment in facilities was made. Among the new developments along the canal in 1874 were new warehouses at Stockbridge and Shipley. In terms of service, the number of running merchandise boats on the canal rose from 30 in 1874 to 60 in 1875 *(Clarke, 1990)*.

In the early years the affairs of the Canal Company were very much run in Bradford's interests. Indeed the headquarters of the Leeds-Liverpool Canal was based in Bradford since its inception, but in 1850 the offices at Manor Row closed and the Company was thereafter based at Liverpool *(Firth, 1999)*.

In 1852 the Leeds-Liverpool Canal refused to lease the Bradford Canal owing to its poor condition and the polluted water and the lease was taken up by Crowther and Dixon, limeburners, of Bradford. The terrible state of the canal was mostly due to its limited water supply. The canal was fed by the polluted Bradford Beck which was in turn heavily contaminated by the various industrial processes which were carried out within the small area of the catchment. The state of the water exacerbated a cholera epidemic which killed 406 in the town in 1849 and was described by the Bradford Observer in 1864 as '*that seething cauldron of all impurity*'. The opening of the Leeds-Bradford railway in 1846 signalled the end of the canal as a commercially viable route and in 1864 the Bradford Canal Company was prosecuted for use of impure water and creating a public health hazard. One witness said: *'As to the Bradford Canal I have only to remark that it is a life-destroying monster nuisance... It is a literal fact that it has been on fire. A light fell accidentally overboard from one of the boats and the matter which composes the canal actually ignited.' (Firth, 1999).*

The situation became so bad that in 1867 the branch was closed and the water supply to the Bradford Canal was cut off. The quarter of a mile section above Northbrook Bridge was filled in and sold for development while the section below Northbrook Bridge was sold for £2,500 to stone quarries which were reliant on the canal for the transportation of stone. The shortened canal reopened in 1872, five years to the day of its closure. The channel had been deepened and water was steam pumped up the canal using canal water bought from the Leeds and Liverpool Canal Company.

The pollution and canal congestion at Bradford led to several industrialists in the town relocating to Shipley, which is on the main line of the Leeds-Liverpool Canal. The most prominent of those who undertook this move was Titus Salt who built his model mill village of Saltaire alongside the canal and railway. Another example is Henry Mason, who moved his firm from Bradford to his newly completed Victoria Mills at Shipley in 1873 *(Cudworth, 1876)*. The scale and pace of development around Shipley as Bradford became more congested and expensive to build in during the second half of the 19th century led to Cudworth *(1876)* to observe that *'within half a mile at Saltaire, Messrs Hargreaves and Mr H Mason's there are three of the largest weaving sheds to be found in the country'*. Nonetheless, the Leeds and Liverpool Canal Company and the Aire and Calder Navigation Company jointly purchased the Bradford Canal in 1876. Three new warehouses were built along Canal Road in the 1880s, but traffic only increased marginally as the railways improved their warehousing and service in reply. The warehouses on Canal Road were later enlarged in 1895 *(Clarke, 1990)*.

The Railway and Canal Traffic Act of 1888 required the Leeds-Liverpool Canal Company, as general carriers, to transport all cargos at the rates designated by the Board of Trade, which, in 1893 were set to the same level as the railways. This meant that the canal could no longer under

cut the railways in transporting some of its key cargos. With other carriers on the canal still allowed under the Act to pick and choose which cargos they carried as well as set their own rates of carriage, the most profitable cargos were taken by privately owned canal transport companies, while the Leeds and Liverpool Canal Company was left with the less profitable cargos. The impact was an increase in the volume of goods taken by the Canal Company, but income fell sharply. This was particularly disastrous for the Canal Company as it had in the years prior to the Act invested heavily in improving and upgrading the canal and facilities (such as warehousing) along it. The fact that the railways increasingly had the upper hand was exacerbated by freezing weather closing the canal for two months in 1895 and summer droughts causing additional problems *(Firth, 1999)*.

Another impact of the resetting of the tolls along the canal by the Board of Trade in 1893 was the marking of all mile points plus quarter and half mile points along the canal with cast iron mileposts by the Leeds and Liverpool Canal Company in the 1890s. This was to help the Company to accurately charge tolls by the mile *(British Waterways et al, 2001)*.

The smaller revenue following the Railway and Canal Traffic Act of 1888 meant that rising labour costs caused the Leeds and Liverpool Canal Carrying Company to close in 1921, with the boats, horses and delivery carts all sold off *(British Waterways et al, 2001)*. 1920 had been the first year since 1785 that shareholders in the Leeds-Liverpool Canal Company did not receive dividends *(Biddle, 1977)*. This was perhaps explained by the outbreak of the First World War in 1914. At this time the canal was placed under the control of a committee appointed by the Board of Trade, which remained in place until 1920 *(Firth, 1999)*.

With an increase in traffic, the Leeds-Liverpool Canal remained a hive of activity into the 20th century. In 1906 the Leeds-Liverpool Canal carried 2,337,401 tons of cargo an average distance of 21.12 miles, producing around £180,000 in revenue *(Clarke, 1990)*. The Bradford Canal was a different story, however, as by 1910 tonnage transported along the canal began to fall. A Bill to close the Bradford Canal was passed in 1922 with the formal closing on 29th June that year. The poor water supply, constrained topography of Bradford Dale and the 80' descent to Shipley were all factors that had worked against the success of the canal from the outset.

The traffic along the Leeds-Liverpool Canal expanded at select locations during the early 20th century and by 1930 the Leeds and Liverpool Canal Company was paying out a reasonable dividend to shareholders. At Shipley, for example, the increased wool traffic prompted the construction of a new four storey warehouse in 1928, which was extended in 1932. New warehouses were built at Stockbridge to serve the industry of Keighley. The first was constructed in 1903 to store finished machinery, while a new wool warehouse was built in 1934 *(Clarke, 1990)*.

During the Second World War (1939-45) the Leeds-Liverpool Canal remained an important industrial artery and was of particular importance as industry helped to support the armed forces. Wardens monitored the whole length of the canal every night during the conflict in case it was bombed. Stop planks, which could be used to block the channel in case part of the canal was destroyed, were placed at 80 points along the canal.

After the Second World War, the Leeds-Liverpool Canal was nationalised along with the rest of the country's canals in 1948. At this time important cargos were wool and sugar, which were transported from the docks at Liverpool to the industrial centres of Yorkshire. In public ownership, the Leeds-Liverpool Canal was mismanaged and little money was spent on maintenance or repair. Subsequently the canal fell into disrepair and levels of traffic fell further. By 1956, expenses of £260,000 generated an income of only £127,500, which amounted to 30% of the total losses of Britain's canals that year. By 1962, the loss made on operating the Leeds-Liverpool Canal was over £200,000 *(Clarke, 1990)*.

While nationalisation was a factor in this reversal of fortunes, other factors played their part. The coal-powered mills and factories along the canal had turned to electricity thus reducing the demand for coal to be transported along the canal. At the same time, many of the textile factories and mills along the canal closed due to changing economic forces. Moreover, the emergence of lorries and vans as a reliable and economic means of transporting goods or raw materials locally, or indeed across the country, was another overriding factor in the decline of the country's canal network.

Another blow to the operation of the Leeds-Liverpool Canal as a highway serving industry came during the winter of 1963-4 when the water in the canal froze for several weeks. The last commercial delivery along the Waterway was to the Gasworks in 1973, nearly 200 years after the first *(Firth, 1999)*.

In 1968 the Transport Act was passed categorising the canal as a pleasure cruising waterway, recognising the canal's all but defunct usage for commercial transportation. The canal had been used for leisure since its opening and continued to be during the 19th and 20th centuries. Skipton was often visited by canal by parties from Bingley, Silsden and Keighley, while Roberts Park, Saltaire was the destination for people from Bradford. These groups were transported in purpose - fitted boats which could carry upwards of 100 people and were the mode of transport used until the 1950s *(Clarke, 1990)*. Thereafter, smaller, better-equipped boats for shorter trips became popular, as did the hiring of houseboats and spending holidays travelling along the canal. Shipley and Skipton were among the early centres for this type of tourism in the 1970s. In recent years the canal towpath has become a popular route for joggers, cyclists and walkers.

According to figures published by British Waterways and the Ironbridge Institute (2001), the amount of leisure traffic throughout the central part of the Leeds-Liverpool Canal (between Bingley and Wigan) is around 1,300 to 1,800 boats annually, with fewer than 1,000 boats travelling along the canal at Leeds (with the amount of traffic between Leeds and Bingley described as 'limited') and much fewer towards Liverpool. The entire length of the canal is well used by angling clubs *(British Waterways et al, 2001)*. The towpath is consistently well-used by walkers, joggers etc in the Bradford, Shipley and Bingley area.

The tourism and amenity value of the Leeds-Liverpool Canal has meant that British Waterways have improved the condition and upkeep of the canal and its towpaths over recent decades, while the landmark industrial buildings and complexes along the Leeds-Liverpool Canal as it passes through the Bradford District have attracted a range of new occupiers and new development. The canal area has been re-invented as a popular place to live, work or spend leisure time.