

LAGAN WATERWAY HISTORY

Navigable waterways

Prior to the advent of canals and railways in the 1700s and 1800s, packhorses and horses and carts or packhorse were the main means of moving stuff. Although Ireland has had a good road network since the 1600s, such roads were poorly surfaced and not always well maintained. The loads transported were thus limited by the hauling power of the horses and condition of the roads. Bulky, low-value goods such as coal, building materials and grain were particularly expensive to transport.

Railways solved this problem, but only after the development of reliable steam locomotives in the mid-1800s. Before then, rivers were the cheapest way of moving large heavy loads where speed was not essential. Except for their tidal sections however, most rivers were not navigable for any great distance and the size of boats, and thus of the loads carried, was invariably limited by obstructions such as shallows, rapids and weirs.

Navigations and canals

Navigable waterways are of two types – navigations and canals. Navigations are existing natural watercourses whose navigability has been improved, whereas canals are entirely artificial channels excavated by hand and/or machine. The pros and cons of each type of waterway are as follows:

	<i>For</i>	<i>Against</i>
Navigations	<ul style="list-style-type: none"> ▪ No major civil engineering works required so relatively cheap. 	<ul style="list-style-type: none"> ▪ Prone to strong currents in winter and lack of water in summer, both of which may make navigation temporarily impossible. [This was certainly the case on the Lagan] ▪ Summer water shortages are potentially exacerbated by demands of mill owners with prior rights to abstract water from the river. ▪ Need to circumvent impediments created by existing rapids, shoals, and fish/mill weirs. ▪ Potential need to insert opening sections in existing bridges to allow vessels to pass through.
Canals	<ul style="list-style-type: none"> ▪ Still water, so no current in either direction which, if strong, might make lighters difficult to haul upstream and to control on the way down. ▪ Depending on topography, can be built in a straight line rather than having to follow a river's meander, so reducing travel distance and journey time. 	<ul style="list-style-type: none"> ▪ Expense of land acquisition and excavation. ▪ Expense of installing and maintaining essential infrastructure - banks, drains, towpaths (before motorisation), locks and lock houses (where levels changed), weirs, spillways, feeders, bridges and culverts. ▪ Depends on an adequate supply of water at summit level to keep all reaches at an adequate depth for laden vessels. ▪ More prone than rivers to freezing in winter due to lack of current.

Development of Ireland's inland waterways

With the gradual industrialisation of Ireland from the 1700s onwards, attention focused on improving the connections between the main towns to facilitate trade and commerce.

Apart from upgrading the roads, the only means of doing this was through the creation of navigable waterways. The 'golden age' of their construction was from the 1730s to 1820s. Railways gradually eclipsed them, thereafter, although a few continued to be built into the 1850s. Their sequence of opening is as follows:

Year started	Year opened	Name	Between	Comments
1731	1742	Newry Canal	Newry – Lough Neagh	The first summit-level canal in Britain and Ireland. At that time Newry was Ireland's fourth largest port. The canal was built to take coal from the Dungannon coalfields to Dublin via Lough Neagh and Newry. In reality, more coal, all of which was imported, went the other way!
1732	1755	Coalisland Canal	Lough Neagh/ River Blackwater - Coalisland	Connected the Dungannon coalfields with River Blackwater, Lough Neagh and the Newry Canal. Once built, however, little coal found its way down the canal!
1756	1763	Lagan Navigation	Belfast - Lisburn	
1748	1766	Boyne Navigation	Drogheda – Slane	Extended to Navan in 1800.
1755	1769	Shannon Navigation	Limerick – Carrick-on-Shannon	At 177 miles long, this was the longest navigable waterway in Ireland. Thomas Omer, who had been involved with the Lagan Navigation, was its chief engineer.
1759	1790	Barrow Navigation	Athy – St Mullins	
1783	1791	Barrow Canal	Grand Canal – Athy	Connected Dublin with Waterford via an inland route rather than the sea.
1782	1794	Lagan Canal	Lisburn – Lough Neagh	Enabled vessels to go from Belfast via Lough Neagh to Newry (along Newry Canal), to Portadown (along Upper Bann River), and to Coalisland (along Coalisland Canal).
1791	1796	Strabane Canal	River Foyle - Strabane	
1756	1804	Grand Canal	Dublin – River Shannon	Entered River Shannon at Shannon Harbour. Connected Dublin and Limerick. At 79 miles long, this is the second longest canal in Ireland.
1789	1817	Royal Canal	Dublin – River Shannon	Entered River Shannon at Tarmonbarry. At 91 miles long, this is the longest canal in Ireland.

1830	1841	Ulster Canal	Lough Neagh/ River Blackwater – Upper Lough Erne	From the start this was never a success owing to the inception of railways around the same time.
1830	1850	Newry Ship Canal	Newry – Carlingford Lough	Enabled sea-going ships to access Newry.
1842	1859	Ballinamore & Ballyconnell Canal	River Shannon – Upper Lough Erne	In theory, vessels could now travel from Belfast to Limerick via the Ulster Canal. In reality, little used due to competition from railways.
1847	1859	Lower Bann Navigation	Lough Neagh - Coleraine	The last major navigable waterway built in Ireland. Little used due to competition from railways. Still open under Waterways Ireland for recreational use.
1881	1890	Lough Erne Navigation	Belleek - Belturbet	Upper and Lower Lough Erne have been used since time immemorial for transportation. Drainage works necessitated the installation of a lock between them
Note that only main waterways noted. Later extensions, realignments and branches are omitted for clarity.				

Lagan Navigation

- The Lagan Navigation connected Belfast with Lisburn. It used the River Lagan for the most part in order to minimise costs, but short lengths of canal were excavated where needed to circumvent rapids, shoals and mill weirs. The trick was to balance the drawbacks of utilizing the river (floods etc) against the expense of cutting the canal sections which had no such shortcomings.
- Its purpose was to stimulate Belfast's commerce and trade by improving its physical links with its hinterland.
At that time, Belfast was losing ground to Newry as a focus of trade, and it was hoped that the navigation would redress the balance in favour of Belfast and also facilitate the carriage of coal from the Tyrone coalfields.
- In 1749, Acheson Johnston (who was also involved with the Newry and Coalisland canals at that time) devised a plan link Belfast with Lough Neagh by making the River Lagan navigable as far as Moira and then cutting a canal to Ellis's Gut, at the south-east corner of Lough Neagh, near Lurgan, so giving Belfast access to much of central Ulster.
- In 1753 an act was passed by the Irish Parliament *For making the River Lagan navigable and opening a passage by water between Lough Neagh and the Town of Belfast in the County Antrim* (27 George II c.3). This provided the legal framework for the project to proceed.
- The project was initiated by the *Corporation for promoting and carrying on an Inland Navigation in Ireland*, a body set up by the Irish Parliament. It was funded through a combination of parliamentary grants and a local tax on beer and spirits.

- The Corporation put its engineer, Thomas Omer, in charge of the project (he was also involved with an extension to the Newry Canal around that time). All the work was done by hand as steam-powered excavators had not yet been invented.
- Work started in 1756 at the Belfast end of the Lagan. Seven years later, in 1763, it was open as far as Lisburn.
- The first boat to use the Navigation was the *Lord Hertford*, owned by Thomas Greg. It brought a 45 ton cargo of imported coal and timber to Lisburn along with a party of local dignitaries.

[The vessel's arrival is described in the *Belfast Newsletter* of 9th September 1763, but I don't have a copy].

Greg was a prominent Belfast merchant. He owned quays at the bottom of High Street, just north of the Long Bridge and was also the joint owner of a sulphuric acid plant at Vitriol Island Lisburn, alongside which the Navigation ran. In 1769, he constructed Chichester Quay at the end of High Street, Belfast to handle the increased traffic brought about by the Navigation.

- By 1767, Omer had extended the Navigation 2 miles upstream to Sprucefield and added a 13th lock. At this point, the money ran out and all work stopped. It was to be another 15 years before it restarted.

In 1768, Robert Whitworth drew up proposals to construct a new canal the whole way from Belfast to Lough Neagh. This was in response to difficulties experienced by users of the Navigation due to winter flooding, but his scheme came to nothing due to lack of finance.

- Between Stranmillis (1st lock) and Sprucefield (13th lock), the Navigation is 11 miles long (17.6km), of which 4.6 miles (7.4km) is canalised (i.e. 42%). Notable features include the deep cutting and high road bridge at Ballyskeagh, and the various lock keeper's houses, all of which were to Omer's distinctive design.

Lagan Canal

- The Lagan Canal connected the River Lagan at Sprucefield with Lough Neagh at Ellis's Gut. It was a completely artificial waterway throughout its course. The Broadwater, a natural lake on its summit level, kept it supplied with water.
- In 1780, an act was passed *To amend and explain the several laws made in the kingdom for carrying on the Lagan Navigation* (19 & 20 George III c.32). This enabled work on the canal to proceed.
- It was built by the *Company of Undertakers of the Lagan Navigation*, a private undertaking set up in 1779 by Arthur Chichester, 5th Earl of Donegall, and his associates (the Corporation that had built the Navigation was dissolved in 1774). It was financed mainly by the Earl himself, and also through the issue of shares in the company.

It is commonly stated that the 1st Marquis of Donegall, as Chichester was also known, was behind the scheme. However, he did not become a marquis until 1791.

- Work started in 1782 under the direction of Richard Owen, an English engineer. Johnston's original plan was amended by starting the canal at Sprucefield, where work had stopped in 1767, rather than at Moira.

Owen had previously worked on the Leeds and Liverpool Canal. He died in 1830 and is buried in Soldierstown Churchyard, overlooking the Broadwater.

- The canal opened as far as Aghalee in 1792 and finally reached Ellis's Gut in late 1793. It was officially opened by Arthur Chichester (now 1st Marquis of Donegall) on 1st January 1794.

[There are apparently reports in the *Belfast Newsletter* of 7/2, 11/2, 25/8, 29/8 and 31/12/1794, but I don't have copies]

- The canal ran for 15 miles (24km) and contained 14 locks. Notable features along it include the four 'staircase' locks at Sprucefield and an aqueduct over the River Lagan near Moira.
- Belfast was now connected to Lough Neagh and thus by navigable waterways to Newry (via the Newry Canal, opened in 1742), Coalisland (via the Coalisland Canal of 1755), and Portadown (via the Upper Bann).

Lagan Waterway - 19th century developments

- In 1810, control of the Company of Undertakers passed from the Donegall family to a group of Belfast businessmen. They undertook extensive refurbishment work including dredging, upgrading the towpath, and lock repairs. This resulted in a shorter journey time and a significant increase in traffic.
- In 1843, the Lagan Navigation Company (LNC) took over the entire waterway from the Company of Undertakers. Further improvements ensued and traffic continued to increase in spite of competition from the railway which opened between Belfast and Lisburn in 1839.
- Also in 1843, the Long Bridge at the Belfast end of the Navigation was replaced by Queen's Bridge. Five years later, in 1848, the Canal Quay opened immediately upstream of the new bridge, on the Co Antrim side of the river. It was built by Francis Ritchie to replace Greg's quay at the Belfast terminus of the Navigation. Access to the port from Belfast Lough was also being improved with the cutting of the Victoria Channel in 1839-49.
- In 1888, the Coalisland and Ulster canals were acquired by the LNC from the Board of Works.

The Coalisland Canal opened in 1755. Like the Newry Canal, it was built to facilitate the export of coal from the Dungannon coalfields, it was mainly used for the export of fireclay and agricultural products from Coalisland and for the importation of British coal.

The Ulster Canal opened in 1841 to link Lough Neagh with Upper Lough Erne. It was never a commercial success due to competition from the roads and railways, a shortage of water in summer, and lack of maintenance. Its main drawback, however, was the fact that its locks were only 11ft wide, compared with at least 14ft 6in on all the other Northern Waterways. Any goods entering the Ulster thus had to be transhipped to narrower vessels, thus incurring delays and addition costs. Even the opening of a link between the Shannon and Erne in 1859 could not stimulate an increase in traffic.

- These acquisitions proved to be a continual financial burden to the LNC as it was legally obliged to maintain them indefinitely, even if commercially unviable. Although the Coalisland made a modest profit, the Ulster always made a loss and was only sustained by the profits from the Lagan.