

GLOUCESTER LOCK – OPENED 200 YEARS AGO

Hugh Conway-Jones

Gloucester Lock, linking the Main Basin to the River Severn, was formally opened for the use of barges in October 1812. This article, written for the celebration of the bicentenary, describes the controversy surrounding the construction of the lock, the tragic accident that occurred during the opening ceremony and changes made in later years.

The structure of the lock was built in the 1790s while work was also underway on the adjoining basin and the northern part of the ship canal which at that time was planned to have an entrance from the Severn estuary at Berkeley Pill. The site of the lock made use of an existing minor channel of the river around a small island know at the Ait. The original design by consulting engineer Robert Mylne was for two chambers in a ‘staircase’ with the bottom of the lower chamber being 2ft below that of the upper chamber. This arrangement uses less water than a single deep lock and also reduces concerns about the stability of the lock walls and the large size of the lower gates. Each chamber was sized to accommodate the largest barges then using the river.

Three drawings survive from this period, showing different positions for the stop gates needed to protect the basin from a river flood. One shows the stop gates at the upper end of the upper chamber, which had an extension to accommodate them. This drawing does not show any details of foundations, and so it is probably what consulting engineer Robert Mylne provided in 1794 when he recommended the making of a model ‘by which means workmen and your agents would understand in a better degree the end and purpose they are to work upon’ (1).

Two further drawings which do include foundations show the stop gates moved to the upper end of the lower chamber, which then had the necessary extension to accommodate them. This arrangement required larger stop gates but allowed the upper chamber to be smaller giving less loss of water in normal operation when the river level was high enough to not need use of the lower chamber. These are presumably the drawings provided by Mylne in October 1795 when work on the lock was being considered (2).

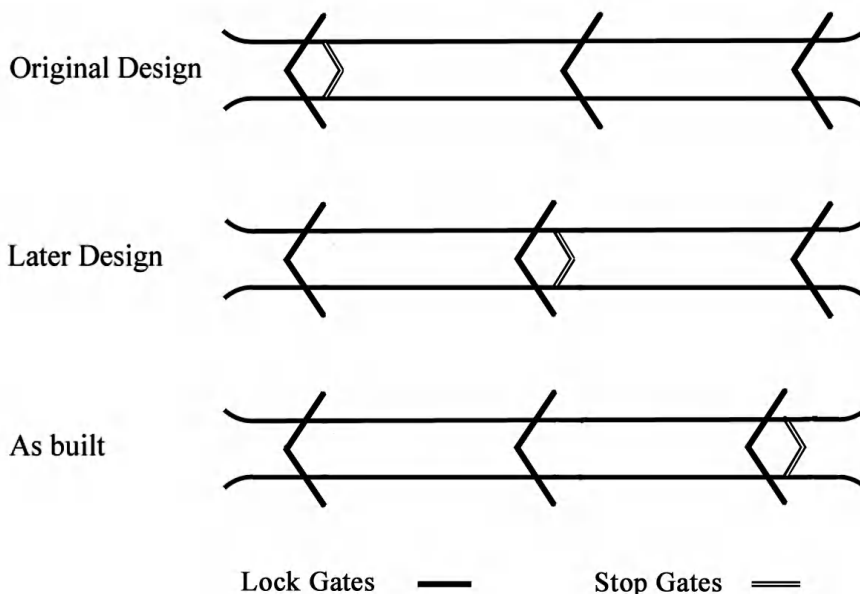


Fig 1. Designs for Gloucester Lock with stop gates in different positions.

In the event, the structure that was built had the stop gates on the river side of the lower gates (as shown on a map dated 1810 (3) and as they are now). This arrangement saved water in normal operation as neither chamber needed an extension to accommodate the stop gates, but it did give reduced flood protection as the stop gates were set at a lower level. It is not clear whether this change was made by Mylne or by resident engineer James Dadford, as no reference to it has been found in the Canal Company's minutes.

Lock Construction

Construction of the lock structure began towards the end of 1796 after resident engineer James Dadford arranged with Thomas Dunn to dig the earth out of part of the lock pit for 5d per cubic yard. At the same time, the Committee accepted a proposal from John Iddins for supplying timber and agreed a contract with carpenter James Wilkins for making the gates. Earlier contracts had provided for the provision of stone and brick-work for the whole project (4).

With work well underway in June 1897, Dadford expressed concern at the expense of including the beams, transoms and planking in the bottom of the locks as shown on Mylne's drawings. The Committee wrote to Mylne asking for his opinion, and when no reply was received in two weeks, they accepted Dadford's advice that the woodwork was not necessary and ordered him to complete the lock according to his discretion. Further changes authorised by the Committee included the use of bricks rather than clay stone for backing up the lock walls and increasing the depth of water in the head of the first lock by taking up the sheeting and lowering the cill. It was possibly at this stage that it was decided to move the stop gates to the river side of the lower gates (5).

While this work was going on, however, an exceptional spell of wet weather in September 1797 led to the lock and basin being flooded from the river, causing part of the basin wall to collapse. Perhaps concerned about having authorised the design changes without Mylne's agreement, the Committee immediately ordered that the original plans of the lock be carefully preserved in the office and a copy made for Mr Dadford. This is presumably why the drawings of the lock have survived while all others from the period have not. As expected, Mylne's subsequent report criticised the Committee for giving authority to Dadford to alter the plan of the lock, but a very long General Meeting of proprietors backed Dadford and resolved that Mr Mylne be no longer employed (6).

Lock Completion

While construction of the lock was being finished, work on the basin was also nearing completion, but digging of the ship canal had only proceeded as far south as Hardwicke, about five miles from Gloucester. By this time, most of the original share capital had been spent, and after an attempt to raise more was not successful, all work stopped in 1799 (7). Thus the basin and that part of the canal that had been completed were left full of water while the proprietors considered what to do next.

At that time, the river was much used by shallow draught sailing barges which discharged cargoes at the city Quay to the north of the lock. These cargoes included coal from Shropshire and a wide range of other goods from Bristol and towns up the river. However, as the river at Gloucester was then tidal, the barges either had to risk resting on the bottom as the tide went down or had to hold off from the Quay to remain afloat in what little water remained. To avoid these difficulties, some barge owners asked if they could start using the basin for a reasonable charge, but no agreement was reached and so the lock remained unused (8).

Lock Opening

Twelve years later, the matter came to a head again following the opening of a horse operated tramroad between Gloucester and Cheltenham in June 1811 (9). The tramroad initially ran to a wooden jetty on the river bank 250 yards south of the lock, but this was not adequate for the traffic that wanted to use it. With this additional stimulus, the Canal Company Committee agreed to open the basin to the public, and they arranged to clear the mud that had been allowed to accumulate in the lock due to the lower gates having been left open to the river (10).

Thus it was that on Monday 5 October 1812, a large crowd gathered to witness the first barge enter the lock. Those present most likely included members of the Canal Company Committee such as barrister and banker William Fendall, solicitor Robert Playdell Wilton, wine merchant David Arthur Saunders, pinmaker Charles Weaver and ironmonger John Tovey. Also present was John Wheeler, clerk to the Canal Company, who had made all the arrangements for the opening, but he was about to suffer a tragic loss (11).

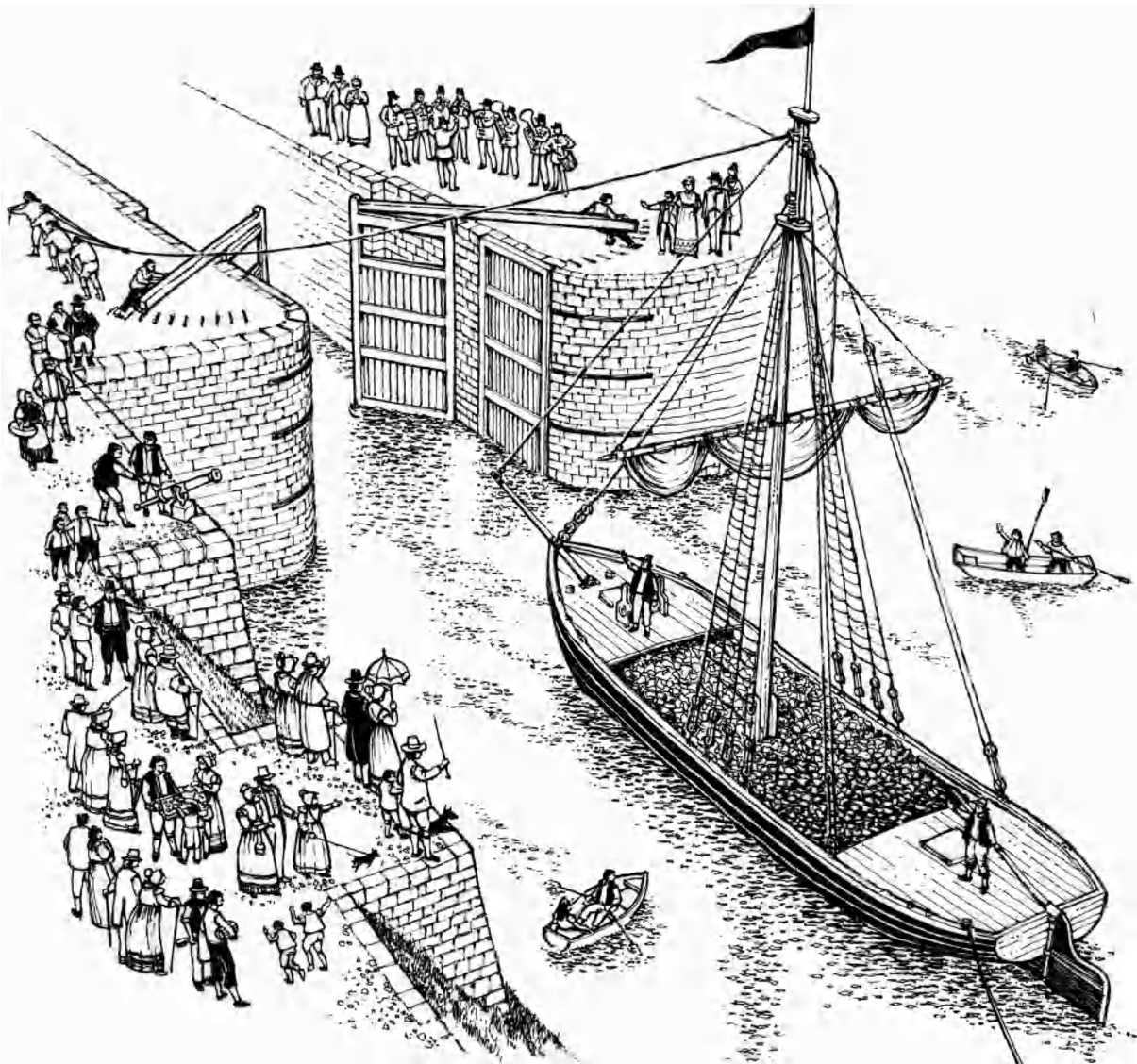


Fig 2. An impression by Philip Moss of the first barge entering Gloucester Lock in 1812.

As the barge laden with coal passed from the river into the basin, some young men thought they would help celebrate the event by firing three swivel guns – small cannons mounted on

swivelling stands. Wishing to cause a louder report than usual, one young man inconsiderately rammed down the charge very forcibly with wet wadding, and when the match was applied, the chamber burst and wounded three of the bystanders. Mr S Dowdeswell, a respectable farmer of Standish, died on the spot, leaving a young widow and three infant children. The youth who fired the fatal charge lived only until the following night, but his friend survived and later recovered. These two were described in the *Gloucester Journal* as 'sons of respectable individuals in this city' - without quoting names. However, a much later report gave the name of the youth who fired the fatal charge as Mr Wheeler. This was evidently William Wheeler, son of the Canal Company's clerk, who was buried at the Southgate St non-conformist chapel on 11 Oct 1812, age 20 (12).

Lock Usage

The basin was soon in regular use by trows and barges bringing coal from the Forest of Dean and the Midlands and timber and roadstone from further down the estuary. Much of the coal was loaded on to tramroad wagons to be taken to Cheltenham, as this route competed successfully with the earlier supply route using the Coombe Hill Canal. Tolls were collected by lock keeper John Jones, who had worked for the Canal Company in other capacities for over fifteen years (13).

Usage of the lock showed up a few problems, and the job of sorting them out was given to John Upton who superseded Wheeler as clerk to the Canal Company in 1813 and also took on the job of engineer. He found that the lock emptied itself in two hours because the lower cill was merely embedded in mortar on the natural clay, and so he arranged for stout grooved piles to be well driven down in front of the cill. He also removed obstructions in the Severn which prevented vessels entering the lock at low water, he erected posts with chains along the east side of the lock to prevent accidents and he removed several pieces of stone which had been pushed into the lock, preventing the gates from being either opened or shut (14).

Meanwhile, usage of the basin by river barges continued to prosper, and this stimulated plans for restarting the digging of the ship canal which had been dormant for so many years. After the canal was completed to Sharpness in 1827, cargoes were discharged from sea-going ships in the basin at Gloucester, and the lock was much used by barges and canal boats carrying these goods onwards to the industrial towns in the Midlands.

From time to time, this traffic was interrupted when there was excess water in the river and the stop gates needed to be closed to protect the basin and canal from flooding. On most occasions, this procedure worked well, but there was much concern in May 1886 when the river level was rising at just the time the stop gates had been removed for maintenance. It was feared that the cellars of the dock warehouses and the low lying timber yards beside the canal would all be flooded. However, newly appointed engineer Frank Jones hurriedly inserted baulks of timber to prop the lower lock gates closed, even though they had never been intended to withstand any pressure from the river. He watched anxiously as the river rose to more than two feet above the basin level, putting a load on the props that he calculated to be 35 tons, but his emergency measures worked and the water was kept out (15).

Lock Deepening

In due course, competition from the railways stimulated various improvements to the river navigation, and one scheme in 1892 involved deepening the lock at Gloucester to cater for larger barges. This resulted in the bottom of the lower chamber being lowered by two feet and one third of the bottom of the upper chamber being lowered to the same level. There was no need to lower the whole of the upper chamber as the length of barges using the river was limited

by the size of the lock at Worcester.

The work was carried out by the Canal Company's own maintenance team, working in shifts around the clock. The plan was first to close the lock completely for about two weeks so that a dam could be constructed and the stop gates at the river end could be deepened. Then the remainder of the work was intended to be carried out behind the protection of the stop gates, which would be opened for six hours each day to allow traffic to move. This approach had to be abandoned, however, when difficulties were experienced in making a watertight dam. Two rows of piles had been driven into the river bed with clay in between, but too much water seeped through the earth under the dam and a second dam had to be built closer to the lock chamber. While this was going on, the stop gates were kept closed to allow work on the lock itself to go ahead. Here it was found that the stone invert and the timber gate cills had been well made and they took longer to remove than expected, so that the whole operation lasted just over a month. During this period, traffic wanting to pass to or from the river had to go round by the Stroudwater Canal entrance at Framilode (16).

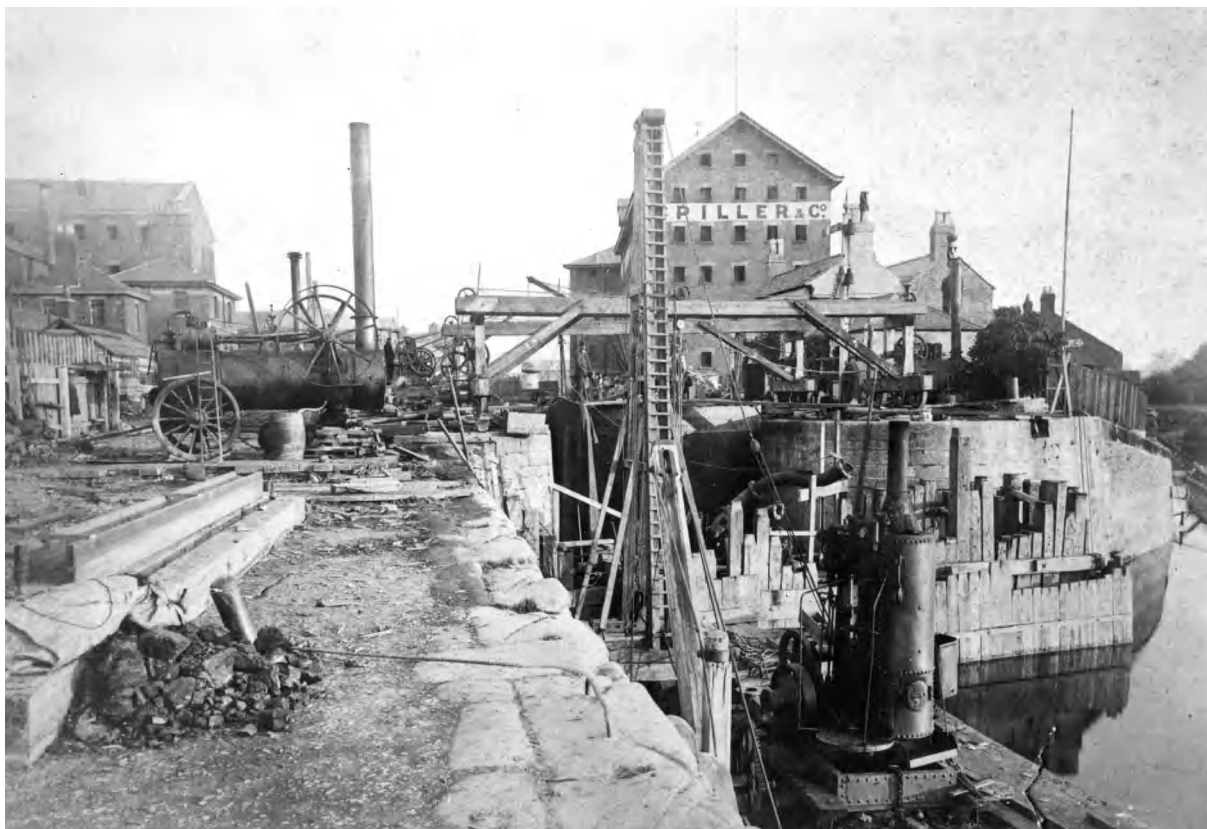


Fig. 3. Installing the coffer dam to allow men to work on deepening Gloucester Lock in 1892.

Twentieth Century

The scheme for deepening the lock included the provision of new intermediate gates so that only one chamber needed to be used for a small barge, with a consequent saving of water, but it is not clear how often this procedure was implemented. It became more usual to fill the whole lock with vessels due to be towed up the river by a tug or with those that had been towed down the river. In due course the intermediate gates were removed, but the recesses for them can still be seen. The change in lock-side level indicative of the original staircase arrangement can also be seen, although it is partly obscured by changes associated with the installation of a lifting bridge in the 1960s. Hydraulic equipment was also installed then to operate the lock gates and

paddle gear which had previously been worked manually. At that time, the lock was much used by dry cargo and petroleum tanker barges, but this traffic soon declined rapidly, and it is really the subsequent increase in pleasure traffic that has benefited from the improved means of operation.



Fig. 4 Gloucester Lock looking north in 2005

References

- (1) Gloucestershire Archives D2460/3/2/6/1; TNA RAIL829/3 p115-122.
- (2) Waterways Archive BW155/3/5/1 & 2; TNA RAIL829/3 p304.
- (3) Glos Arch Q/RUM 44.
- (4) TNA RAIL829/3 p404, 829/4 p9.
- (5) TNA RAIL829/4 p86, p93, p101.
- (6) Gloucester Journal 2 Oct 1797; TNA RAIL829/4 p117, 829/1 p160-174.
- (7) TNA RAIL829/1 p180-87.
- (8) TNA RAIL829/4 p201, 204.
- (9) Bick, David, *The Gloucester & Cheltenham Tramroad*, The Oakwood Press, Headington, second edition, 1987.
- (10) TNA RAIL829/4 p380, 382.
- (11) Glo Jnl 12 Oct 1812; TNA RAIL 829/4.
- (12) Glo Jnl 12 Oct 1812; Glos Chron 1 Sep 1900; GFHS Burial Index.
- (13) TNA RAIL829/4 p397.
- (14) TNA RAIL829/4 p406-11, p427, p433.
- (15) Glos Chron 22 May 1886 p6c1; Glos Arch D2460/4/6/5/4.
- (16) TNA RAIL864/4, 864/46.