

**Lock No.1,
Stratford upon Avon Canal,
King's Norton
Birmingham:**

**An Archaeological Assessment
2004**

Project No. 1166
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No.1 Lock, Stratford upon Avon Canal, Kings Norton, Birmingham:

An Archaeological Assessment 2004

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Lock No.1, Stratford upon Avon Canal, King's Norton, Birmingham

An Archaeological Desk-Based Assessment 2004

Summary

In March 2004 Birmingham Archaeology undertook a desk-based assessment of Lock No.1 on the Stratford upon Avon Canal, King's Norton, Birmingham (NGR SP 055794), a scheduled ancient monument and Grade II listed building. The work was commissioned by Groundwork Birmingham and was carried out in order to provide a greater understanding of the monument in advance of preparing interpretation of the site, a schedule of remedial works and an application for scheduled monument consent for those works. Lock No.1 was a stop lock between the Stratford upon Avon Canal of 1793-6 and the Worcester and Birmingham Canal, and was provided with guillotine gates. Guillotine lock gates are exceedingly rare on the waterways of Great Britain, and this particular cast-iron design is probably unique. The existing structures are likely to be 19th century in date though it is not impossible that they incorporate late 18th-century elements. There were three buildings associated with the lock, all of which have been demolished. On the north bank were the lock keeper's house and a putative stable. Fragments of the latter survive above ground, but the house and another, smaller building on the south bank, have disappeared without trace.

1.0 Introduction

In March 2004 Birmingham Archaeology undertook a desk-based assessment of Lock No.1 on the Stratford upon Avon Canal, Birmingham. The impetus for this project was a proposal to carry out remedial works on the Grade II listed locks, which are scheduled as an ancient monument. The archaeological assessment is intended to provide a greater understanding of the site in order to inform interpretation of the site, the preparation of a schedule for the remedial works, and an application for scheduled monument consent.

The work was carried out according to a written scheme of investigation prepared by Birmingham Archaeology (Hislop 2003), which was itself based on a brief issued by Birmingham City Council (Hodder 2004). Project staff adhered to the Code of Conduct, Standards, Guidelines and practices of the Institute of Field Archaeologists.

1. Site Location (Figs 1 and 2)

Lock No.1 is situated on the Stratford upon Avon Canal, beneath the Lifford Lane road bridge, at King's Norton, Birmingham (NGR SP 055794). The lock gates are situated one each side of the bridge.

2.0 Objectives

The objective of the assessment was to obtain a greater understanding of the locks, in particular their rarity and original form, and the extent to which the remains of the canalside cottages survive.

3.0 Methods

The assessment comprised a site inspection, and a search of published and unpublished records, including maps. This documentary research was carried out in Warwickshire County Record Office, Birmingham City Library Local Studies, and the University of Birmingham Library, and included consultation of British Waterways archives.

4.0 Historical Notes

The Act for the Stratford upon Avon Canal was passed in March 1793 and construction of the canal started in November of that year at King's Norton with Joseph Clowes (1736-1795) as engineer. The stretch between Kings Norton and Hockley Heath was completed in 1796, though Clowes himself died in February 1795 (Hadfield 1970, 179).

The Act of 1793 provided for a stop lock to be provided within 500 yards of the Worcester and Birmingham Canal in order to prevent the loss of water from either of the two canals, the waters of which were to be at the same level. The lock was to have four gates or pairs of gates, two of which were to open towards the Worcester and Birmingham Canal, and two towards the Stratford upon Avon Canal. It was also stipulated that in the event of this arrangement proving ineffectual in controlling the passage of water from one canal to the other, then some "other Device, Works or Machinery" was to be "constructed, made and erected".

The lock was to be under the joint management of both companies, each to appoint a lock keeper, unless they agreed between them to employ only a single lock keeper, in which case he would be paid for by the Stratford company which was to erect a house or houses "contiguous to the lock".

The tithe map of 1840 (Fig. 3) shows the position of the eastern lock but not that of the western one. On the north bank of the canal, immediately west of the bridge, were two buildings, the larger, eastern, one apparently abutting the bridge. The arrangement is shown more clearly on the 1904 Ordnance Survey map (Fig. 4). Both locks and buildings are clearly visible, and a third building had appeared on the south bank to the east of the bridge. The same arrangement prevailed in 1916, but by 1936 the structure to the south of the canal had been demolished. The two structures on the northern bank of the canal were demolished in the early 1970s (<http://www.canalsguide.co.uk/nsuac/nscstep14.html>).

There is now little trace of any of the three buildings. The one immediately west of the bridge appears in a photograph of the 1920s (Ware 1979, Plate 26, reproduced here as Plate 1), which depicts a two-storey house, probably early 19th century in date, the windows with lintels grooved as voussoirs and raised keystones. The building to the west of it, fragments of which are still visible (see below) is believed, to have been a stable; a photograph taken in 1959 (Cashell 1997, 105, reproduced here as Plate 2) shows the west gable end of a single-storey building with a segmental-arched window.

5.0 Descriptive Notes

The Lock

Lock No.1 is situated underneath the bridge carrying Lifford Lane over the canal. The gates are situated one each side of the bridge (Plates 3-5). Each of the lock gates is associated with a pair of brick abutments, one each side of the canal, largely rebuilt in the later 19th/20th century, against each of which a cast iron stanchion has been set at a raking angle.

The stanchions each comprise two lengths of iron, bolted together to give a double thickness, between which the wooden gates ran in the manner of a portcullis (Plate 6). The bolts were keyed-holed at the outer end, and tightly secured with iron wedges (Plate 7), in a manner reminiscent of a carpentry technique, for example a keyed tusk tenon (Brunskill 1994, 143, d155). The west lock best preserves the original arrangement, one of the stanchions of the east lock having lost its outer half, and the other having been modified by the addition of a reinforcement (Plate 8).

The tops of the stanchions are connected by paired segmental-arched beams between which two pulleys are housed. Situated on the southern abutment of each lock is a cylindrical iron column supporting the counterbalance mechanism. In each case the gate was lowered and raised by a chain, one end of which was attached to the gate, and the other to a winch (Plate 9). Between these two points the chain was routed round the northern of the two pulleys at the head of the structure. A second chain, also fixed to the gate, was routed round the southern pulley, terminating in the counter balance weight. The weights, if they still exist, are no longer visible as their chains now disappear within the abutments, the tops of which are covered by a steel sheet.

The lock walls are a mixture of brick, stone and, at the entrances to the lock, long iron plates (Plate 10).

Associated Buildings

On the north side of the canal, west of the bridge, is a wall, probably late 18th or early 19th century in date, approximately 5m long x 1.7m high (Plate 11). It is constructed of 9" x 4" x 2½" red bricks, some with parallel skintling marks, laid in Flemish bond. At the west end there was a return to the south, now gone. *Circa* 4m to the south, on the edge of a rise in the ground level from the towpath, is a short exposed stretch of brick foundations, seemingly the corresponding south wall of the building (Plate 12). These remains seem to correspond with the position of the 'stable'. No other above ground remains of lock buildings are visible, though the foundations of the other two structures known from map evidence are likely to survive.

6.0 Discussion

Guillotine lock gates are comparatively unusual along the canals of Great Britain, swing gates being the more widely used design. They had some popularity in East Anglia but

were also occasionally used in canals outside the eastern region. Now, however, they are exceedingly rare and the only guillotine gates still in operation today are at Salterhebble on the Calder and Hebble Navigation (Plate 13) and at Lincoln on the Witham Navigation (<http://canalcraft.co.uk/ccweb/docs/guide/journey.htm>).

In the West Midlands, one navigation on which guillotine gates were common was the Shrewsbury Canal of 1791-7. The system was described in 1797 by the Shrewsbury Canal Engineer, Thomas Telford who wrote that "the locks are so formed as to admit of either one, three or four boats passing at a time, without the loss of any more water than what is just necessary... This is accomplished by having gates that are drawn up and let down perpendicularly ... and each lock has three gates, one of which divides the body of the lock". Rather mysteriously, however, this description is not borne out by the present-day structures, which have swing gates at the upper ends and guillotine gates only at the lower ends, with no trace of there having been intervening gates. (Hadfield 1970, 160-1).

A link between the Shrewsbury and Stratford canals is that Josiah Clowes was the original engineer for both navigations until his death early in 1795. It is unknown, however, whether it was Clowes who was responsible for the design of the guillotine lock gates on either canal. The original design of the Shrewsbury Canal lock gates incorporated a counterbalance of chains leading over wheels above the gate to a centre weight falling outside, an arrangement that survives at Hadley Park Lock, Telford (Plate 14). This is a rather different system from the one employed at King's Norton, whereby the counterbalance was to the side of the lock, however, the mechanism of most of the Shrewsbury Canal gates was later altered (from 1840) so that an iron weight sank in a well at the side of the lock, a similar principle to that employed at King's Norton (Hadfield 1970, 160-1).

Regarding the date of the King's Norton lock gates, the 'four gates or pairs of gates', provided for in the Act of 1793, suggests that the character of No.1 Lock represents a modification to the original design, and that originally, swing gates were envisaged. We do not know why the proposed arrangement was altered but it seems clear that the guillotine locks represent another "Device, Works or Machinery" that the Act stipulated should be built in the event of the proposed system proving ineffective. Although the tithe map only shows the position of the eastern gate, we cannot suppose that only one existed, because a single gate could not have fulfilled the function of a stop lock, which was to circumscribe the flow of water from one canal to the other.

In view of the evidence of the Shrewsbury Canal, it is possible that the guillotine gate system was adopted from the inception of the Stratford Canal. Whether or not it was the first system to be employed at King's Norton, however, it is probable that the current structures are 19th century in date, though it is not impossible that they retain late 18th-century elements (the stanchions for example). A detailed archaeological survey should be able to elucidate the phasing. Notwithstanding their original date, and the degree of alteration to which they might have been subjected, the guillotine locks at King's Norton are an extremely rare if not unique survival of this particular kind of mechanism.

7.0 Acknowledgements

The site assessment was undertaken by Malcolm Hislop and the documentary research by Malcolm Hislop and Kristina Kracowic. Malcolm Hislop wrote the report. The illustrations were prepared by Nigel Dodds. Thanks are owed to the staff of the Warwickshire Records Office and Birmingham City Library Local Studies for their assistance.

8.0 Sources

9.1 Original Sources

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9.3 Cartographic Sources

1840 Kings Norton Tithe map

1904 OS 1:2500

1916 OS 1:2500

1936 OS 1:2500

9.4 Internet Sources

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<http://www.johntodd.freemove.co.uk/originals/locks/locks.htm>

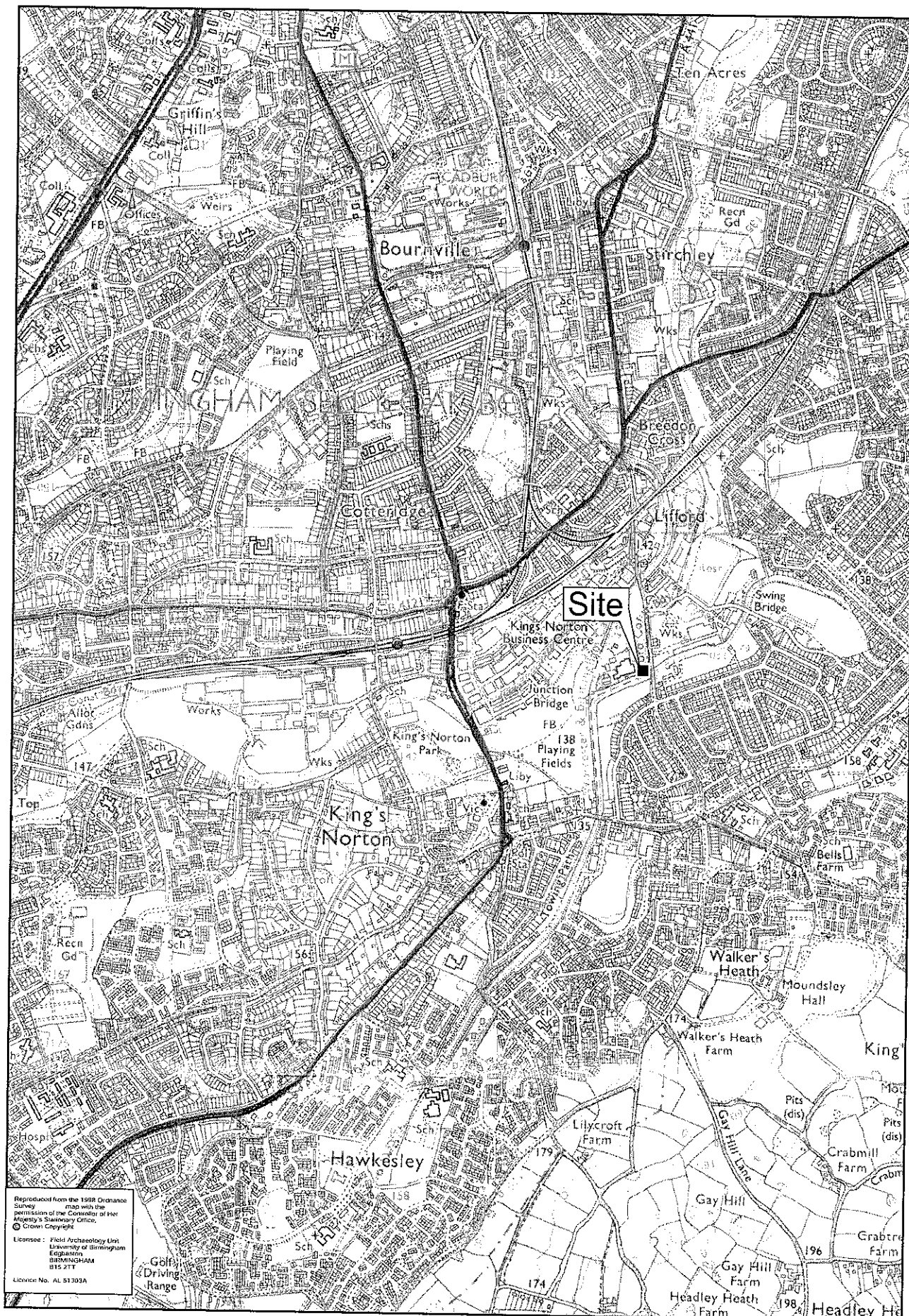


Fig.1

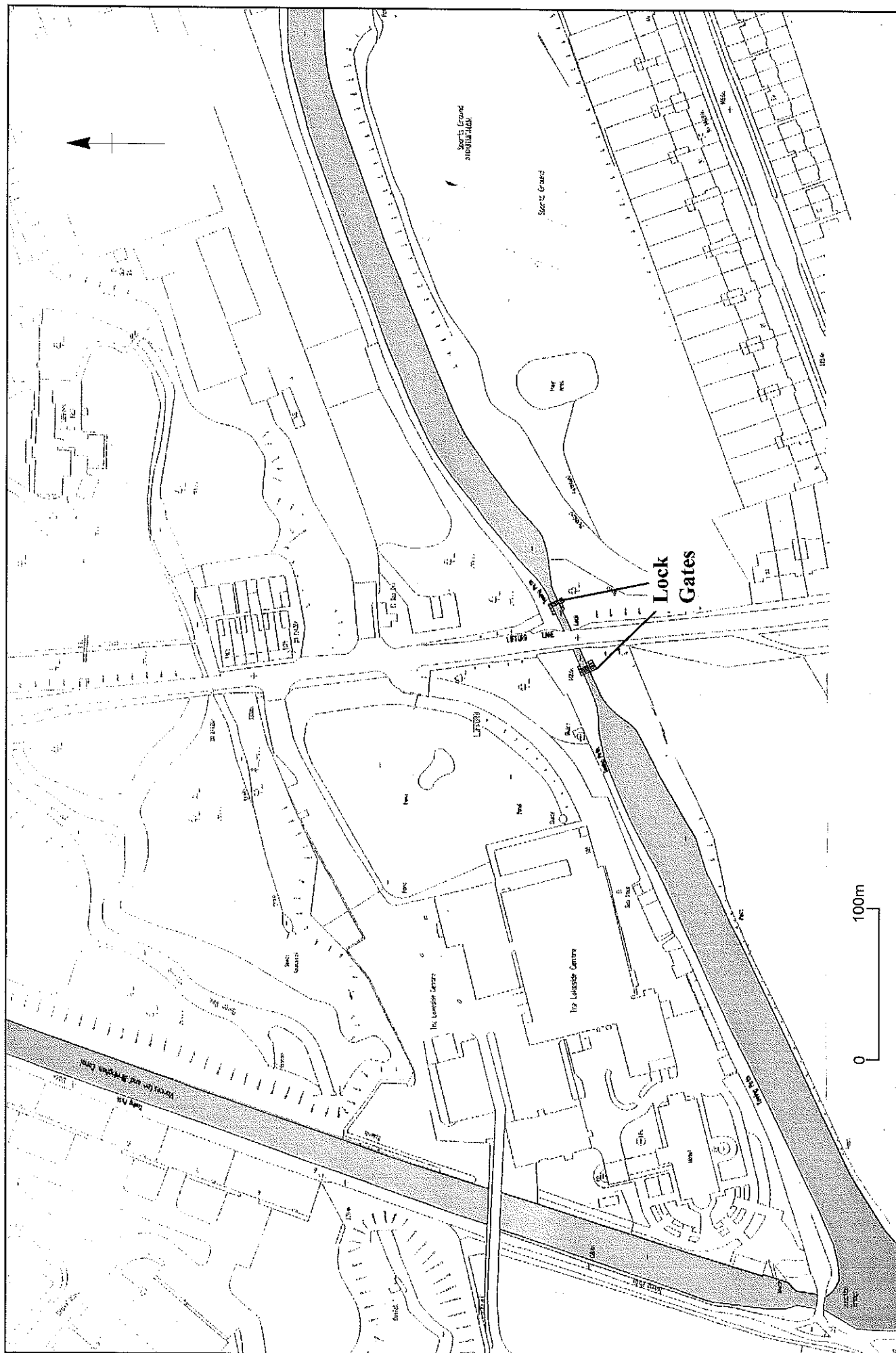


Fig.2

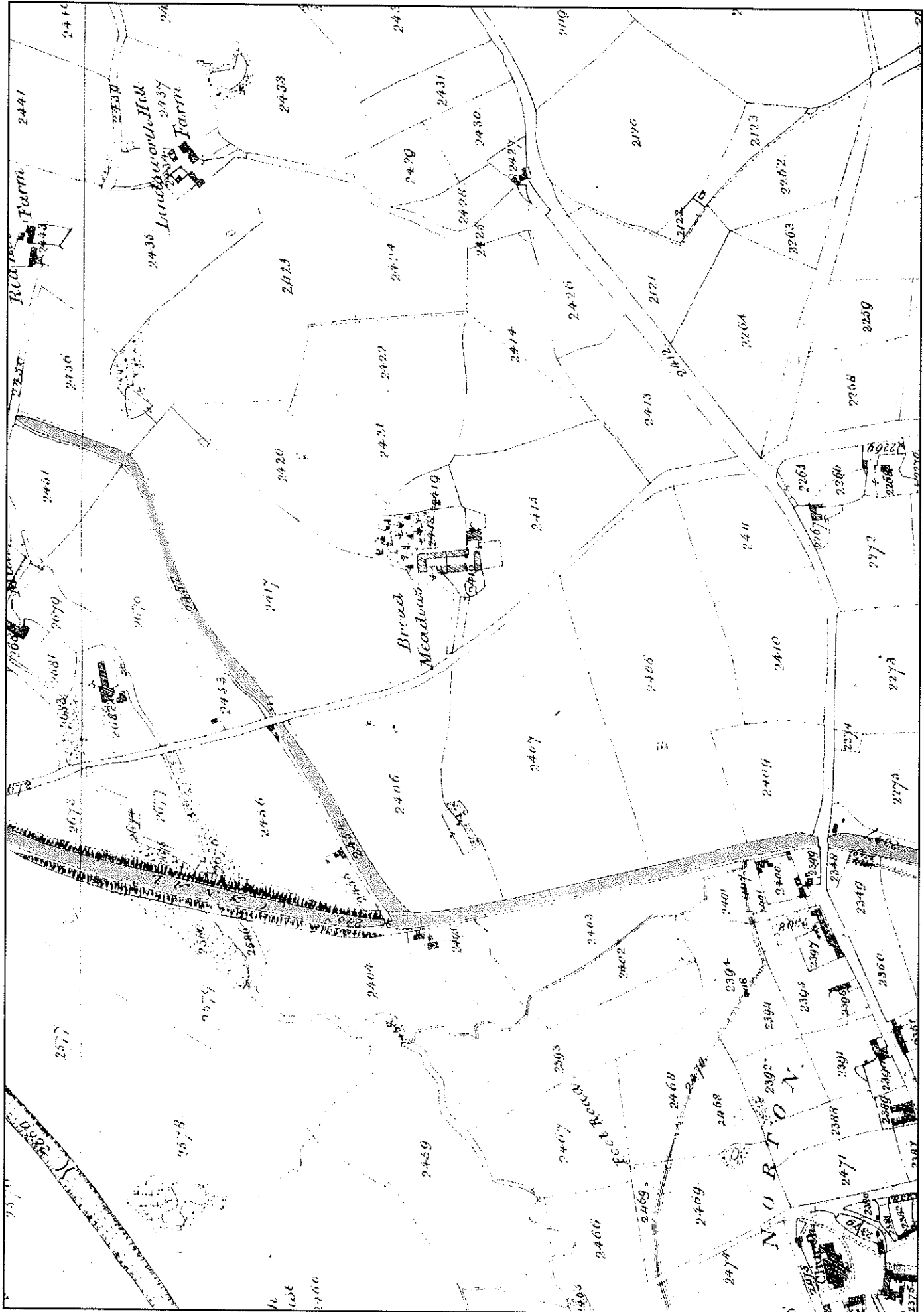


Fig.3 (1840)

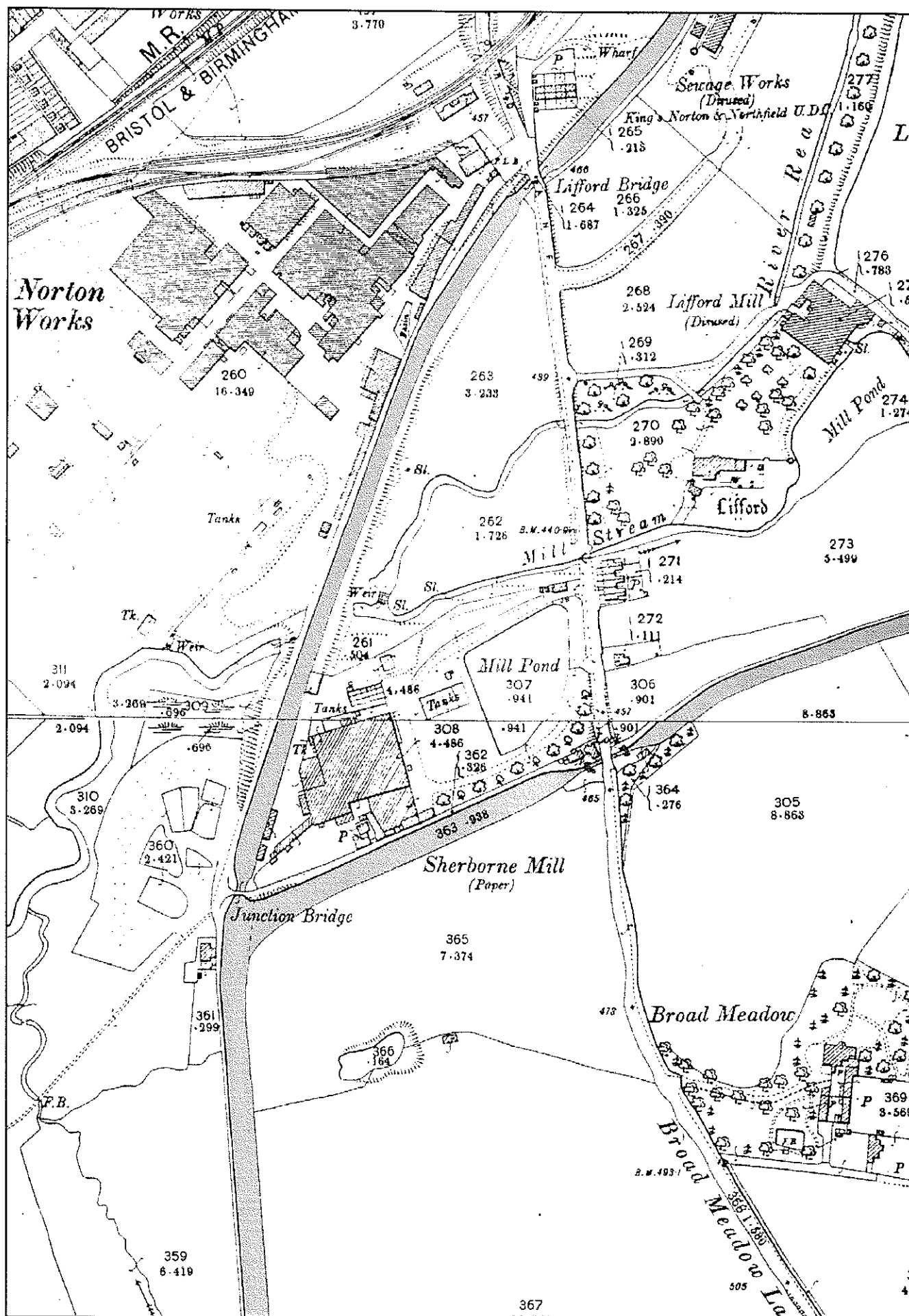


Fig.4 (1904)

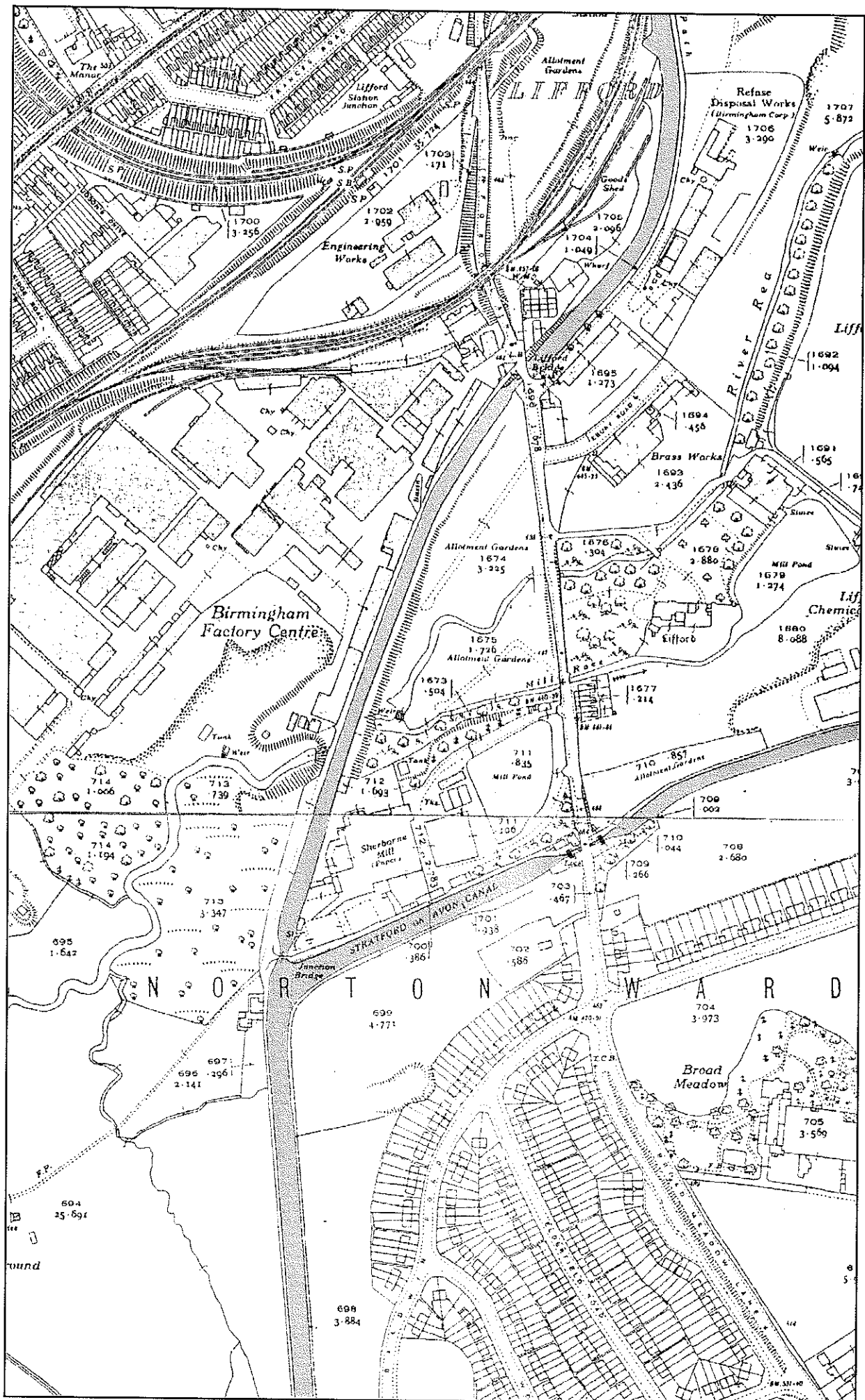


Fig.5 (1956)

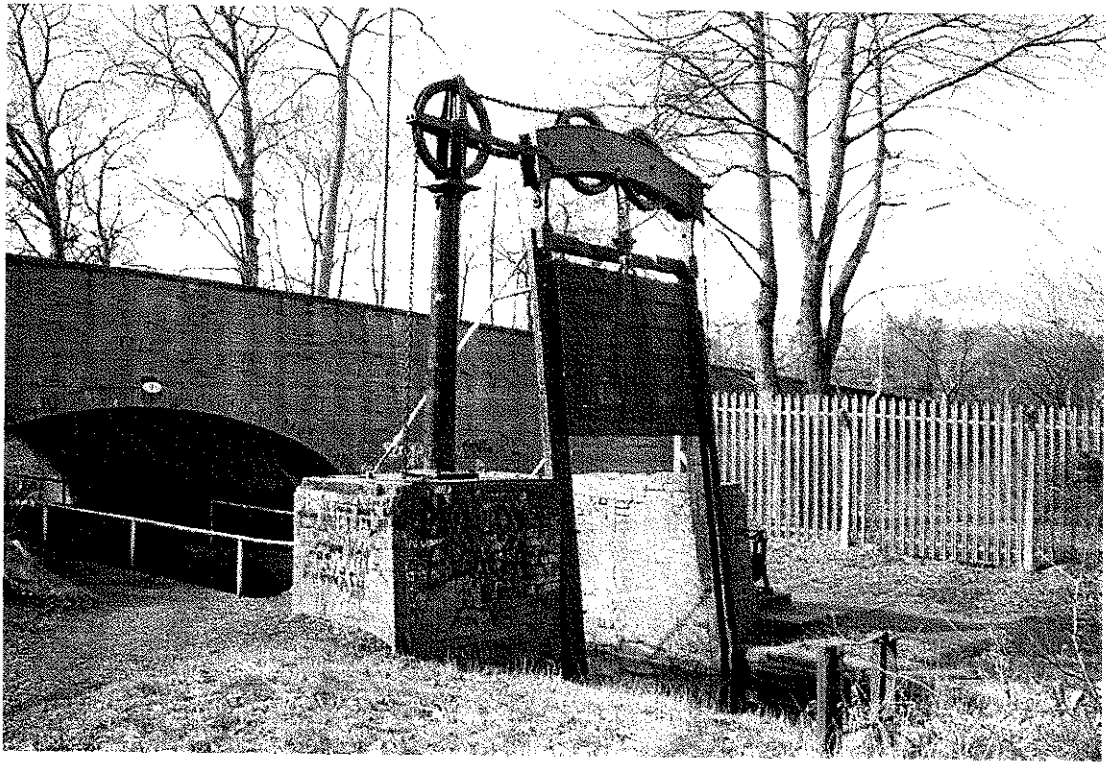


Plate 3

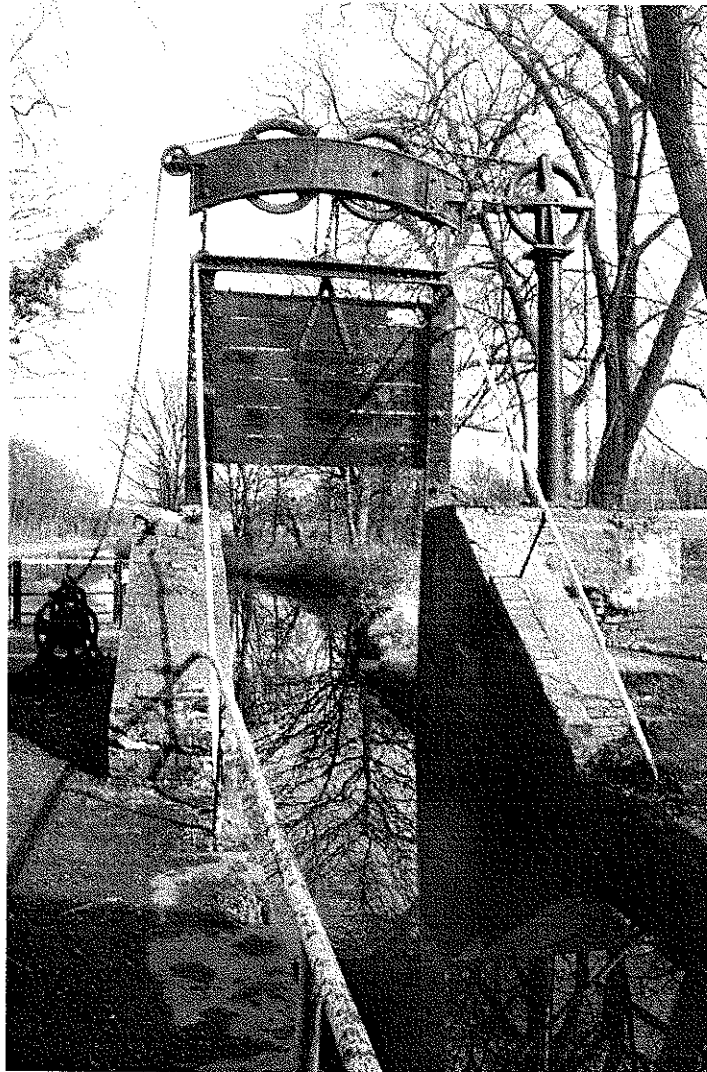


Plate 4

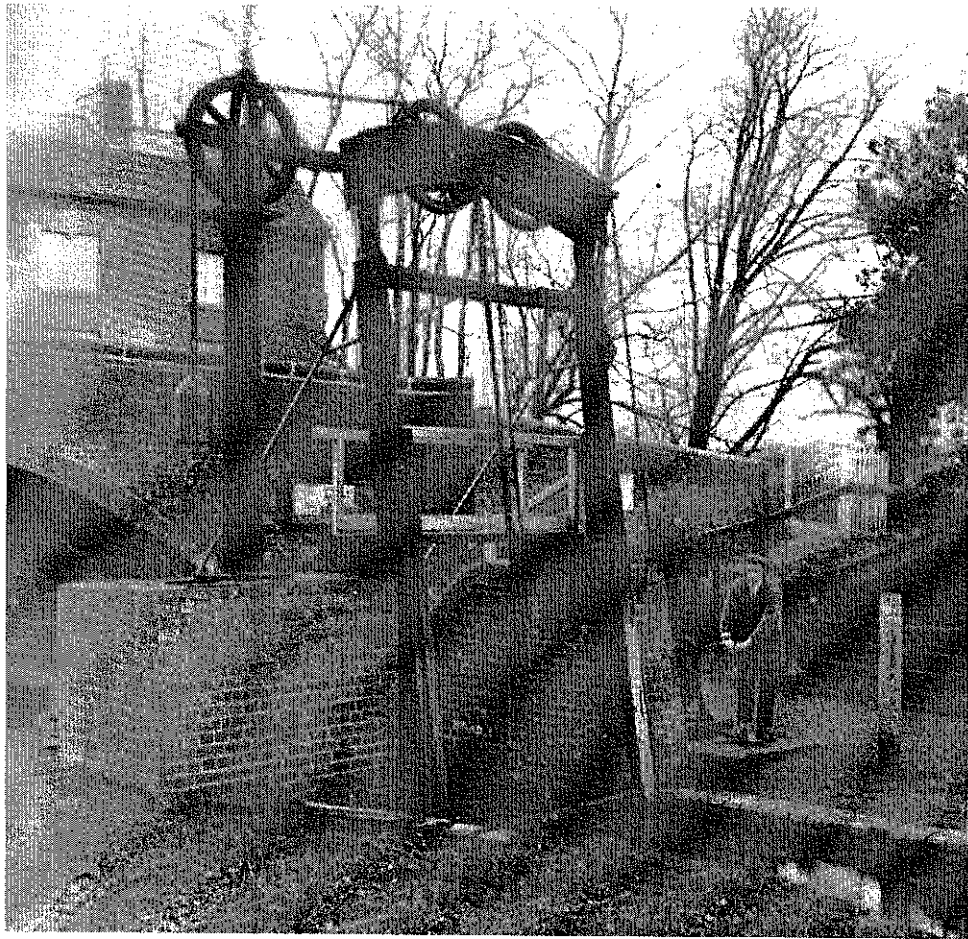


Plate 1

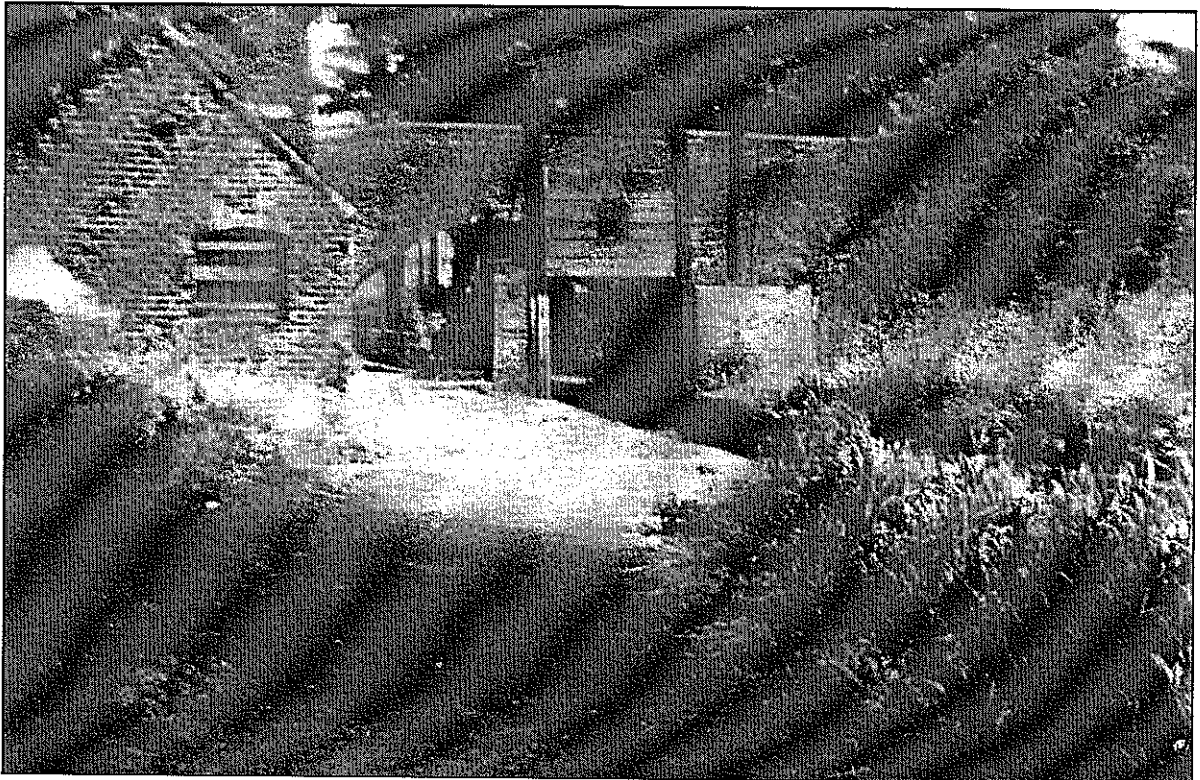


Plate 2

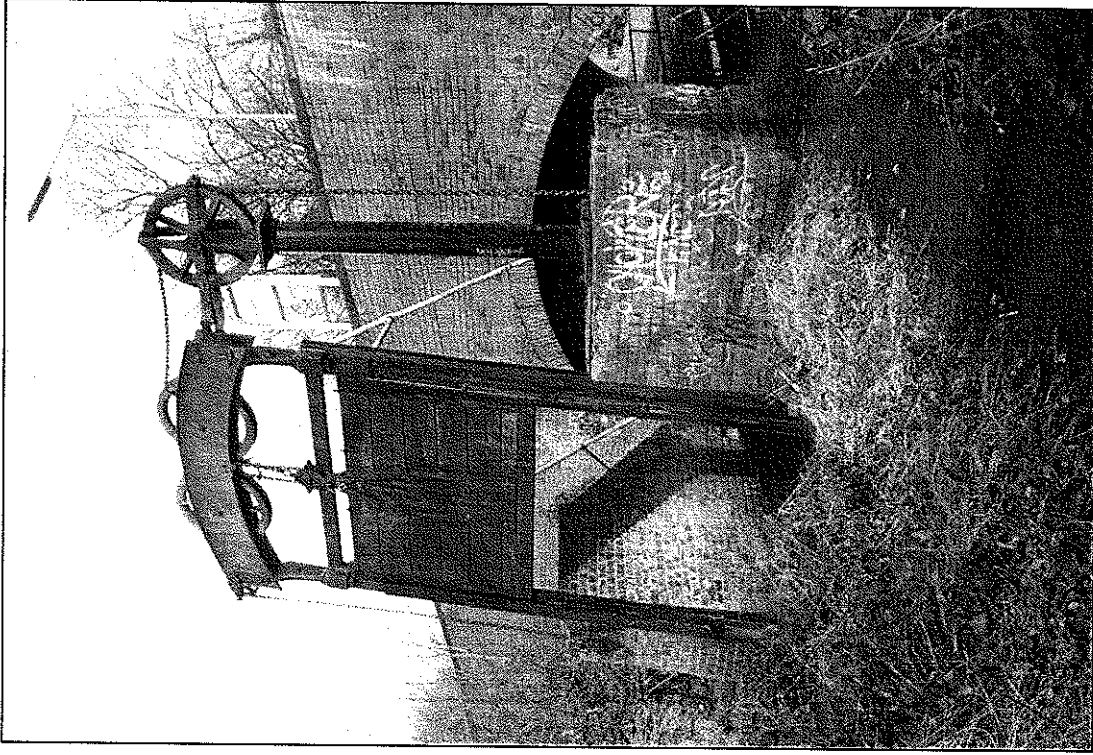


Plate 5

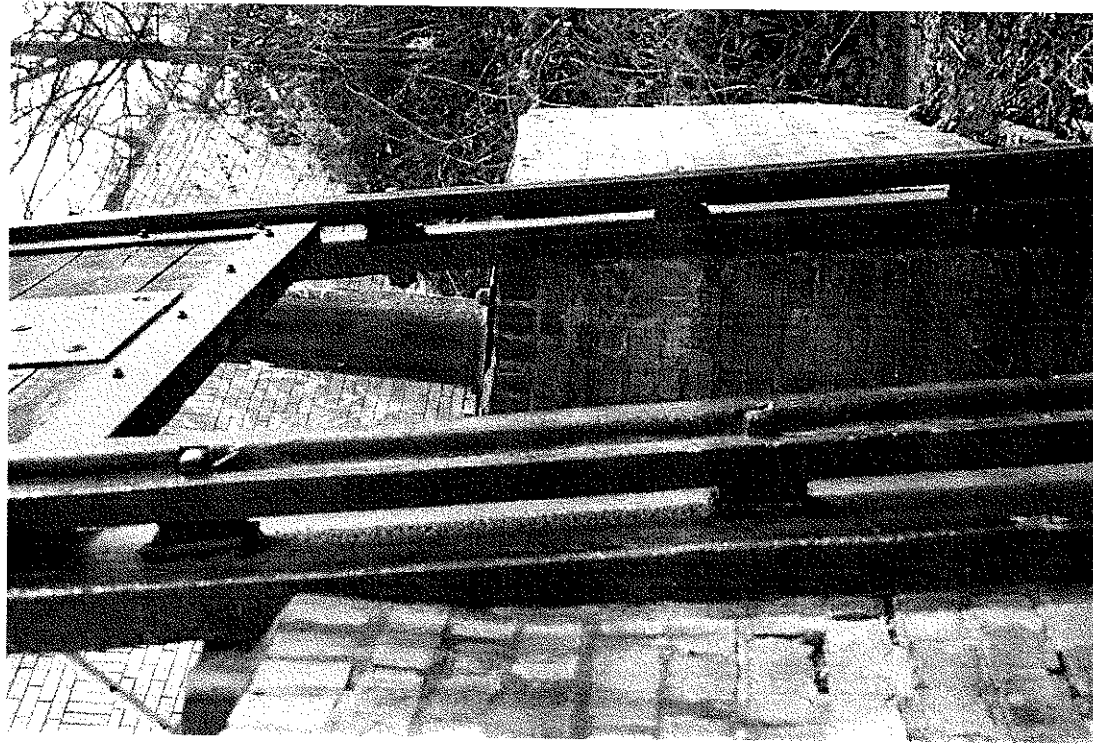


Plate 6

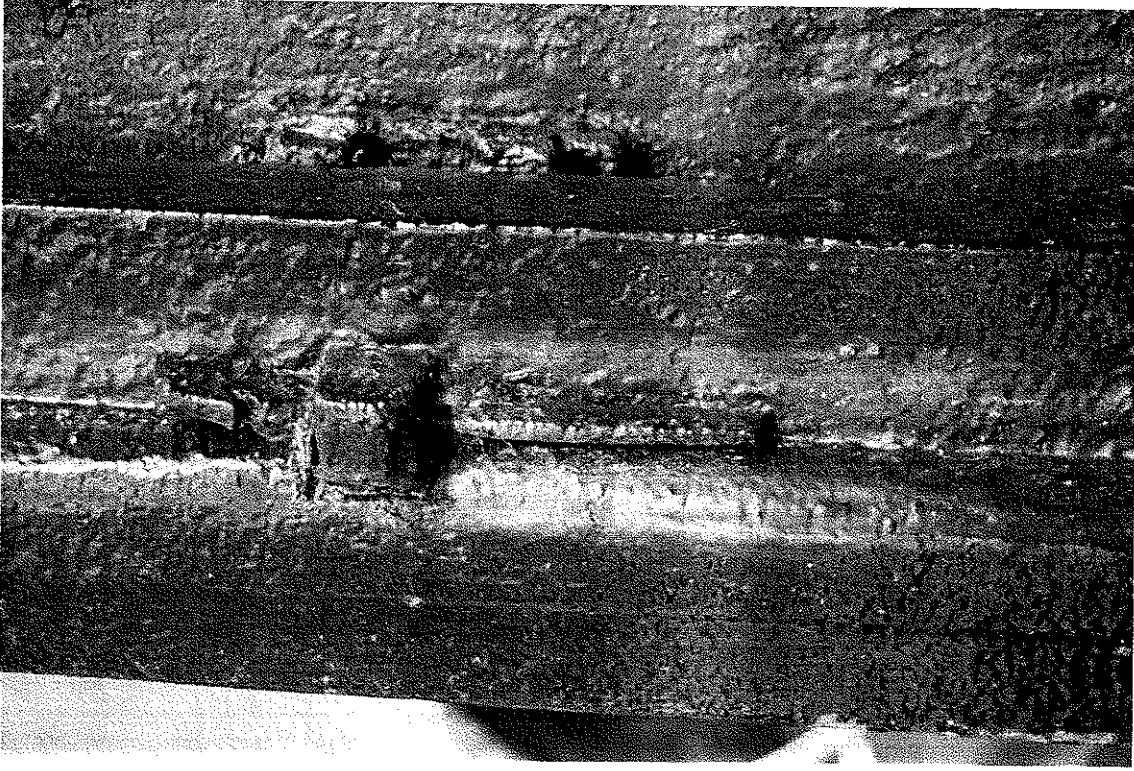


Plate 7

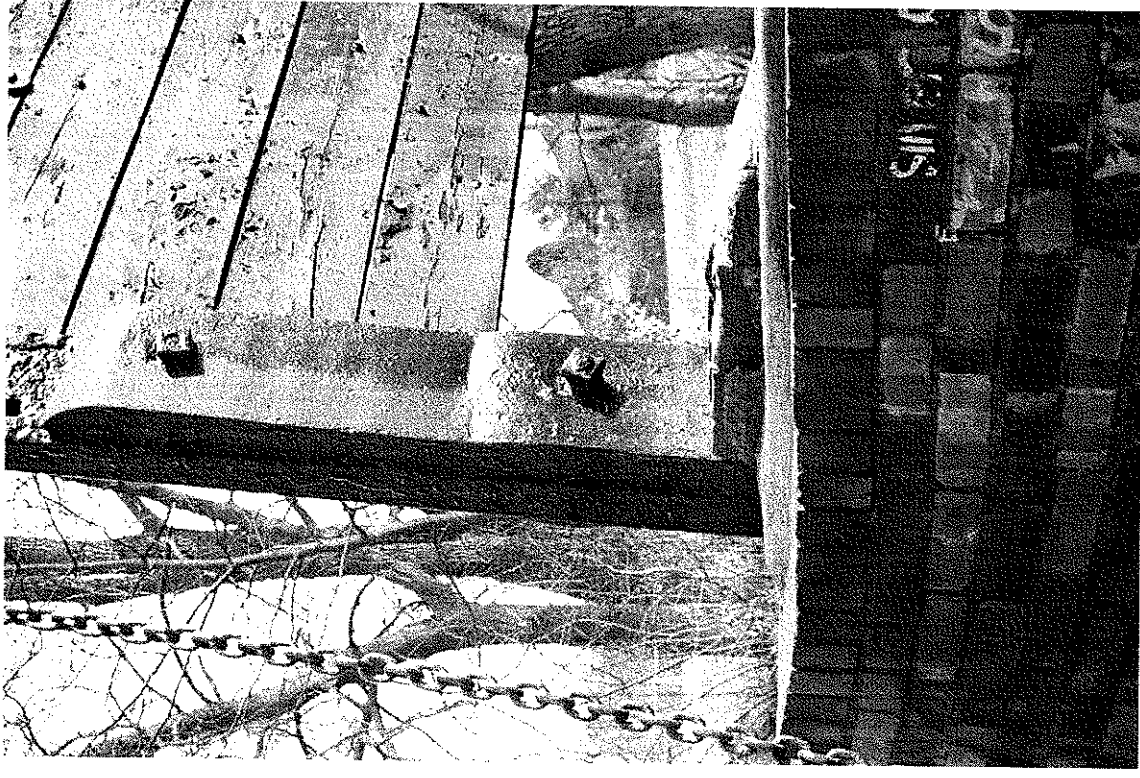


Plate 8



Plate 9



Plate 10

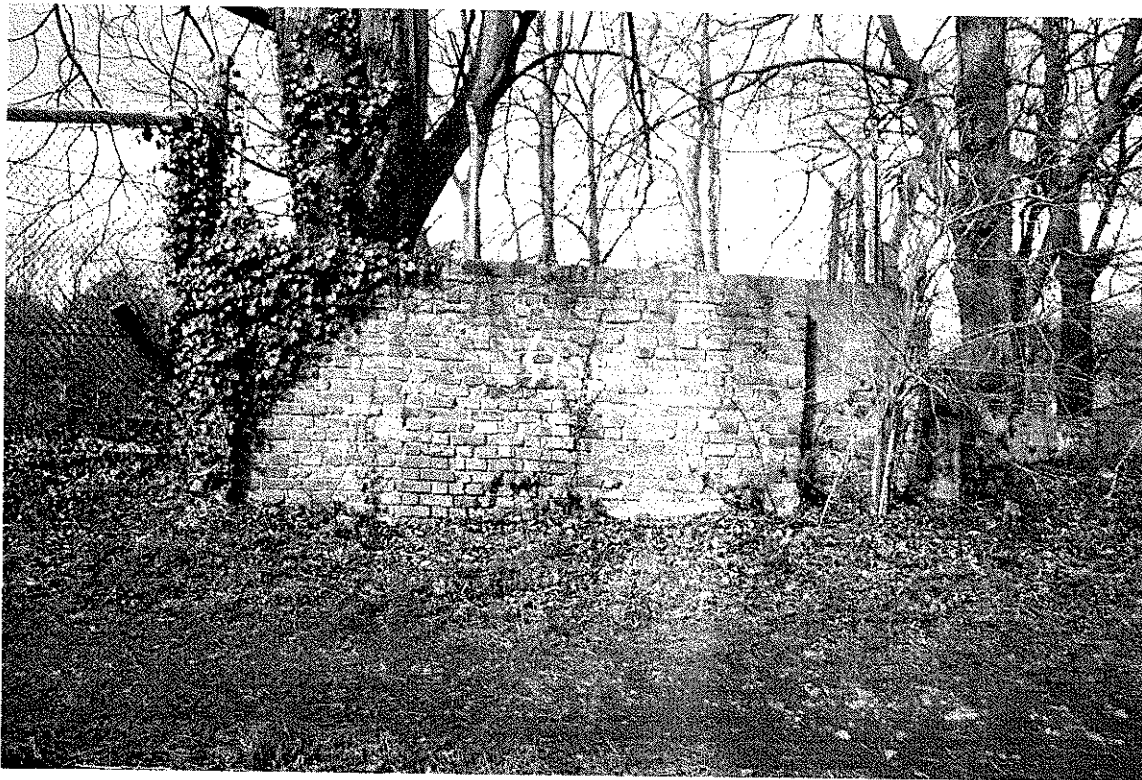


Plate 11



Plate 12

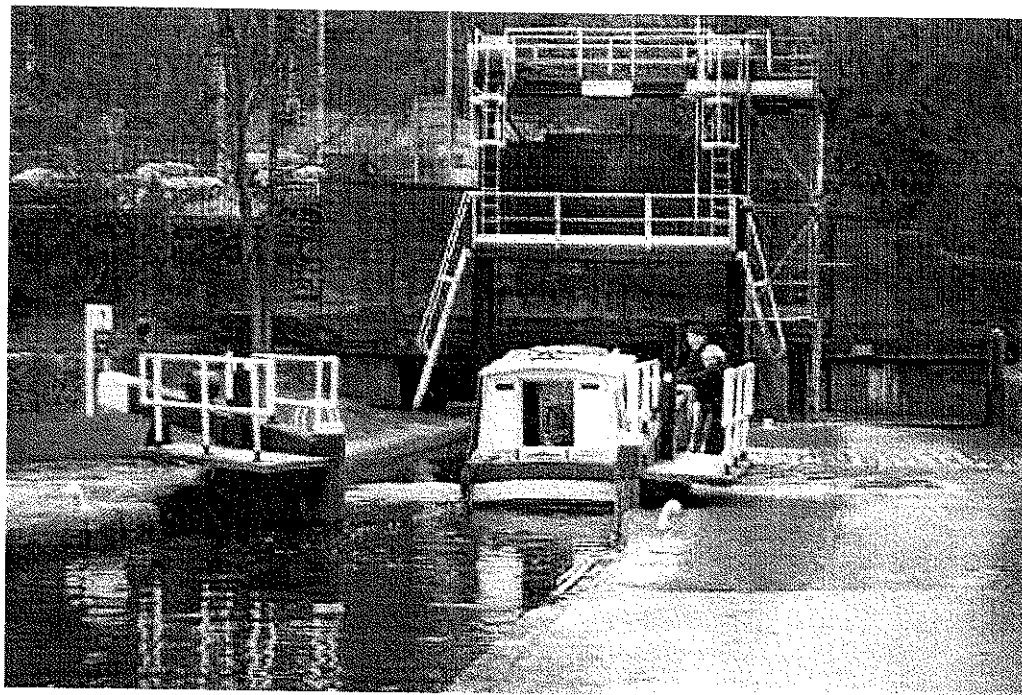


Plate 13



Plate 14