ARCHAEOLOGICAL RECORDING
OF A WALL STRUCTURE AT
PAPPLEWICK LANE, PAPPLEWICK,
NOTTINGHAMSHIRE, 2009-11
SUMMARY

• In early 2009 Trent & Peak Archaeology (TPA) was commissioned by the Friends of Moor Pond Woods (FMPW) to record and survey a length of walling uncovered in woodland close to Moor Pond and on the north side of Papplewick Lane in the parish of Papplewick, Nottinghamshire. It was believed to relate to the water management system that once served a series of cotton mills that were set alongside the River Leen by George Robinson in the late 18th century.

• Coursed stonework was initially found amongst trees during the clearance of dense undergrowth on an earthen bank rising from about 2-3m back from the pavement. Excavation by FMPW and Leen Valley Conservation Volunteers subsequently uncovered over 13m of wall, revealing the full depth of the feature, the batter or slope of its face, the presence of footings, an overall curving plan and the greater height of remaining rubble corework behind the wall. The wall included a narrow opening that ran back under the corework at least 1.5m. Whilst the west end of the wall was located, the east end still remains covered.

• Within the opening and extending out beyond the wall there were revealed two lines of iron nails and several long rods, similar to those previously recorded at Papplewick. These were interpreted as support fixtures at the base of timber-built troughs or launders that facilitated the movement of water.

• The launder’s base level corresponded with the top of what remained of an 18th century brick arch, set on a stone foundation and with an internal width of 4 feet (1.2m). The brickwork had clearly not extended beyond the front of the opening. Below the arch there was evidence for an earlier lower and narrower launder that the arch may have partly protected. The arch had been reduced and the opening narrowed to contain the later 3 feet (0.9m) wide launder set at a higher level.

• Behind the back of the wall there is an oval-shaped brick-lined shaft situated along the path of a brick-lined drain running SW from the former reservoir Moor Pond. The drain was uncovered running under the south-west corner of the wall structure and it was just possible to ascertain its internal width and likely height.

• The wall structure supported a bank behind which there was a north-south running leat that ran from north of Moor Pond. Whether there was a similar walled feature on the south side of Papplewick Lane is unknown as the corresponding raised bank here has been cut back by road widening and quarrying. The leat north of the wall appears to terminate 7m behind the front of the wall. This and the relatively low height of the wall and bank probably mean that water was never carried over it by viaduct. Water flow between the two leats and across Papplewick Lane was probably assisted by gravity flow alone.

• The drain running from Moor Pond crossed the path of both launders at a lower level, but only just below the base of the lower launder. It is possible that the drain pre-existed the leat, wall and the launders, and that the lower launder had to be replaced by one at higher level due to pressure on the top of the drain. A suggested phasing scheme by the author dates Moor Pond (and its inlets and outlets) to the early 1780s, whilst the walling on Papplewick Lane and the raised banks and leats to the north and south may relate to the building of the expansion of Grange Mill several years later.
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1. INTRODUCTION

In late 2009 Trent & Peak Archaeology (TPA) - now part of York Archaeological Trust - was commissioned by the Friends of Moor Pond Woods to record and survey stonework then being uncovered close to the south-west corner of Moor Pond and in a position set back from the north side of Papplewick Lane, Papplewick, Nottinghamshire (Figures 1, 2). Much of this stonework was uncovered between September-December 2009 and in early spring 2010 by members of Friends of Moor Pond Woods and the Leen Valley Conservation Volunteers. It was found to feature facing stones and corework of a south-facing wall running for at least 20m in length.

The author attended the site on 10 occasions between September 2009 and July 2011 and TPA also carried out a measured survey of the wall structure by EDM in April 2010. The wall was consolidated and partly rebuilt in 2011 by conservation builder Phil Turton and can now be viewed by passers-by on Papplewick Lane.

2. HISTORICAL AND PROJECT BACKGROUND

The Moor Pond Woods Project is a Local Heritage Initiative (LHI) grant-aided scheme, set up as a millennium project by Papplewick Parish Council in 1999. Its aim has been to enhance the largely wooded area between the west side of the village and the River Leen for local recreational use, for nature conservation and also as an educational resource as it contains relict features dating from the Industrial Revolution. These include earthworks of leats, silted-up former millponds and sluices, all of which form parts of a complex water management system designed to power a series of cotton mills built by George Robinson alongside the Leen in the late 18th century (Greatrex 1986). Robinson was first attracted to the area by the Leen’s soft pure water being especially suitable for bleaching, initially for linen. He went on to build six cotton mills between 1778-94, together with a sophisticated water supply system to ensure sufficient power could be derived from a relatively modest river. The system of millponds and leats may have developed in stages as more mills were built and as concerns over water supply grew.

Papplewick is recorded as having two water mills and a mill dam in 1540 (Walker 1970, 231) and a good case can be made for the latter having been above Wark Mill, part of which still remains today to the north of Papplewick Lane (SK 547 505). The area of the former Walk Mill Pond still shows in the fields to the north of this mill. In 1778 a new lease allowed Robinson ‘to make a Cut or Canal from the said Dam or River Leen to and for the use of a large building then erecting … intended to be used or employed as a Mill for spinning of Cotton, Silk, Flax or Wool. This new mill (which was later enlarged) was situated close to present-day Grange Farm, but now only its footings remain buried under grassland and gardens. Robinson’s second mill, Top Mill, was built, along with new ponds (Top Upper Dam and Upper Dam), close to the border with Linby. This building
was Robinson's smallest mill and being castellated was also known as Castle Mill. Other mills followed.

TPA (then called Trent & Peak Archaeological Unit) was initially commissioned to produce a desk-based study of the mill sites and the water-supply system and a Stage 1 report was submitted to the Project's Steering Group in 2001 (Sheppard 2001). A Stage 2 field survey in 2003 involved some detailed mapping and partial EDM survey (in particular a series of profiles at strategic positions) of parts of the water management system within the Papplewick parish. This extended some distance, from the top end of Upper Dam at the northern extreme, to Grange Farm at the southern end (Sheppard 2003).

Since 2002 fieldwork has been carried out around Moor Pond by volunteers from the Friends of Moor Pond Woods, scouts, Air cadets and by the Leen Valley Conservation Volunteers. Several stone-built sluices have been uncovered and recorded, and one situated at the north end of Moor Pond has been restored as a feature, along with an information board. Wall restoration has also been undertaken at the south-west corner within Moor Pond itself (Sheppard 2007).

More recently TPA conducted a topographic survey of the narrow strip of woodland known as Dam Banks, situated north of Moor Pond Woods and to the south side of Linby Road (Walker and Sheppard 2011).

Close to the walling on Papplewick Lane that this report is concerned with, a curious oval-shaped brick-lined shaft feature (similar in form to a well) was previously found, explored, stabilised and recently has been partly rebuilt and made safe. This is mentioned again in this report where it is referred to as a water control feature.

3. SITE DESCRIPTION

Coursed stonework was initially found amongst trees near to Moor Pond during the clearance of dense undergrowth about 2-3m back from the pavement on Papplewick Lane (Plate 1). Early exploration by volunteers located what at first was thought to be the east end of the wall (Plate 2), together with the actual west end of the feature, where rubble stonework was found to extend back for about 1.5m (5 feet) – Plate 3. Removal of an obstructing tree root then allowed the supposed east end to be shown to be the left side of a narrow opening within a wall that actually carried on to the east (Plate 4). Further work revealed the full depth of the wall, the batter or slope of its face, the presence of footings, an overall curving plan and the greater height of remaining rubble corework behind the wall (Plate 5). It also showed that the opening must have run through the whole wall (without any noticeable cross support from the overlying corework) at an angle slightly less than 90 degrees.

Subsequent archaeological excavation at the opening revealed two lines of iron nails and several long rods (Plates 6-10), similar to those previously recorded near a sluice at the north-west corner of Moor Pond and at another inlet/outlet
on the east side of Moor Pond (Sheppard 2007). These were interpreted as support fixtures to timber-built troughs or launders that facilitated the movement of water. Two of the longer rods were found close to the left side of the opening, extending back 1.5m from the front of the wall, whilst three rods and nails on the east side showed that the launder had extended at least a further metre out from the wall (Figure 6: Plate 6). Lengthways the rods had been set 36 inches (0.9m) apart, whilst the distance across the opening had been slightly less at about 32 inches (0.8m). This allowed the launder to fit through a wall opening that was 36 inches (0.9m) wide. In terms of height, what was probably an intact rod was measured at 39 inches (1m) in length.

In a section positioned at the front of the opening there showed at the base level of the launder a noticeable layer of dark humic material overlying a silt layer, together about 20cm in thickness. Beneath the silt there was imported red clay at least 20cm thick. The launder’s base level also roughly corresponded with the top of what remained of a brick arch situated close to the left side of the opening (Figure 6; Plate 7). Here bricks had been set on a foundation of at least three stone courses (Plate 10). The bricks were approximately 2½ inches (63mm) in thickness, a size typically found in late 18th century contexts. The brickwork had clearly not extended beyond the front of the opening.

A corresponding set of bricks with a stone base showed 1.2m (4 feet) to the right of this, largely obscured under coursed walling (Figures 5, 6). Plate 11 shows this part of the brick arch, surviving to a higher level, extending towards the back of the opening. In contrast, at the front of the opening only a few courses remained as stonework had been added above to reduce the width of the opening. The opening had originally been about 1.65m (5½ ft) wide to accommodate the brick arch (Figure 6 shows a reconstruction of the arch), but walling had been altered and added to, thereby reducing the opening to a 3 foot width, with the additional stonework misaligned in plan to the existing wall-line (Plate 14). Although a discrepancy within the stonework to the left of the opening had initially been thought to indicate an alteration or rebuild here too, a more likely explanation is that here the wall had simply cracked (see irregular red dashed line on elevation in Figure 6; also Plate 12).

When the ground level was reduced in front of the opening another set of nails with their pointed ends at the top, similar to those already noted, were found at a lower level (Plate 8). Here it appeared as though the (?natural) red clay had been cut through to allow for an earlier launder of a narrower 18 inch (0.45m) width (blue dots on plan in Figure 6). Its position central to the two brick arches suggested that the two features were contemporary and that the arch may have been designed to protect the launder where it passed through the wall.

The wall extended 7m (23 feet) to the left of the opening but for an unknown full distance (at least 4.5m; 14ft) to the right (Plate 18). Existing trees prevented the full extent of the wall to be determined. If the opening had been positioned in a central position then the wall’s length would have been in excess of 50 feet (15m).
See Plate 15 for an indication of the build-up of soil levels and how tree roots had affected this part of the site.

**Water control feature**

The oval-shaped brick-lined shaft feature mentioned above was situated only about 1m behind the rubble back of the wall (Figure 6; Plates 23, 24). It was already known that water had carried from Moor Pond to the base of this feature, entering at its north-east point. Water could then pass through an opposing opening on its south-west side into an arched brick-lined drain (base of Plate 25). Excess water could rise within the shaft and escape through a circular opening on its south side into Papplewick Lane. This escape feature is now filled with bricks and it is not clear if it was ever required.

At some distance away from the shaft the drain was uncovered running under the south-west corner of the wall structure (Plates 16, 17). A small entry made through the side of this drain allowed the author to ascertain an internal width of 30 inches (0.76m) and a likely comparable height (Plates 20, 21). As with other brick structures previously recorded at Papplewick its thickness was equivalent to the 9¼ inch length of the 2½ thick bricks in general use at this time.

Although the precise alignment of the drain could not be determined, it was possible to see a distinct kink between the point of access and where the drain met the water control point – see Plate 21. In Figure 6 an attempt has been made to show a likely course for the drain in this area. The evidence also suggests that beyond the kink the drain was slightly narrower. Just beyond the point of access the drain had been blocked with stone and a ceramic pipe installed (Plate 22). This parallels a similar alteration where water first entered at Moor Pond itself (Plate 26).

**4. INTERPRETATION (see Figures 6-8)**

The wall structure supported a bank behind which there was a north-south running leat that had bought water from an area north of Moor Pond. The wall was probably at least 2.5m (8 ft) high and with a distinct batter when first built to retain the raised soil behind it. Whether or not there was a similar feature on the south side of Papplewick Lane is unknown as in this area the raised bank supporting another leat running south past Grange Cottages has been cut back by road widening and the quarrying of soil. The leat north of the wall appears to have terminated in a rounded end about 7m behind the front of the wall. This and the relatively low height of the wall and bank in relation to the current level of Papplewick Lane probably mean that there was never any viaduct or overhead launder carrying water between the two banks. A suggested height of such a feature in Figure 7 is only about 2.5m above the current road surface. The evidence within the opening in the wall instead indicates two phases of a launder running at near ground level.
The brick-lined drain running south-west from Moor Pond crossed the path of both launders at a lower level still but with its top only just beneath the base of the lower launder. It remains uncertain whether the two elements are contemporary. It seems likely that the lower launder was positioned to cross Papplewick Lane at a sunken level, perhaps with boards used to allow road traffic to cross over it. If this part of the water system was added later to the pre-existing Moor Pond and its associated water inlets and outlets (as has been suggested by the author in a previous report, based on some evidence at the sluice at the north-west corner of Moor Pond) then the close proximity of the lower launder to a pre-existing drain may have caused problems and resulted in it having to be replaced by a launder at a higher level. This though is supposition.

The higher level launder poses a further problem as at this height it would have caused an obstruction on Papplewick Lane. It is known to have extended beyond the wall opening and it may then have been designed to then drop to a lower level, commensurate to that of the previous launder. The overall water system for the Robinson mills had to cross a number of tracks and roads and the evidence suggests that water probably ran across at just below road level and that overlying boards or narrow fording would have allowed continued road use. Any need to deal with a rise in level was possible through simple gravity feed – most notably between the two sides of Papplewick Lane. An example of this offered here is at Bolsover Castle where spring water from a 17th century conduit house once flowed into a valley and up the other side simply by force of gravity to supply a water tank within the Castle (used in turn to power a vertical gin and thereby supply water to a fountain) – see Plates 28-30.

There remain many lines of enquiry to yet pursue regarding Robinson’s elaborate water management scheme. Figure 8 is a stylistic representation of the principal elements within Papplewick and does not take into account the rest of the system alongside the River Leen south of the former and now lost Grange Mill. It shows in red where structural features are known or highly likely and in green areas where they may have once existed (and perhaps worthy of enquiry).

Phasing: The plan also includes a suggested three-stage phasing, into which the two structural elements present at Papplewick Lane may have fitted within the general scheme. The third phase included the leat running alongside the west side of Moor Pond that fed water to a raised bank south of Papplewick Lane and which was possibly required for the expansion of Grange Mill to the south. Also known as Old Mill, this was Robinson’s first new building (Phase 1) and was standing by 1778. Top Mill and associated works followed in the early part of the 1780s. This second phase probably included the reservoir of Moor Pond to further enhance the water supply to Old Mill and probably to supply Lower Mill (and perhaps Forge Mill) further down the valley. The third phase followed with the enlargement of the Old Mill when the so-called New Mill was added, most likely in the late 1780s. However, proving such a sequence is another matter.
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