

ARCHAEOLOGICAL MONITORING REPORT

HOLYWELLS PARK, MOATED ENCLOSURE IPSWICH (HER ref. IPS 497)

A REPORT ON THE MONITORING OF THE MOAT DESILTING

Suffolk County Council Archaeological Service Report No. 2007/210
(OASIS Ref. suffolk1-34704)

Summary: Archaeological monitoring of the moat desilting at Holywells Park, Ipswich (NGR; TM 1759 4358), was undertaken during December 2006. During these operations four lengths of tree trunk that had been bored through longitudinally were recovered. Each had a tapered end which fitted in to the opposite end of its neighbour and together they formed a pipe some 12m in length. They were recovered underneath a causeway across one arm of the moat and would have allowed water to flow from one side to the other although this is believed to be a secondary use as they appear to have been designed to withstand substantial internal pressure such as that required in an ornamental fountain. A fountain is marked on the 1st edition Ordnance Survey map some 270m to the west of the findspot. An independent timber expert, Richard Darrah, was commissioned to undertake an assessment of the pipes and samples were taken for identification of the species which was confirmed as elm by Rowena Gale (both Darrah's and Gale's reports are included in this report).

No other archaeological features or artefacts of any period were recovered. This monitoring event is recorded on the Historic Environment Record under the existing reference IPS497. The archaeological monitoring was undertaken by the Suffolk County Council Archaeological Service, Field Projects Team, who were commissioned and funded by Ipswich Borough Council.

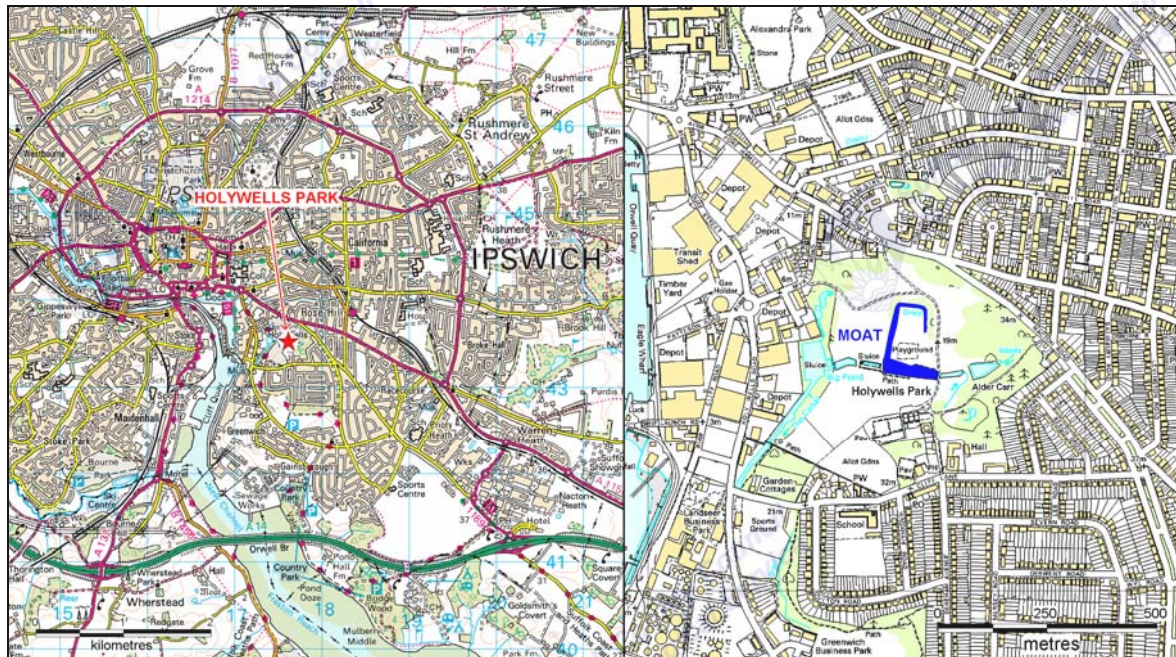


Figure 1: Location Plan

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Introduction

Archaeological monitoring of the desilting of the water filled moat feature in Holywells Park, Ipswich, was undertaken in August 2007. The moat desilting was taking place as part of a programme of works to improve the facilities at Holywell Park. The park is a large public area to the southeast of the town centre (see figure 1). It was formerly the parkland associated with Holywells, a late 18th / early 19th century house that was the main residence of Cobbold family. The park features numerous springs which have given the area its name. These feed into the moat and then drain down towards the River Orwell through a series of ponds and 'The Canal', a man made landscape feature on the western boundary of the park. At one time these springs fed the Cobbold Brewery and are probably the main reason why the Cobbold family acquired this estate (see figure 2).



Figure 2: Holywells Park

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The moat has historically been believed to be the site of a medieval palace for the bishops of Norwich although recent work has cast doubt on this. Test trenching undertaken in advance of the recent installation of a new play area (SCCAS Report No. 2006/107) yielded no evidence for any structures within the area enclosed by the moat and a documentary survey, carried out as part of the same project, suggested the bishops were infrequent visitors to the town and that their interests were probably served by a representative. It now seems likely that the palace is an invention of Margaret Cobbold in her poem on the legend of Holywell and that the moat is in fact an 18th or 19th century park landscape feature created partially from a series of existing ponds.

The National Grid Reference for the approximate centre of the moat is TM 1759 4358. This monitoring event is recorded on the Historic Environment Record under the existing reference IPS 497. It is also recorded on the OASIS, online database under the reference; suffolkc1-34704. The archaeological monitoring was undertaken by the Suffolk County

Council Archaeological Service, Field Projects Team, who were commissioned and funded by the custodians of the park, Ipswich Borough Council. The monitoring archive from this project will be deposited at the Suffolk County Council Archaeological Service offices in Bury St Edmunds under the reference IPS 497.

Methodology

The moat was desilted using a large 360° tracked excavator fitted with a toothless ditching bucket operating from the outer edge of the moat. Only the waterborne silt was to be removed and this was piled up alongside the moat to allow it to dry before spreading within the park. Visits were made to inspect the works once they were underway. The spoil was examined for artefacts and the newly cleaned moat was inspected for any archaeological features or deposits that may have been revealed along the edges. It was not possible to see the base of the moat through the murky water.

After the discovery of a series of worked timbers an expert in historic timber, Richard Darrah, was commissioned to undertake an assessment and to give advice as to their importance and propose suitable methods of preservation. Samples were taken from each timber and submitted to Rowena Gale for species analysis. The results of both Darrah's and Gale's work are included in this report. A number of digital photographs were taken of each of the timber pipes for inclusion in the archive.

Results

The site of the moat was visited during December 2006 to monitor the desilting of the moat. During one of these visits the machine operator commented on having removed four tree trunks from close to the base of moat which he had put to one side. Upon examination it could be clearly seen that the trunks had been worked. The ends of each had been modified with one end having been sawn flat whilst the other end had been rounded and tapered. It was also noted that a hole had been bored longitudinally through each of the four pieces. One piece also displayed a further bore through one side of the trunk and into the bored channel within. It was quickly realised that these bored tree trunks had been fitted together to form a single pipe some 12m in length. For identification purposes the pipes were numbered 1-4 (see Plates I-VIII) although this does not indicate the order in which they were recovered.

The machine operator was then further

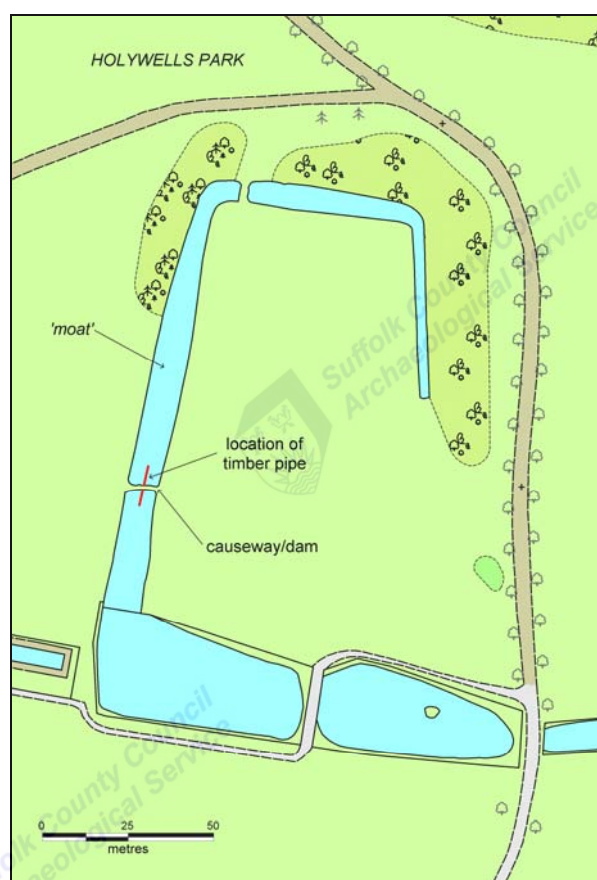


Figure 3: Location of Timber Pipe

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questioned as to exactly where the timbers had been recovered from in order to determine whether they had a specific purpose or had been simply discarded. It was pointed out that they ran underneath a causeway across the western arm of the moat and were aligned with the moat channel. The causeway was not believed to have been created as a dam but as support for a cast iron water pipe that ran across the moat at this point. The timber pipes passed under the causeway and would have allowed water to flow from one side to the other (figure 3).

To fully assess the significance of these hollowed timber pipes Richard Darrah, an independent specialist in ancient timber, was commissioned. His results are reproduced below:

The wooden water pipes from Holywells Park

Richard Darrah Jan 2007

Introduction

Four hollowed timber pipe lengths with 150mm diameter bore were extracted by machine from the east arm of the “moated” enclosure when it was being re-dug to its original depth. These pipe lengths had been buried under a causeway across the “moat”. In this position they would have acted as a drain allowing the northern part of the channel to drain southwards. It was clear from the preservation that the pipe lengths had been joined together. The digger driver said that they had run along the centre of the ditch at the bottom of the ditch but under the causeway. It should be assumed that this use as a drain was the secondary use of these water pipes.

Description of the water pipes

The water pipes were up to 3.13m long, they were made from trunk lengths of approximately 0.4m diameter. They had been hollowed down their centres so that they had a six inch diameter bore. As the trunks were curved this boring was done with skill from both ends so that these cuts met near the middle of each log. These pipes were the common form of driven water pipe with a conical taper at the top end of the trunk that fitted into the expanded bore at the wider end of the next piece. The end of the trunk with the expanded bore was flat but not necessarily at right angles to the bored hole.

The wood grain at this end was strengthened by having a tapered iron ring hammered into this face concentric with the bore. These rings ensured that the trunks did not split when the pipes were driven together. Two distinct ring sizes with diameters of 0.26 and 0.31m were used. When driven together these taper wooden pipe joints would have formed watertight joints that could withstand some pressure. Edlin (HL Edlin Batsford 1949 56-57) mentions the six-inch (150mm) bore of water pipes suggesting that this was a standard size of water pipe.

The presence of a perfectly flat surface on one timber with fine adze marks made with a straight edged hand adze suggests coopers were involved in the shaping of this surface, as coopers not woodmen have adzes. This tool suggests a brewery’s involvement in the making or servicing of these water pipes.

Most medieval English water pipes were made from elm, and samples have been taken from each of these pipes so that the wood species may be identified.

Dating evidence.

Wooden water pipes were used by the Romans and later through out the late Medieval and Post Medieval periods until their replacement by cast iron pipes. Although no exact date can be placed on these pipes, their form, position, state of preservation, size of bore and tool marks were all consistent with a post medieval date.

¹ This causeway is not shown on the C1880 Six inch OS map suggesting it may be later.

Function

The position where they were found joined together, under a causeway across a ditch and their function as a drain indicates reuse. Their original use would have been as part of a water main that was capable of withstanding some pressure. This main may have fed either the brewery, (which seems to have been fed by an open channel), or a fountain.

Further work and Conservation

The condition of the timber pipes is good, but most surface detail has been lost. This however does not detract from them being impressive functional objects probably from a pre industrial revolution period. They are robust, tactile objects that with some treatment against rot may be dried out and displayed and handled by the public probably without expensive freeze-drying.

With this in mind I have suggested that the smallest piece should be left to dry out in the shade, and the other three pieces should be returned to the water in the channel. If drying is successful one or more of the better-preserved pieces could be dried for display in the same way. I would like to be informed of who will be in charge of this drying process so that I could contact them to see how it is progressing.

The association of Gainsborough's painting (Breen, in SCCAS Report No. 2006/107) with the landscape at Holywells may give extra importance to objects used in water management in that landscape, and if the air drying is not successful it may be felt that PEG treatment and freeze drying should be undertaken on one or more of the other pieces. This will still be possible if they kept submerged in water.

Four samples were taken, one from each pipe, to be submitted for species analysis. This was undertaken by Rowena Gale, a specialist in Environmental Archaeology. Her report is reproduced below:

Holywells Park, Ipswich: wooden pipes – species identification

Rowena Gale January 2007

Methods

The four samples were waterlogged and the wood structure was firm and well preserved. The samples were prepared using standard methods (Gale and Cutler 2000). Anatomical structures were examined using transmitted light on a Nikon Labophot-2 compound microscope at magnifications up to x400 and matched to prepared reference slides of modern wood.

Results

The following identifications were made:

Sample 1 - elm (*Ulmus* sp.)

Sample 2 - elm (*Ulmus* sp.)

Sample 3 - elm (*Ulmus* sp.)

Sample 4 - elm (*Ulmus* sp.)

Comment

Elm has been used for water pipes in lowland Britain for many centuries (Edlin 1949, 56). When consistently wet the wood is extremely durable. For example, water pipes laid down in London in the New River scheme of 1613 were found to be perfectly sound when excavated in 1930.

References

Edlin, H. L. 1949

Woodland Crafts in Britain. London: Batsford.

Gale, R. and Cutler, D. 2000

Plants in Archaeology. Otley/ London: Westbury Publishing and Royal Botanic Gardens, Kew

Following receipt of Richard Darrah's report his suggestions for preservation and display for were communicated to staff at Holywells Park but the author has no knowledge as to what action was eventually taken, whether the slow drying was successful or where the pipes are now.

Discussion

The timber pipes were laid under the causeway to allow water to flow from one side to the other. The causeway appears to have been constructed to support a cast iron pipe, which ran from west down towards the east, and the timber pipes have been placed underneath so that the waters of the moat would not be divided into two separate ponds. No evidence was found for a method of controlling the flow from one side of the causeway to the other and it has to be assumed it was a simple straight through connection. It is not known at what precise height the timber pipes were laid but if they were at a distance above the base of the moat channel it could stop the water level on one side falling too low on at least one side of the causeway in times of drought.

The presence of the taper and the iron rings to stop splitting indicate that these pipes were designed to withstand internal pressure a property not required for a simple drain which suggests that the use of the pipes here is secondary. It has been suggested that originally the pipes may have originally served the Cobbold's brewery and the tools used to form the flat surfaces on the pipes are those used by coopers such as those likely to have been employed in the brewery. Given the ponds and canal would have readily transported the water to the brewery it would seem to be unnecessary to install the pipe although to have water under pressure could have been useful for cleaning or perhaps as a source of power via a water wheel or turbine.

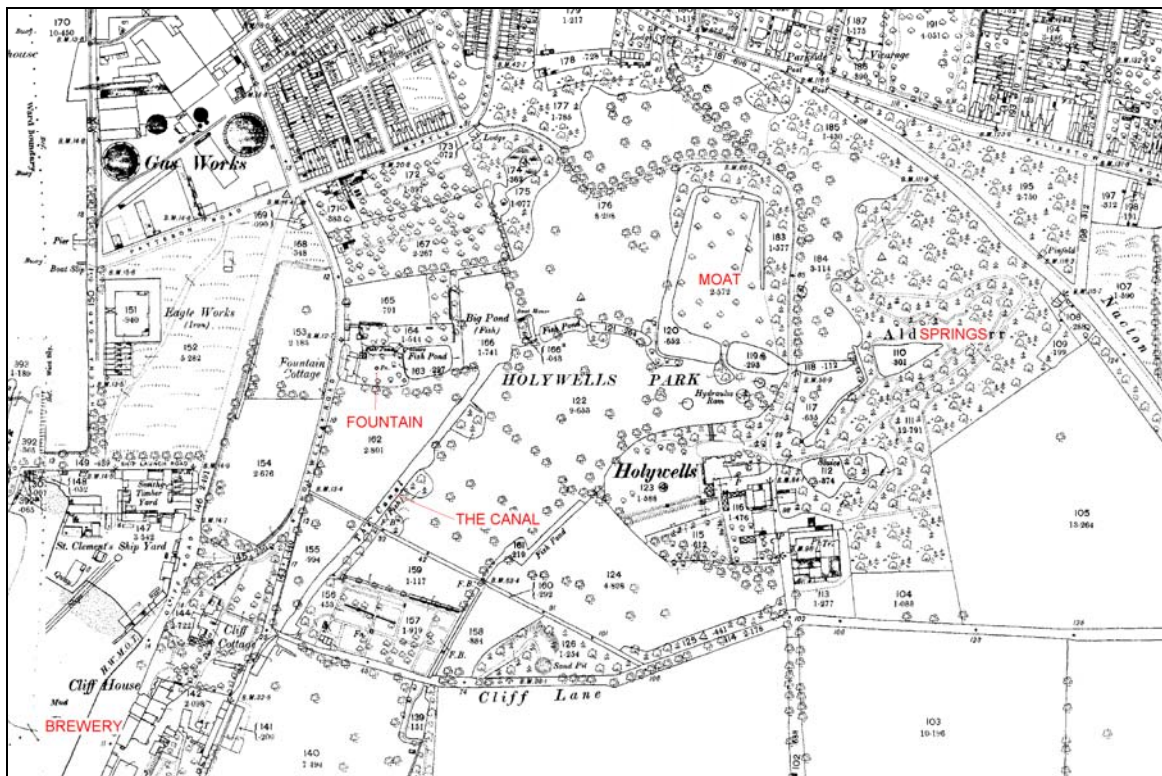


Figure 4: 1st Edition Ordnance Survey 1:2500 scale sheet (extract – reduced scale)

Alternatively, the timber pipes may have originally been laid to serve an ornamental fountain. The documentary survey (Breen, in SCCAS Report No. 2006/107), undertaken as part of earlier archaeological works in the park, revealed many references to the word fountain in an area some 270m to the west of where the pipes were recovered. The area in question is also in excess 15m lower than the area of the springs and as such would provide a good head of water. In 1811 'Fountain Meadow' and 'Fountain Field' were acquired by the Cobbold family. It is reported that the names derive from Fountain Mill (acquired by the Cobbold's in 1763) and The Fountain Public House. On the 1st Edition Ordnance Survey map of c. 1880 a Fountain Cottage with a fountain in its rear garden is marked. Given the numerous references to a fountain it seems likely that a fountain had existed in the area of Fountain Cottage (which may in fact be the former public house) from at least the late 18th century. Both Fountain Cottage and the Fountain Mill were under Cobbold ownership and so the fact that coopers worked on the pipe does not definitely tie it to the brewery as the Cobbold's may have redirected personnel from the brewery for its construction.

The timber pipe was recovered from under a causeway that supported a cast iron pipe and it is possible that the cast iron pipe was a replacement of the original timber pipe with sections of the timber pipe being recovered for reuse during the laying of the iron pipe. The causeway is not marked on the 1st, 2nd or 3rd edition Ordnance Survey maps although this is probably an oversight as a causeway is marked on a map of 1850, as is a building coincidental to Fountain Cottage although it is unnamed and no fountain is marked in its grounds.

The date of the wooden pipe's original construction or of its reuse are unknown. This type of pipe has been in use from ancient times although the inclusion of the iron rings suggests a later post-medieval date, possibly as late as the late 18th century / early 19th century.

Pipe 1 differed from the other three as it had a hole in one side (Plate IV), the purpose of which is unknown. It may have been a junction with another pipe branching off at this point or is possible to provide access for inspection and cleaning. Another possibility is that it is due to a deformity in the trunk caused by a branch on the tree and as such was just simply plugged.

In summary the pipe's original purpose was undoubtedly to transport water under pressure from a reservoir fed by the springs in Holywell Park down towards the River Orwell to serve either the brewery, a fountain or possibly the mill. It would seem likely that further evidence for the water management in the park exists as buried archaeological remains.

Reference

- Meredith 2006 *Archaeological Evaluation Report: Holywells Park Moated Enclosure, Ipswich* (SCCAS Report No. 2006/107) includes 'Documentary Research' by A. Breen (Appendix 1).

Plates



Plate I: Pipe 1



Plate II: Pipe 1 showing tapered end



Plate III: Pipe 1 opposite end showing iron ring (slightly deformed)



Plate IV: Pipe 1 showing hole and adze flattened surface



Plate V: Pipe 2



Plate VI: Pipe 3



Plate VII: Pipe 4



Plate VIII: desilting the moat