

The industrial landscape at Tottenham Hale: archaeological investigations at Hale Wharf, Ferry Lane, Tottenham

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Introduction

Pre-Construct Archaeology (PCA) undertook archaeological investigations at Hale Wharf, Ferry Lane in Tottenham, London Borough of Haringey, between January and March 2018. The works were carried out in advance of residential development. The site measured approximately two hectares and was situated between the Lea Navigation Channel and the River Lea Flood Relief Channel, with Ferry Lane bounding it to the south (Fig 1).¹

This article details the results of the archaeological works, focusing on the series of post-medieval mill buildings located in the south-eastern portion of the site. Seven phases of building were identified, ranging in date from the late 16th/early 17th century to the 19th century. These buildings have been the subject of artistic works in the past, primarily represented in wood-cut engravings, but also paintings such as that by Bonny c. 1838 (Fig 2).

Evidence of earlier mill activity was also found in the form of re-used quernstone recovered from both building foundations and levelling layers. The archaeology of the site can be divided into five periods: Period 1 (1500–1680), Period 2 (1680–1750), Period 3 (1750–1800), Period 4 (1800–52) and Period 5 (1852–modern).

Archaeological and historical background

Tottenham had very little industry between the medieval period and the 19th century, and that which was present was focused around milling and brickmaking. After 1810 a series of factories were built in the area. However, by the mid-19th century no businesses of any size were noted aside from breweries.²

The location of Tottenham Hale on the River Lea made the site ideal for a watermill, as the surrounding environs provided a power source for the mill,

the grain to make the flour and an easy method of transporting it. The earliest mention of a mill in Tottenham is from 1254, when a survey of the manor of Tottenham describes its demesne as including ‘a watermill, producing 4l (£4) after deducting the tithe’. This survey was taken to facilitate a division of the manor into three distinct manors: the Manor of Bruses, the Manor of Baliols and the Manor of Pembrokes, each with a portion of one-third ownership of the mill. However, by 1347 the mill, recorded in the inventory made on the death of Sir Thomas Heath (Manor of Bruses), was described as ‘the third of a watermill, in ruins, of no value’, suggesting that this share of the mill buildings was in ruins by this date.³

In 1523, a manor court was held about the poor condition of the mill and it was reported that ‘the watermill of the manor is in great decay for want of repairs by timber in the rooms and in other houses of the same mill and in ground works, and that the ditch of the same mill is not cleared water and “le ossyers” trodden down and destroyed⁴ which formerly were of the yearly value of 20 shillings a year; and that one John Kyrton is held to repair the aforesaid mill and all the premises with appurtenances by reason of a certain demise made to one John Davy, to whom John Risley, knight, then Lord of the Manor granted said mill...’⁵

In the post-medieval period, the products being produced at Tottenham mills changed frequently (Table 1). In 1619, additional oil and leather mills were built and the complex of buildings referred to as Tottenham Mills. The oil mill was very short lived, remaining open for less than a year before being closed as the noise and smells reportedly offended the King.⁶ The complex can be seen on the Duke of

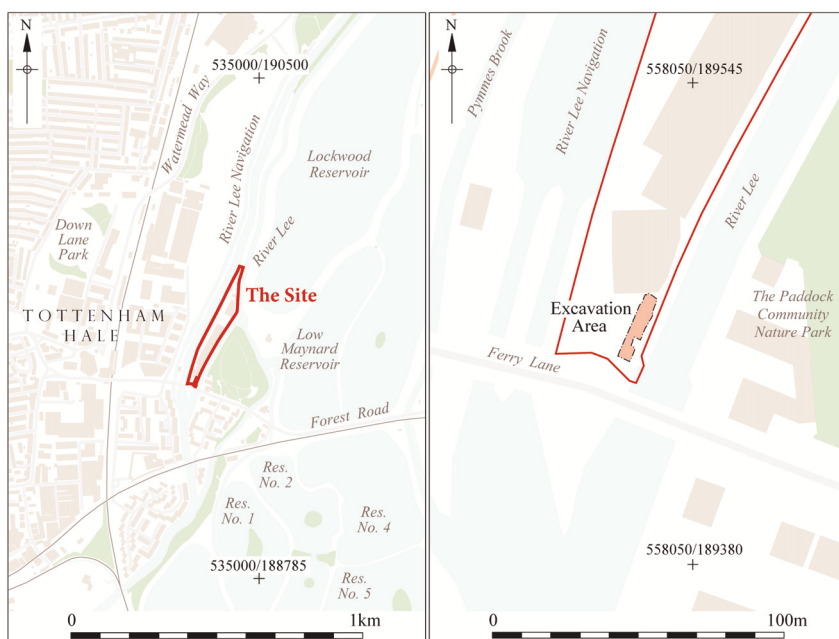


Fig 1: site location

Dorset's Survey of the same date.⁷ However, the individual mills are not represented. In 1656, the lord of the manor faced charges for converting the corn mill to a gunpowder mill. This along with the leather mill must have either been converted or demolished by 1680 as John Seller's map of the county shows only a paper mill on the site.⁸

Reference to the use of the mill as a paper mill can be seen when insured by Israel Johannot in 1735, who came from a well-known family of French paper-makers and died in 1749, leaving the mill to his widow Elizabeth. An exciseman by the name of Thomas Cooke had been investigating the mills when Israel died. Thomas Cooke blackmailed Elizabeth, using tax infractions that her late husband had committed, into marrying him, thus giving him control over all of her property, including the mill. However, in 1770 the lease to the mill expired and was sold to Edward Wyburd. Thomas Cooke refused to give up the premises, which led to Wyburd removing a portion of the mill's roof to try to force him out. The incident culminated when Cooke 'took Wyburd by the breech and threw him headlong into the river',⁹ resulting in a lawsuit which was won by Wyburd.

Edward Wyburd converted the mill from a paper mill back into a corn mill, and an oil mill was built on the other side of the river between 1770–3. The paper mill had run on a single pair of stones, but the new corn mill ran on four pairs, and the oil mill on an additional pair, requiring the mill to have a greater source of power. This led to alterations to the mill leat and sluice gates.¹⁰ In addition, another paper mill can be seen on Andrews and Drury's map of 1777 of the country some 65 miles around London. However, there are no references to a paper mill in the area after this date.¹¹

The corn and oil mills burned down

Date	Use of the Mills
1254	Corn
1619	Corn, leather and oil
1659	Gunpowder
1680	Paper
1770	Corn and oil

Table 1: the uses of Tottenham Mills



Fig 2: Tottenham Mills, Ferry Lane by John Bonny, painting in oils, based on a steel engraving of 1838 by J Henshall © Bruce Castle Museum (Haringey Archive & Museum Service)

in 1788, and were rebuilt and sold again to John Cook in 1789, along with 51 acres of attached land.¹² In the 19th century, the mills were sold five times, the lease at times being held by private individuals and at other times by companies. In 1817, a flood badly damaged the mill complex, and work had to be suspended for the year, although the mills still provided revenue through bridge tolls. The addition of steam power to the mill complex in 1824 is indicated by the building of a coal wharf, and in 1840 William Robinson describes the corn mill as having six pairs of stones which were capable of grinding 300 quarters of wheat per week when the water supply was good.¹³ The mills burned down in 1852 and were not rebuilt. Some remains were left standing until 1923.¹⁴

The area of Tottenham changed dramatically in the post-medieval period. A number of the large houses in the area were leased to wealthy Londoners as country retreats from the end of the 16th century. The area continued as an upper middle-class suburb until the mid-19th century. In 1840, the railway station opened, and the influx of people started to change the socio-economic landscape. From the mid-19th century, Tottenham began to change from a select residential neighbourhood into a crowded, lower middle- and working-class suburb.

Geology and Topography

The site lies on London clay, overlain by former flood plains and river deposits, laid down in the Quaternary period. These layers were encountered between 6.15m OD on the south of the site and 5.66m OD in the north. The local environment was, and continues to be, dominated by the river setting, and the natural geology was overlain by a series of alluvial deposits as well as peat that was radiocarbon dated to 540–645 cal AD.¹⁵

Archaeological Sequence

Period 1: 1500–1680

The earliest archaeological material encountered on site took the form of a foundation running east/west in the south-eastern corner of the site. The foundation made up the northern extent of Building 1 and was composed of locally-made red brick which was dated to between 1500–1700. Running parallel with the foundation wall to the south, a brick drain contained two sherds of imported Dutch slipware pottery dated to the 16th or 17th century. The drain fell out of use at some point between 1580–1650 as indicated by a series of robber pits [402] cut into the top of this structure.

In preparation for the construction of Building 2 (Fig 3) a levelling horizon was laid down over both the remains of Building 1 and the associated drain.

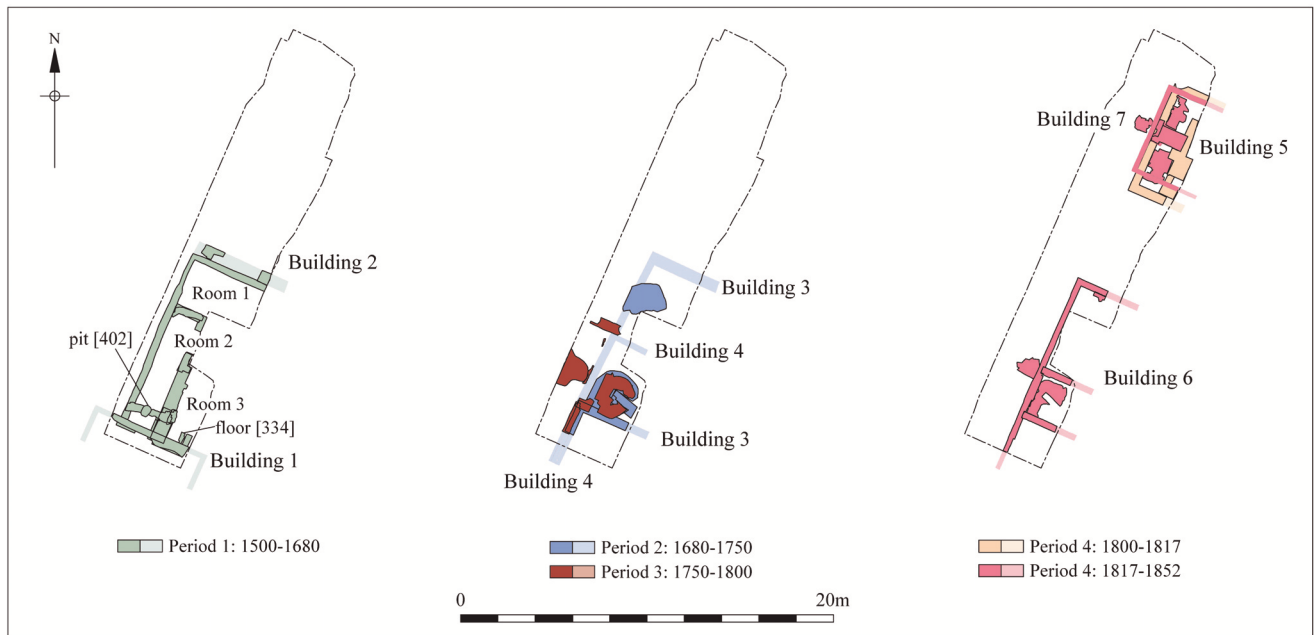


Fig 3: Periods 1–4 of the Tottenham Mill buildings identified in excavation

This levelling horizon contained fragments of a French Burr quernstone, which indicates the earlier presence of corn milling in the vicinity. French Burr stone was one of the most expensive types of quern available and would have produced a very fine-grained flour.¹⁶ A large late 16th-/early 17th-century pottery assemblage, including late 16th-century high-status table vessels, such as a Saintonge openwork chafing dish (Fig 4), was also recovered from this horizon, along with two double-loop copper-alloy buckles of a 16th-century type and a number of copper-alloy lace chapes. Finds recovered from the levelling layer are indicative of high-status individuals, not necessarily residents of the mill, but

supporting the historical view of the area as a retreat for wealthy Londoners.

Two copper-alloy buckles, <SF 34> and <37>, are of double-loop form, with lobed knobs at either end of the central strap bar; the loops are decorated with a single, moulded rosette on the outer frame. Buckles of this type are frequently found in contexts dating from c. 1550–1650,¹⁷ although they may represent a particularly characteristic 16th-century type.¹⁸ One buckle carries the remains of a now-black coating, originally a reddish-brown varnish fashionable on dress accessories at the time.¹⁹

Approximately half of the total ceramic assemblage from the site dates to the late 16th–early 17th century, much of which was collected from the backfill of features and levelling layers predating the mill’s Building 2. The late 16th-/early 17th-century assemblage is dominated by local coarsewares in the form of London-area post-medieval slipped redwares (PMSRY/G) and London-area early post-medieval redwares (PMRE). Among this group, bowls and dishes occurred in large numbers, typically handled with a carinated body and flanged rim. There were also a smaller number of cauldrons, pipkins, colanders and jugs, a single chafing dish and a handled jar.

Regional wares represented the next largest group, the majority of which originated in Essex, including Essex late medieval fine and fine sandy wares

(LMFX; LMFSX; LMFSX CH), Essex-type post-medieval black-glazed redware (PMBL) and Essex-type post-medieval fine redware (PMFR; PMFRB). Cauldron or pipkin forms were present within this group but there were more drinking forms, including jugs and a drinking jug and mug. There was also a small number of Surrey-Hampshire border whitewares (BORDG; BORDO; BORDY), including two tripod pipkins, a carinated skillet, a bowl or dish, two Midlands purple ware (MPUR) butter pots and a Blackware (BLACK) small rounded jug.

Eleven imported vessels included two Raeren stoneware (RAER) drinking jugs, five Frechen stoneware (FREC; FREC INSCR) jugs or drinking jugs and a Dutch redware (DUTR) cauldron or pipkin. There was also the base of a slipware bowl or dish with a central debased floral motif, probably from the Netherlands, and a rare openwork chafing dish from France (Fig 4) that had an upright rim-mounted knob with a moulded face and small triangular cut-outs to the body. One of the Frechen jugs had an inscribed band with the surviving letters ‘DRM—’ and an acanthus-leaf embellishment.

The range of pottery recovered is typical of the period in the London region, although the presence of a fairly high proportion of imports, including at least one rare vessel, is notable and suggests that the household from which it originated was probably fairly

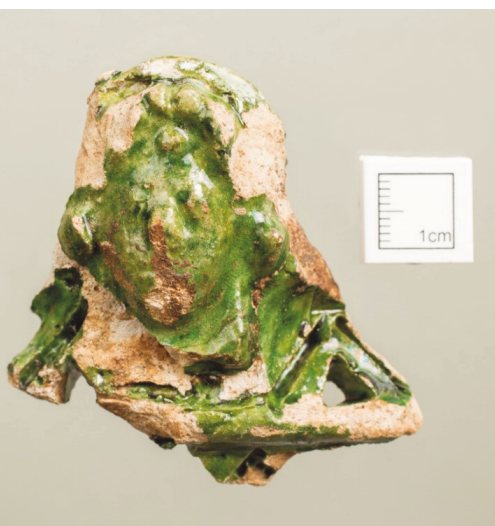


Fig 4: late 16th-century ceramic Saintonge openwork chafing dish from context [385]

affluent. The group also includes a high proportion of late medieval and early post-medieval Essex wares – the latter group was of better quality than the local redwares, although this may simply result from the location, lying directly on the banks of the River Lea.

Building 2 (Fig 3) was built over this levelling horizon and comprised locally-made brick, with foundations constructed of quern fragments and re-used architectural stone. Three rooms were recognisable within Building 2. However, no internal features survived within these rooms.

During the 17th century, the building underwent several modifications, either due to a change in use, such as its conversion to a gunpowder mill in 1659, or to accommodate changes in the technology being used. The floor level within the building was raised, and Rooms 1 and 2 were merged in the northern portion of the building. The dividing wall between Rooms 2 and 3 was modified and a small portion of the wall removed on the eastern side.

A new northern wall to Building 2 was also constructed in this period making a slightly larger internal floor space in this building, with only one internal wall dividing Rooms 2 and 3. The southern limit of Building 2 was rebuilt as an east–west wall, following the same line as the foundations of

Building 1, and a hearth and floor [334] were added to the south-eastern corner of the building.

Period 2: 1680–1750

The construction of Building 3 over Building 2 in this period most likely represents the shift from being a corn/leather mill to a paper mill, as noted in the historical record. Building 3 was represented by three structures: a single L-shaped wall [312], a large circular brick structure [287] and a chalk floor surface [286] (Fig 3).

While the western and northern boundaries were uncertain, due to the lack of surviving walls, the linear edges of the circular brick structure [287] and chalk floor [286] indicated its possible extent. An assemblage of clay tobacco pipes recovered from the chalk floor [286] indicate that Building 3 was completed by c. 1730.

The most striking feature of Building 3 was the large circular brick-built structure [287] (Fig 5). This structure was circular with a 0.27m deep slot built in the centre, and has been interpreted as a furnace base with a rake-out pit. Similar structures have been observed in excavations of a mill in Colliers Wood in 2003.²⁰ For a paper mill, such a structure would have been used for the process of sizing paper using gelatine. The production of size²¹ required the boiling of a large amount

of bones, cartilage and connective tissues of animals, then straining the resulting mixture, and reheating it to achieve the correct consistency.²²

Period 3: 1750–1800

A fourth phase of building was evident in this period – Building 3 was replaced by Building 4, associated with a cobbled yard surface constructed to the west of the building (Fig 3). Building 4 was represented by two north–south walls and repairs/modifications made to the brick machine/furnace base [287]. The presence of an external east–west drain indicates that Building 4 did not extend as far north as Building 3. Historical records indicate that during this time, the mill was converted from paper back into a corn mill, which may account for this new phase of building.

Only a single sherd of residual early post-medieval pottery was recovered from this phase. The lack of contemporary domestic assemblages represents a shift away from those associated with Period 1 and is possible evidence of the cultural shift away from the 17th-century idea that the miller should live in the mill complex itself.²³

Period 4: 1800–1852

The mill complex expanded to the north during this period and Building 5 was constructed in what was formerly an open area (Figs 3 and 6). Only one



Fig 5: overview of Building 3, Periods 2 and 3, with circular brick structure [287] to the south and chalk internal floor [286] at the northern end of the building, looking east. The robbed-out cobbled yard surface, adjacent to Building 4, lies parallel to the 2m scale.



Fig 6: overview of Building 5 (north) and Building 6 (south), Period 4, looking south

room, bounded by a single brick wall was observed within Building 5. Surviving elements of a substantial brick-built foundation/machine base were present under the floor, indicating the presence of heavy machinery for industrial processes.

Building 4 fell out of use during the first part of this period and was covered over by a horizon of made ground. Substantial robbing of earlier structures took place in the central portion of the excavation area in the form of a series of pits and a robber trench. There was no evidence of a building in use in the southern portion of site – however, the presence of a circular chalk-lined pit, similar to an example outside Building 5, cut into the made-ground horizon suggests that a building was still in use nearby. While the exact use of these pits has not been determined, it is probable that they are related to the industrial processes occurring within the mill complex. Both pits were capped with pieces of quernstone.

The majority of this quernstone was French Burr. However, a single piece of Upper Old Red Sandstone from the Forest of Dean was also identified. This quern would have produced a poorer quality of flour than that from the French Burr, which may reflect a change in markets as Tottenham became a less exclusive suburb. It is possible that this change might also be the result of diversifying the product or simply the result of running six pairs of stones, as six French Burr stones would have been very expensive to import.

At some point during this period,

Building 5 went out of use and Building 7 was built over its remains along with a new building (6) in the southern part of the site (Fig 6). It is impossible from the artefactual assemblage to be certain of the exact date of this. However, historical records indicate that the mill complex was very badly damaged by a flood in 1817, which may explain the relatively short life span of Building 5. A late 18th-/early 19th-century halfpenny recovered from the bedding layer of the external walls of Building 6, supports this theory.

Building 7 incorporated the machine base from Building 5 into its structure and the footprint of the building expanded to the west very slightly (Fig 3). The area of brick floor over the machine-base foundation had been worn very thin, and in some places was missing, probably worn down by industrial machinery. It is possible that this is connected to the addition of steam power in 1824.

Building 6 was located in the southern-most portion of the excavation, in the same area as previous Buildings 1–4. Three rooms were identified within the excavated portion of Building 6. Two of the rooms contained no evidence of their use, with only a small fragment of brick floor surviving. The central room, however, utilised the furnace base [287] from Building 4, building it up and narrowing the slot. The structure was no longer circular. However, a circular impression was visible on the top (Fig 7). An iron bar was fitted over the western-most portion of the slot, re-inforcing it, and the structure was built up using a mixture of Flemish floor tile and locally-made brick.

The use of the structure in this period is unclear. The brickwork showed no sign of burning or vitrification, and the mill complex was then processing flour which does not require the heating of vats. An inventory from the mill's sale in 1832 lists a drying kiln as part of the complex. However, the structure in Building 6 does not resemble contemporary drying kilns. It is possible that the structure was re-used as a machine base, with the slot acting as a pit for gearing.

The last deposit encountered within Building 6 was a layer of ash and charcoal containing a large amount of broken and burned roof tiles, building

fittings and carbonised bread wheat from the final phases of flour milling. This almost certainly represents the fire that destroyed the mill complex in 1852. Similarly, Building 7 was backfilled with a charcoal-rich deposit with frequent demolition rubble indicating a fire.

To the west of the mill complex, evidence of the Lea channel and a toll house was encountered, as depicted in the 1844 tithe map.²⁴ The channel was represented by a construction cut and a series of land ties. The channel itself would have been a valuable resource for the mill, allowing the easy transport of goods on the River Lea. Between the mill and the channel sat a 19th-century tollhouse. While the tollhouse was heavily truncated on the eastern side, the western side was in good condition and consisted of a series of brick walls in a roughly square alignment. The tolls from the bridge supplemented the mill's income throughout its history.

Period 5: 1852–Modern

The mill complex was not rebuilt after the fire of 1852. The site in this period was characterised by a series of made-ground horizons. The area appears to have remained relatively unpopulated, as shown by OS map for 1915 which marks the area as Tottenham Wharf, potentially used for warehousing or administrative purposes. At this time, Tottenham Mills is marked as disused. The construction of the Lea Navigation Channel to the west of the site by 1864 maintained this area's association with shipping on the River Lea between the Thames and Hertford and the use of the site for light industry. In 1947, the River Lee Flood Relief Channel was cut, forming a new eastern boundary of the site, which must have removed a large extent of the Tottenham Mills buildings.

Conclusions

The excavations at Hale Wharf provided an opportunity to examine the evolution of the mill complex from the 16th to 19th centuries. Milling was the main industry in Tottenham during this period and the buildings were used for a variety of purposes over their life span. In addition, the presence of re-used quernstones in the earliest buildings indicates the presence of milling in the area pre-dating the excavated material.

The large assemblage of domestic pottery, including high-status imported wares, along with the fashionable clothing accessories recovered from the preparatory groundworks for Building 2, paints a picture of a prosperous miller living in a well-to-do area of London, while the almost complete absence of domestic material from Period 3 onwards shows a shift away from the mill doubling as a domicile.

The seven different buildings occupying this space over three centuries provide a window into a near constant cycle of building and rebuilding across this industrial complex. These findings add to our understanding of Tottenham's history and its place in an industrial landscape.

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Fig 7: Building 6, Period 4, showing the surviving brick structure/furnace from Building 4 built up with floor tile and brick, retaining a raking out slot, looking south (0.5m scale)

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Graphics were undertaken by PCA Ltd and supervised by Mark Roughley.

At the time of writing, Ellen Green was a site supervisor at PCA Ltd. She is currently studying for a PhD in Osteology at the University of Reading.

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