WASC 2386

Tales from the Tower

A Collection of Histories of Hounslow Gunpowder Works

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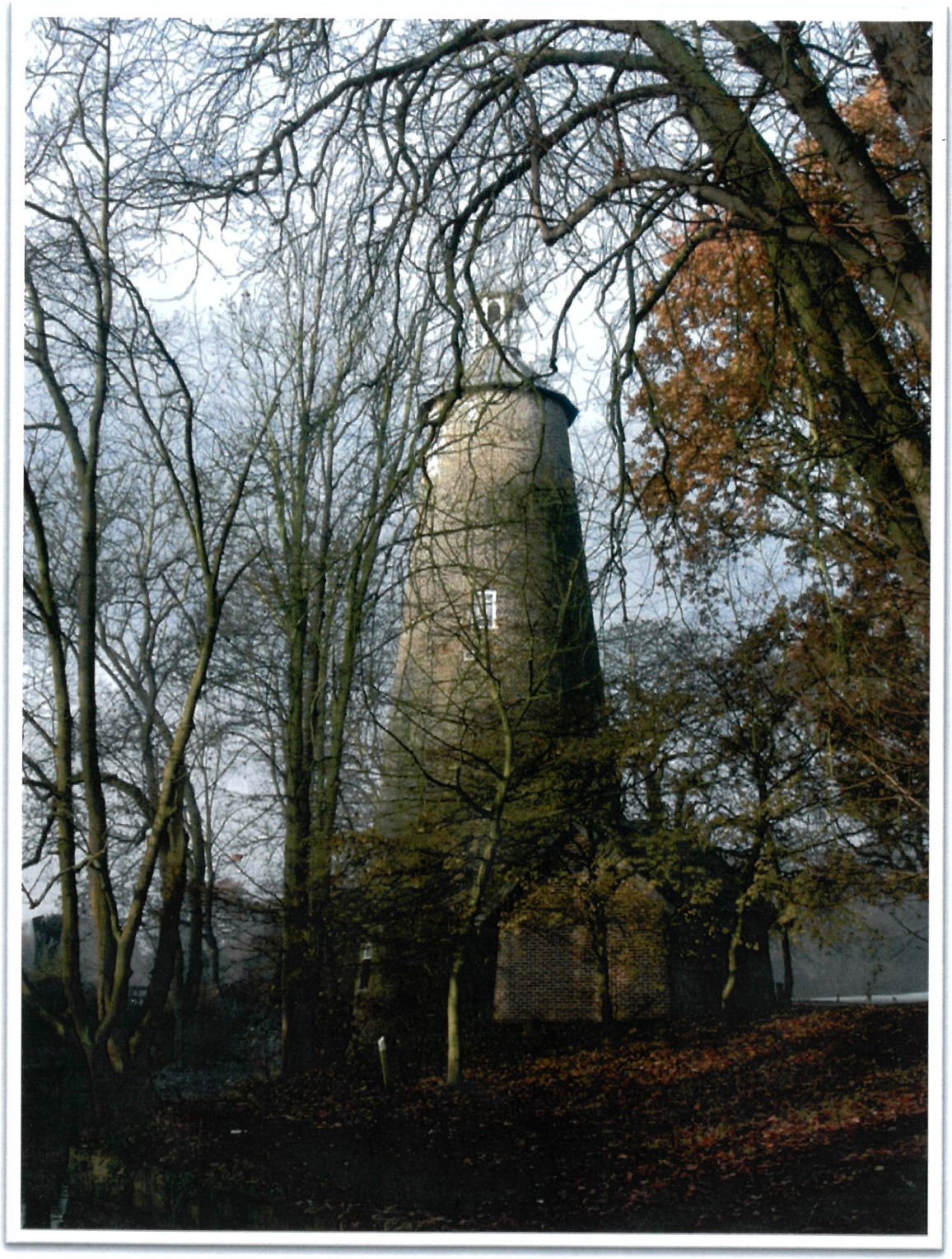

Chris Hern

Tales from the Tower

Foreword

For many years on the first Sunday afternoon each month as a volunteer assisting London Wildlife Trust I opened the Tower in Crane Park so that visitors could enjoy the views from the top and look at the history and nature exhibition on the ground floor

Over the years I undertook detailed research into the history of the Gunpowder Mills, of which the tower was the only intact building, and I took pleasure in sharing with the many visitors this history and the many individual experiences and tragedies.

Part of that history was a research project into the origins and uses of the tower itself. The results of that research is the main paper in this collection. Previously published in the journal of Hounslow and District History Society, it has been updated with a contribution from Whitton historian Ed Harris.

However London Wildlife Trust, who manage the tower, were not happy that my findings contradicted their literature and display boards, which portrayed the building as a former shot tower. LWT were adamant that I should support this inaccurate history when talking with visitors, and when I declined to do this, my services as a volunteer warden were ended. At the time of writing I have been invited by LWT to participate in a proposed history working group, and they are seeking funds to refresh the display material, so there is hope for the future.

The second half of this collection brings together some of the stories that I have been able to pass on to visitors, and given in talks, a previously published article on the loss of young men, and new research on the story of John Butts, who owned the mills during the Napoleonic wars. It concludes with a Roll of the workers and others who died at the Hounslow Powder Mills, and also those who died at the Bedfont Mills.

A book by Colin Reeve, giving full details of the history of both mills, is to be published in 2016.

Chris Hern November 2015

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Biographical notes

Chris Hern began his working life in a Thatcham, Berks linoleum factory.
Training as a Town Planner, after jobs in Nottingham, Shropshire and Cornwall, he worked for LB Brent, taking early retirement as the Director i/c Planning and Transportation. He then became a volunteer consultant for Planning Aid for London, and studied Local History at Leicester and Oxford Universities. He has written articles on Hounslow History, and served for five years as Chair of Hounslow and District History Society

The Tower in Crane Park

A diabolical wheel and a mystery solved

This paper is an updated version of an earlier article that was published in two parts in the spring and autumn 2014 editions of the Honeslaw Chronicle, the journal of the Hounslow and District History Society, and has been supplemented by information presented by historian Ed Harris in a public talk on 17th September 2014 and by later research.

Notes on gunpowder history

All researchers unto gunpowder history owe a debt to the members of the Gunpowder Mills Study Group, later the Gunpowder and Explosives History Group. The informative newsletters of the group from 1986 to 2008 are available on the web site of the Royal Gunpowder Mills. The works by Glenys and Alan Crocker on Chilworth mills, Surrey and general gunpowder history are essential reading, as are the papers by Edward Patterson and Arthur Percival in the Faversham series. The Fleur-de Lis Heritage Centre at Faversham features gunpowder in its museum-with the bell from Hounslow, and books on gunpowder history. Both the Chart mill in the town and the extensive mill remains at Oare to the west, set in a country park with a visitors centre- including a comprehensive history exhibition- are worth a visit. And perhaps now the main centre of Gunpowder history and research, at the Royal Mills at Waltham Abbey, there are mills and other buildings still to be seen and explored, and there are booklets on many aspects of its history. Facsimile reprints from the Archive of the Royal Mills are also being published.

The Tower in Crane Park- diabolical wheel and a mystery solved

The diabolical wheel

The description of the River Crane and the Hounslow Gunpowder Works in the February 1852 issue of Charles Dickens '*Household Words*' following the visit at the end of 1851 is powerful and evocative [i]

'You wander up narrow winding paths, and you descend narrow winding paths. You see the broad a0000rm of a river with swampy osier islands upon it, and then you enter another plantation and come upon another narrow winding neck of river… you advance along other tortuous paths and cross small bridges and again you enter a plantation, more or less sombre, and presently emerge upon an open space, where you see a semi-circular road of red gravel, with cart-ruts deeply trenched in it; then another narrower road down to a branch of the river, where there is another little bridge, and beyond this, on the other side, you see a huge waterwheel revolving between two black barn-like Houses.'

'You ascend a slope, by a path of mud and slush, and arriving at another larger open space, you find yourself in front of a sheet of water, and in the distance you observe one enormous wheel- the diabolical queen of all the rest- standing, black and immovable, like an antediluvian skeleton, 0against the dull, grey, sky, with a torrent of water running in a long narrow gulley from beneath its lower spokes, as if disgorged before its death'

But what was this enormous wheel standing like a skeleton against the sky? There were many waterwheels providing power for the mill Houses involved in the various processes in gunpowder manufacture, but most were set between two 'Houses' and all would have been of a similar size, generating 8-12 Hp and around 15 ft in diameter. On a working day it is unlikely that any would have been 'immovable'.so the 'queen of all the rest' must have been a unique feature, a larger wheel serving a different purpose

A possible answer to this became apparent during research to establish the reason for the building of the tower that now stands alone in Crane Park as a reminder of its industrial history and is used as a visitor centre and office.-A 'tower of Mystery' known locally as the 'shot tower', but with an origin and uses that have been the subject of conjecture and controversy

Expansion and explosions

The story begins in 1820 with the acquisition of the Hounslow gunpowder works by the firm of Curtis's and Harvey. William Gillmore Harvey sold the family gunpowder works at Battle in 1817 and moved to Hounslow, taking over the works previously directed by the gunpowder merchant, John Butts. Harvey had as his partner in 1817 Stephen Henry Grueber, a London tea merchant with family connections to earlier Faversham powder makers. 1817 was a difficult time in the industry with stock piling after the end of the Napoleonic wars, and no new military demands. This partnership dissolved in 1820, with Stephen Grueber losing money and selling to Sir William Curtis, a city banker, ex lord mayor and MP. [ii]

The new firm was set up with William's son, Charles Berwick, and nephew, Thomas, joining Harvey as directors. This was a marriage of the Curtis business acumen and finance with the experience of Harvey in gunpowder manufacture- in particular his reputation and experience as a maker of reliable sporting powders. This was a growing market and in the next decade the firm

was to expand and make improvements to the decaying buildings inherited from the production efforts of the Napoleonic Wars. [iii]

Fifty two men had died in explosions at the mills in the previous 50 years, many working on the corning process in which the powder, having been formed into cakes in the Press House to remove water, was broken down by rollers and then passed through a series of sieves to produce granules of differing sizes for different purposes.

Corning or Granulating Houses were particularly dangerous mills, and unlike the incorporating mills where the three gunpowder components were mixed together, they required the presence of workers throughout the process. Explosions in previous years meant that in 1820 there was a single Corning House at Hounslow, located at the western end of the works, 200 yards from the Hanworth Rd and a quarter of a mile from the main complex of buildings.

In July 1826 there was an explosion destroying this Corning House and killing Benjamin Hersey and William Inns, two Hanworth men, whose bodies were blown 300 yards from the mill. Witnesses could provide no reason for the explosion, and advised by the coroner the inquest jury returned a verdict of accidental death.

The mill was rebuilt, with new machinery, only for it to explode again in August the following year, claiming the lives of William Parks and Nathaniel Edmonds, both from Hanworth. William Harvey, as a partner in the manufactory was asked by the coroner, Mr Stirling, if it would be safer if less quantity than the 1,000-1200 lb of powder that had exploded were kept at the mill. Mr Harvey replied that this amount was sent in every morning and cleared out at night; more frequent removals would mean that the machinery would have to stop, with loss of time and production.

The coroner then asked if two Corning Houses could now be constructed, meaning that a lesser quantity of powder would be stored on one spot. This suggestion was treated with derision by the 'Examiner' paper who could not 'sufficiently admire' the 'learned coroner's' 'sage humanity,' and presumed that his logic was that if 1000lb powder killed 2 men. 500 lb would account for only one- *''and if no more than100lb were kept in one place no death would ensue, as their explosion could destroy more than the fifth part of a man- a leg or an arm''.*

A new Corning House and a new tower

Mr Harvey however was able to respond to the coroner that the construction of a second Corning House *''was not only in contemplation but in actual progress and was only prevented by pressure of business from being completed that autumn* (1827)' A verdict of accidental death was again recorded.

The new Corning House was being constructed downstream, on the site of a former mill in the middle of the 250 yard gap between the lower Press House and a Glazing House. It used the long higher level downstream leat to provide water for water wheel power and transportation, as it did for the other downstream mills.

There was however a problem. At times of lower flow in the Crane the amount of water drawn off to power the mills upstream and around the Mill Head pond severely reduced the flow on the downstream leat and the power available to the mills in this eastern arm of the works. (This difficulty was still in evidence in 1922, when an 'old style' hydraulic accumulator housed in the tower provided supplementary power for a nearby Pellet Press House.)

Additional water had to be provided for this leat, and it is very possible that a solution was found by adopting the technology developed in Norfolk and the Fens for lifting quantities of water. To facilitate drainage, the power from a windmill was used to turn large water wheels fitted with scoops or paddles capable of lifting water. These scoop wheels could lift water up to around a quarter of their height, and could be as large as 30ft in diameter. The weight of windsails and machinery, and the stresses involved, meant that a strong structure was essential. It required a brick tower structure with thick walls to be constructed. At the Hounslow works the site chosen was the narrow strip between the beginning of the leat and at the lower level, the pool below the sluice, a sluice which acted as a floodgate when the water flow was high. The site was immediately behind the Watch House used by mill operatives when on duty, and was in a prominent position within the works. [iv]

The tower –its features and surroundings

An inscription above the door, now not visible, indicated that the tower was built in 1828; a story passed down by workers was that the builder was a Mr Jacobs of Hanworth, but the quality and precision of the workmanship suggests that he was guided by, or employed, an experienced craftsman from an area with a windmill building tradition. He would also have needed an expert millwright to design, construct and install the transmission system with a vertical driveshaft three times more powerful than the horizontal transmission from waterwheels. The tower was designed with arched windows and doors, details reflecting the importance of the works and the status of the proprietors. A third of the way up the tower seems to have been encircled by a gallery known as a reefing stage, with entry from the third level, from which the wind sails were attended to. The evidence for this is two lines of former holes for the wooden struts supporting the gallery which are still discernable on the tower. The building would have been similar to, but slightly larger than, Berney's Arms drainage mill in Norfolk. [v] (*see photos on pages 24 and 25*)

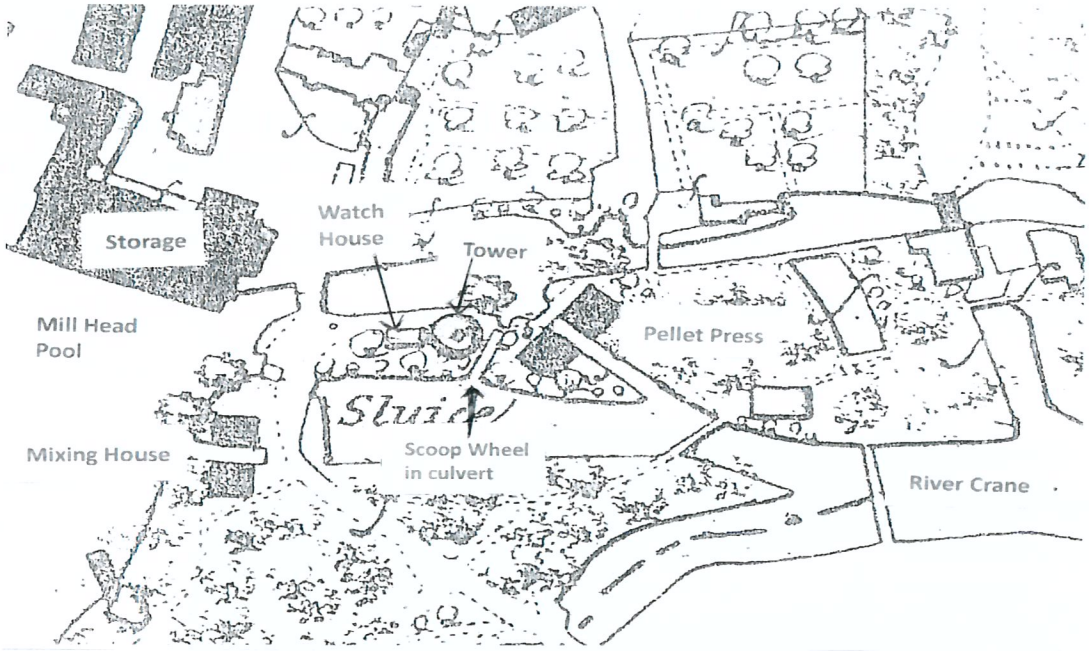
Behind the tower a narrow culvert angled in from the pool at the lower level, and on Ordnance maps is shown just stopping short of the higher level leat. The culvert does not relate to any processing mill, and appears too narrow to be suitable for punts- and is angled back towards the sluice, suggesting that water is flowing into the culvert from the lower pool. It is a reasonable proposition that it housed a scoop wheel powered by a shaft from the adjoining tower windmill. The gulley was filled in when Crane Park was created, as were all the waterways associated with the lower leat, but the coping on top of its two sides at the junction with the river can still be seen, protruding above the riverside footpath.

Other windows in the tower have narrow brickwork sills, but underneath the window at the second level overlooking the gulley is a 1.2m wide stone lintel with a curved inset on the top and clearly part of the original construction. It is likely that this was the housing for a horizontal transmission shaft, spreading its load across the lower brickwork. There is also a widening of wall thickness immediately below this opening, which would provide further support. The opening is positioned 1¾ ft lower than the other window at this level and 1¼ ft above the original floor. Underneath the lintel on the outside of the tower are the stumps of iron brackets which may be the remains of the support for the transmission gearing that would have provided power to the scoop wheel. It may also have been possible for a rope or belt transmission system to have been used. The termination of the shaft at the second level would have enabled the ground floor to be used for other purposes, which would have been hindered if the shaft came down to this first,(ground) level with power taken by a horizontal shaft directly to the wheel.

George Aungier visits

The construction of the tower as a windmill seems to be confirmed In 1840 by George Aungier who wrote about the area in his book *'Syon Abbey, History and Antiquities'* and commented 'the only manufacture of importance at present is that of gunpowder, for making of which, about two miles south-west of Hounslow are the extensive mills of Curtis and Harvey, 'which have been improved within the last few years, and where a curious pump worked by wind-sails raises from thirty to fifty tons a minute'. [vi]

This level of output was not unrealistic. In his survey of Lincolnshire agriculture (1800) Arthur Young noted a windmill powered scoop wheel was reputed to lift 60 tons of water a minute up 4 ft under full work, and Polkey's mill in Norfolk in the 19th century was lifting 40 tons a minute if there was a good wind. The reference to a pump is suggestive of a centrifugal pump located within the tower, but such pumps were not available until around 1850, and the scoop wheel may have been regarded as a pump, particularly if enclosed in a casing to minimise water loss. [vii]



The Tower and Scoop Wheel Culvert

The explosions continue

The erection of a new Corning House made little difference to the loss of life. In June 1929 the older, rebuilt, House suffered another explosion, again claiming two lives, Henry Bird and Robert Barrett. There was yet another explosion on the site in August 1835, two men again falling sacrifice- Thomas Colvin and George Vaux.

It was probably the new lower Corning House that exploded in December 1839. Thomas East had been cleaning out the building with a copper hammer, but disregarded the requirement to wet the powder first. He died of his injuries a few days later. His colleague John Jacobs, possibly related to the tower's builder, was badly injured, but survived and was still working as a mill man in 1851.

This lower corning mill was to explode 2 years later, in February 1842. Not only were the two mill workers, Henry Finch and William Woolmen, killed instantly, but three workers from other mills who were passing by were badly injured, one of whom, Albert Malthouse, was to die later that day in the Watch House. The inquest was told that the mill had been erected a year before and used rollers made of zinc rather than copper, an innovation invented by Mr Charles Curtis to remove any possibility of a spark. It was later discovered that Henry Finch had taken a newly acquired small steel tobacco box with him into the House, and marks on the rollers suggested that it had fallen into the machinery, resulting in a spark and an immediate explosion. [viii]

The next major disaster, in March 1850, was the worst in the history of the mills. The first explosion, in the treble Dusting House was followed within a minute by a chain of four major explosions in other Processing Houses and two minor explosions. 7 workers were killed and a foreman, Henry Clifford, was to die from his injuries. It was thought that Richard Glazier, an experienced worker, had been anxious to leave at the end of the working day to attend a walking race on Hounslow Heath, and went back into the Dusting House without putting on his felt shoes.

The devastation caused by the explosions was portrayed in an *Illustrated London News* engraving reproduced below. This shows the tower in the background, and it is clear that by this time it was surmounted by a bell turret or lantern. The sails had been removed.

Thus the use of the tower as a windmill would have been limited to around 20 years or less. What were the possible reasons for this? What were the subsequent uses of the tower? What about alternative theories regarding its origin and use. In particular whether the tower was built as a 'shot tower' or later used for this purpose- and how did it become known as the 'Shot Tower'?

The story now continues into the second half of the 19th century.

A redundant tower

Although there was an open area to the west and southwest over the mill pond in other directions the tower was hemmed in by trees and buildings. Even more problematic was that periods with low rainfall, when additional water was needed for the leat, often coincided with periods of low wind speeds. Explosions may also have damaged the vanes on the sails. The Mills at Bedfont had been acquired by the firm by 1833 and more flexible joint working would have gradually been possible. Also steam power had been introduced unto the Hounslow works by the 1840's, to power sawmills and charcoal making, and a rope transmission system could have extended power to the scoop wheel, probably requiring any casing round the wheel to be removed.

It is possible that by 1851 the scoop wheel had fallen out of use and was awaiting dismantling, but the visit reported by Charles Dickens took place on a wet day, and it may be that rain on previous days had increased water level and flow to the extent that the scoop wheel did not need to operate, Water from the leat may have flowed down into the culvert creating the torrent of water seen in the visit. The scoop wheel would have been much larger than the waterwheels providing power to the mills and the shape of the scoops would have created the skeleton appearance observed on the visit. This would have been similar to the 33 ft 6 in diameter scoop wheel which operated near Whittlesey, shown in the photograph on page 17. Three quarters of the wheel would be visible above ground level.

In *Household Words* the former windmill was described as a 'chimney, or tower' and was not visited, but the 1850 engraving shows that a bell turret had replaced any capping to support sails. The works bell is dated 1778 and was possibly located elsewhere on site at Hounslow works before being installed in the tower. The bell was taken to the Faversham works in 1926 and is now in Faversham Museum.

By 1857 three sets of steam powered incorporating mills were built, each with a line of three mills either side of a central steam engine which was protected by thick brick walls and transmitted power to the mills through an overhead shaft. One group of mills was constructed as an extension of an existing pair of water powered mills, and these two mills continued with a dual power source. One other pair of water powered incorporating mills continued in use, all others were abandoned or transferred to other processes. These changes meant that more water was available for the lower leat and there would no longer be a need for the scoop wheel. It is not referred to in any later inquests, or portrayed in engravings.

These incorporating or 'green charge' mills 'blew' frequently but usually when the process was underway and the millmen not present. The Buckingham Advertiser for April 2nd 1861 reports that two unattended mills exploded on a Saturday evening at the end of March, the charred splinters scattered in every direction. The mills were described as 'the two mills situated near the old windmill', indicating that by that date it had long been redundant, but that the tower's original purpose was remembered. The two mills were probably the pair to the east of the tower, still powered by a waterwheel. They were rebuilt and later used as Pellet Press Houses. If the scoop wheel was still in position in its culvert, adjacent to these mills it would also have been severely damaged by the explosion.

New uses for the tower

The tower had become a bell tower, and from inquest reports the tower seems then also to have been used for storage. A single storey building adjacent to the west was a Watch House- shown on an 1800 engraving, where mill men could take meal breaks and wait for the need for their intervention in a process. Workers in danger mills when waiting in the Watch House had to wear their protective clothing. The tower, next door, later became a changing area with washing facilities in a large basin with heated water in the centre of the ground floor- a use which continued into the 1920's, as described by Percy Morris in his interviews with London Wildlife Trust. There were lockers for the mill men's clothing round the inside wall of the tower. Ernest Alderman in a letter described how workers meals were also stored in their lockers.

The report of the Explosive Directorate's Inspector into the death in 1887 of William Lewcock describes how he collected his breakfast and sat eating in the adjoining Watch House until 8.30, then, when the bell rang, visited the lower Watch House to collect a lace for his safety boot, then passed by the lower Press House on his way to the Glazing House where he almost immediately died in an explosion. In the report the first Watch House is described as the 'Windmill Tower' Watch House, indicative that this was the official name for the tower recognised by the firm and the Inspectorate and providing further confirmation of its origins.

In 1869 the process of pelleting, whereby gunpowder was compressed and moulded into large, slow burning grains, needed for larger guns, commenced at Waltham Abbey mills. The process was adopted in the mid 1870's by Curtis's and Harvey, and existing buildings referred to above, just downstream from the tower, became Pellet Press Houses. A consistent power source was needed for the process and the water wheel was supplemented by an Hydraulic Accumulator located in the tower, presumably on an upper floor. The tower had a clock facing out over the mill head pond and the bell in the lantern was rung for meal breaks and at the end of the working day. It seems that because of its position it became known by the mill workers as the 'Mill Head' tower.

Curtis's and Harvey merged with other gunpowder works at the end of the Great War to become Explosive Trades Ltd, until it was taken over by Nobel industries. The use of the tower for workers storage, washing and with an accumulator on an upper floor continued until the closure of the works in 1926 after the incorporation of Nobel into ICI. After the mills closure the tower was used for storage and a base for staff in connection with the new park. In the late 1930's the possibility of its use as a café was mooted, resulting in one resident writing to the Council and suggesting that it should be painted red and white. Thankfully this request was not taken up! In the war years the tower was used as a watch tower and in post war years for storage, then vandalism and dereliction until the intervention of London Wildlife Trust in1983 and, from 1986 the development of their plans to renovate the tower.

A shot tower?

Although it appears to have been known officially as the Windmill Tower and was later called the 'Mill Head Tower' by workers at the powder mills, since the 1930's it has been locally known as the 'Shot Tower'. It is clear from the evidence now available that it was not built for this purpose. Additionally its height is much less than was required for the efficient making of shot. It has been suggested that the original shot tower in Bristol was no higher than the Crane Park tower, but that tower had a deep basement dug out to increase height, and all shot towers built subsequently were at least 130 ft high. The tower also does not have the narrower cylindrical shape of a shot tower, and the original windows indicate at least two upper floors rather than a spiral staircase with staggered windows needed by a shot tower. These features can be seen at the preserved Chester Shot Tower, 168 ft high, shown in the photo on page 24, and also on London's South Bank 163ft high shot tower. This was built in 1826, and its design would surely have been replicated for the tower at the powder mills, built two years later, if this had been intended for shot making. A shot tower would also have had no need for the outside gallery circling at the third level.

There is also no evidence that was ever subsequently used for shot making by Curtis's and Harvey, There were no lead shot workers living locally in the 1851 census, and none in 1881, though in that census there are workers shown at an Acton lead works and lead shot workers in Lambeth- presumably working at the South Bank shot tower. Other trades at the gunpowder works are well represented locally in the 1881 census. Schedules prepared by the firm are available for 4 weeks in 1861 which itemise workers' wages throughout the works and the quantity of gunpowder, tins and cooperage produced; there is no mention of lead shot workers or production.

The rules for the safe operation at the works in issued by Curtis's and Harvey in 1875 make no reference to lead shot production, despite the obvious hazards that would have needed stringent controls. The bringing of matches into the works had always been forbidden, and breaking this rule was a dismissal offence. Nothing made of iron was allowed in the danger mills, and the explosion of 1842 showed the consequences of a spark caused by a small steel box. It was a single act ignoring rules and creating a spark that resulted in the devastating explosions in 1850 with mill after mill being affected, despite the distance between them, and workers in four mills dying. All gunpowder factories were subject to regular visits from the Explosives Inspectorate from the 1860's, which increased in frequency with many recommendations for safety sent to the various mills throughout the country. The Inspectorate would certainly been concerned about any shot making and would also have commented on such a conflicting and potentially dangerous process being undertaken in their report to a Parliamentary Committee in 1874.

In the report on the visit in Dicken's *Household Words* of February 1852, every process is detailed; had the tower been in use for making shot this would have been included; likewise when William Oliver Greening, from the sporting press visited the works in 1896 he saw only the accumulator in the tower. The 1922 work book prepared by the firm gives a detailed description of every process and would have mentioned lead shot making had it been taking place. The evidence of these many different sources indicates that the manufacture of lead shot making was never a process carried out by Curtis's and Harvey, in the tower or elsewhere at the works. [ix]

Percy Morris

The only information on shot making has been provided by Percy Morris, a former worker who was interviewed by Alex Robb of London Wildlife Trust, in 2002. Percy worked at the mills as a teenager between 1920 and 1923 and did not see the process happening but said that on Sundays when the mills were not in operation molten lead would be taken up the tower and dropped through a sieve into the tank used for washing on the ground floor. The sieves, made by 'Billy Beecham' would have been those made for the granulating process in the Corning Houses, but as the hydraulic accumulator was still in position on an upper floor of the tower the length of drop would have been even more restricted. Access up the tower was gained by a series of ladders through the several floor levels. It also seems unlikely that orders for specific sizes of powder were being fulfilled, as Percy Morris suggested. Ernest Alderman, also at the mills as a teenager from 1920 to 1926, starting at aged 14, wrote that 'powder' was dropped in the tower. In letters to the *Middlesex Chronicle* other workers are reported as denying that it was ever used as a shot tower, and refer to the hydraulic accumulator for the pellet press and to a pump for maintaining the water level for downstream mills, the latter suggesting that the original purpose of the tower was still known to workers, despite it being long discontinued.

Although it might be that during the last years the lower part of the tower was occasionally used secretively by a few workers to make small lead shot for their own sporting purposes, this would seem to imply an improbable alarmingly low level of security and concern for safety by the then owners, Nobel Industries, as during the period 1920 to 1923 the works were still fully operational. As recently as December 1917 mill man William Davis had died after his powder caked protective clothing had been set ablaze by a spark from the fire in the nearby Watch House. The ground floor of the tower was classified as a Wash House, which had to be kept clean and free from grit. However, as it was a changing area for mill men; there would inevitably be some loose powder remaining from their clothing. The water in the tank provided for the mill men's washing was heated by steam from a boiler in the storage shed, and the firm could not have allowed lead smelting in this area as Percy Morris suggests. Apart from managers only mill men would have had ready access to the tower; fully aware of the dangers, they would not have secretively taken the risks involved from any source of fire. Unauthorised use of the tower on Sundays would have also needed the complicity of staff, including managers, and their families, who lived in the houses within the works. This seems highly unlikely given the risks to safety.

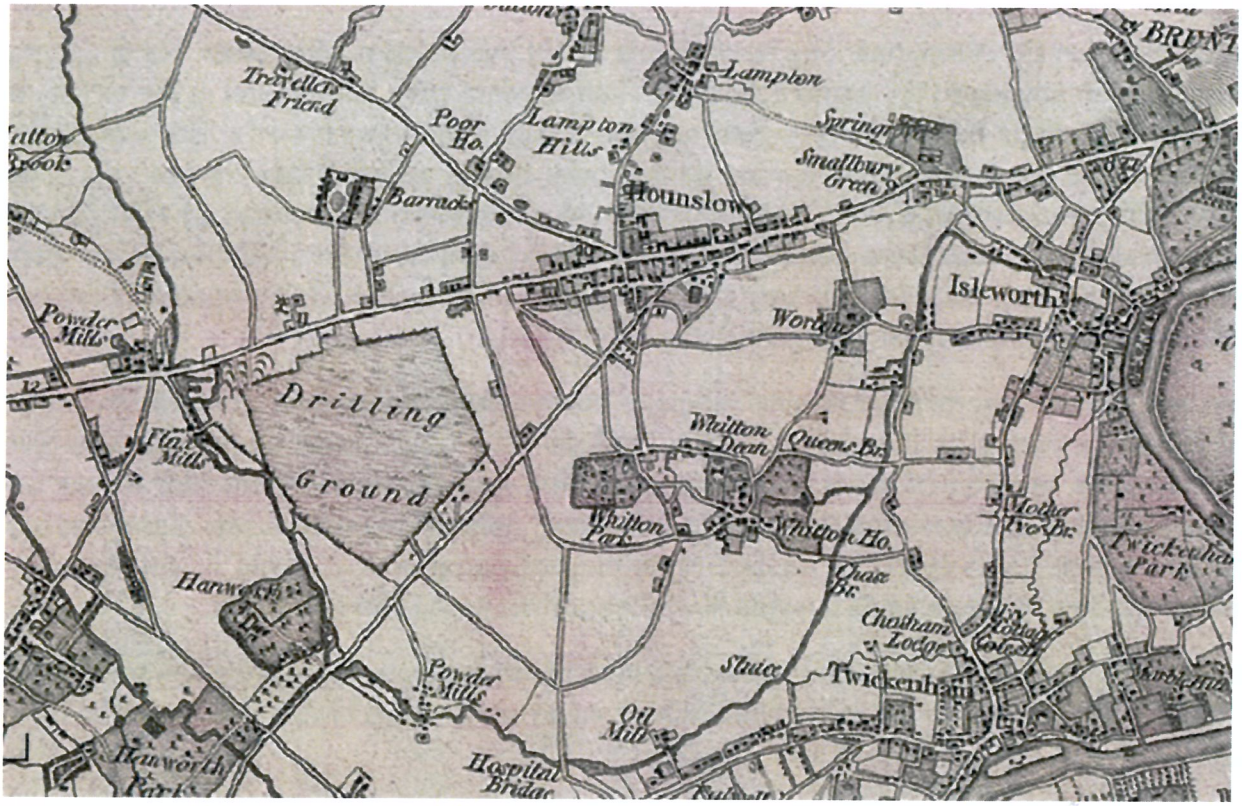
Percy Morris also described how he had to take 6 gallons of the heated water from this tank in the tower up to the 'japan shop' every day so that the men exposed to lead from the lacquering process could wash thoroughly. In his words,–*"the firm were very particular about this to prevent lead poisoning"*. It is not conceivable that they -or the experienced workers- would allow the tank to be contaminated with lead particles from shot making. However, there is an alternative possibility, given that Percy appeared genuine in his belief that shot making had taken place. The 'Sunday shot making' in the tower could well have been a tale told by older mill men to credulous new young lads at the works, as Percy and Ernest Alderman were at the time, and Percy many years later sincerely passed on what he had been told, his belief sustained by the 'shot tower' name given to the tower. Such initiation leg pulling and misdirections for new young workers has always been common, and at the powder mills could have helped to relieve the ever present stress for workers in the danger mills.

A Myth becomes widespread

It is unlikely that any actual secretive shot making in the tower would have been sufficiently known about locally to result in the adoption of the shot tower name, which became current in the early 1930's. On the other hand, a myth to this effect started by mill men might well have become more widespread and given belief, particularly because of the cylindrical shape of the tower of 'Mystery' as it is also described by Gordon S Maxwell in *Highwayman's Heath* (1936), and the munitions association of shot with gunpowder.

The gunpowder works, always known as Hounslow Works were actually in Twickenham parish, though not welcomed by the majority of its inhabitants. Possibly there was an element of denial of the extensive and dangerous history of the works, and an undue eagerness to adopt the one remaining building, in an area being split between housing and parkland, as signifying a more benign, even romantic, former use. This may well also have been welcomed by the builders of the adjoining housing estate. However although most of the workers in the final years were from Hounslow and Hanworth, it would have been possible for Twickenham Council to have established a definitive history of the tower's use. Instead enquirers to Twickenham library were told that the tower was described as a shot tower on 19th century ordnance survey maps, which was simply untrue, and a plaque was placed on the tower with information on how lead bullets were made there.

Hounslow and Bedfont Mills c 1820



The experts view

The tower is not mentioned by G.E Bate when writing about the mills in *And so make a city here* (1948). Richmond Friends of the Earth, who were developing the Crane Park Nature Reserve in the early 1980's commissioned the historian Luke Over to undertake a historical study of the Hounslow Powder Mills. Luke's report, published in 1984, included a chapter on the tower. His conclusions are clear; it was not a shot tower, because of safety considerations and its limited height. He refers to it as the Mill Head Tower- the name by which it came to be known by workmen, and suggests it may have been designed as a watch and bell tower. Luke also had access to a 1920 manifest which included neither the purchase of lead ingots nor the sale of lead shot.

Guy Blythman in his book on Middlesex watermills and windmills (1996) wrote that 'the building has the appearance of a windmill tower'. He noted the two rows of openings that could have held supports for a stage found on tall tower mills, and states 'windmills may not have been the only buildings to have had such structures, but the evidence of one here does tend to make the windmill theory more plausible'. He continues 'in the 19th c the structure was known as the Mill Head Tower' and suggests that its purpose was to store water to provide a constant head for downstream mills. He reports that a former employee indicated that this was achieved by it housing a hydraulic pump, and that another mentioned the hydraulic accumulator for the pellet press. Guy Blythman also suggests the tower was used at one time for the making and repairing of sieves.

Whitton historian Ed Harris has long held doubts about this being a shot tower. He suggests that had there been any lead shot manufacture some shot would have been found in the vicinity of the tower. No such finds have been reported anywhere within the former works. Ed is also doubtful that molten lead could have been carried up the tower on the series of ladders even if a sufficient length of drop was available, and points out that the gas canisters described by Percy Morris as used for heating the lead were not available until some years later. Ed says there is no record or other evidence of an extractor chimney for smoke and fumes that would be needed if the heating of lead had taken place within the tower. [x]

There are several reports from English Heritage on the tower, listed as a grade II structure. The most detailed report is an investigation by RCHME in 1995 which noted the prominence given to the design, the position of windows, and the existing and possible earlier floor levels, and in summary states that it was probably built as a windmill, perhaps to process raw materials, but that there was 'no decisive evidence relating to its original purpose. It was not a shot tower'. The report concludes- 'it was built as a windmill whether or not it was used as such'.

Neither Luke Over nor English Heritage were aware of the documentary evidence from Dickens, or the 1861 newspaper report or appreciated the possible significance of features on and next to the tower.

London Wildlife Trust

London Wildlife Trust took over the Crane Park Nature Reserve in 1986 and after an effective money raising programme undertook a quality rehabilitation of the tower, completed in 2002. The upper floors, reached by a new spiral staircase are now in use as offices and classrooms by the Trust. The ground floor is a visitor centre, open on Sunday afternoons, and containing an information display setting out the history of the Crane valley and the powder mills, and explaining the present nature value of Crane Park Island, managed by the Trust, and the surrounding parkland. Possibly following the lead given by Richmond upon Thames Council, the tower is described as a shot tower in all LWT literature and its history is presented with reference to Percy Morris rather than to the assessments of English Heritage and those by Luke Over, whose report was passed to the Trust, and Guy Blythman.

An LWT information board next to the tower incorrectly gives the starting year of the mills as 1766, rather than 1757, states wrongly that the tower was built in 1823, and continues 'it was alleged to be used for a number of purposes during its history but is best known for the production of small lead shot'. The next section on the board describes how molten lead was passed through a copper sieve at the top of the tower, 'which at that time was hollow', and dropped as pellets into a large water tank below. A large display panel in the visitor centre shows how lead shot was made at the south bank tower, with the implication that the tower was used for a similar process. The different sizes of lead shot pellets are illustrated. Several references on websites to this use of the tower indicate that LWT are not alone in this attribution of an incorrect and unlikely history.

The mounting evidence indicating that the tower was not built or used for lead shot manufacture is dismissed by LWT as 'just a theory' . No evidence to support the hearsay information given by Percy Morris has ever been found, but LWT are adamant that this is the history that must be presented- a history that deflects from the real life working experiences of mill workers, the disciplines, dangers and deaths, the fears of families. This is an omission that could be readily remedied by the replacement of the shot making panel with a panel presenting some of these individual stories, often tragic, but all involving courage and fortitude.

The way forward

Colin Reeve- who is writing a book on the Hounslow and Bedfont gunpowder works- and Ed Harris the Whitton historian, both agree now that the tower started out as a windmill. Ed suggests that it was also intended as a watch and bell tower to replace or supplement an old single story Watch House shown on the1800 drawing, and that it was also a political statement, demonstrating the firm's status and commitment to safety after the explosions of the previous years.

George Aungier was later to be convicted of fraud and sent to Australia, but there is no reason to doubt his information on the powder mills, and this has to be accounted for in any interpretation of its history. Similarly some explanation is needed for the large skeleton-like waterwheel seen on the Dicken's visit, and the shaped stone lintel on the tower. The origin of the tower presented in this paper is a theory, but a theory based on and encompassing all the evidence now available; there may be other valid scenarios deserving detailed consideration.

Excavation of the former culvert on the east side of the tower might provide confirmatory evidence of the culvert housing a scoop wheel, and it might be possible for experts to assess whether the bell turret replaced a windmill cap. LWT have taken the lead in encouraging archaeological research across the former mills, and working with Historic England and Richmond Archaeological Society, it might be possible to establish more details on the operational features of the towers likely original windmill use.

It will be difficult to achieve general acceptance of a correct name for the tower- whether 'Windmill Tower' or the mill workers 'Mill Head Tower', but a start should be made by adding an alternative and correct name to that existing, and over time omitting the 'shot' .A note 'formerly known as the Shot Tower' would then suffice. London Wildlife Trust will no doubt be reluctant to discard the hearsay testimony of Percy Morris, but it still has historical relevance and value as an example of the 'initiation' leg pulling of young workers, and can be presented as such. There may also be some resistance from LWT to the correction of their literature and the provision of replacement information panels, as suggested earlier in thus paper. This will be expensive but it is possible that a grant would be available from English Heritage or the Heritage Lottery Fund. If there was a similar error in natural history giving a completely incorrect picture of the nature reserve then LWT would ensure that this misconception was corrected. In local history it is just as important for the most up to date and accurate information to be presented.

Summary

With this further work in mind the scenario put forward in this article is that the building of the tower has to be set in the context of the desire of Curtis's and Harvey to improve the works and the need to provide a second Corning House. The shape and general design of the building is indicative of a windmill, albeit with features emphasising the status of the proprietors, and Aungier's description in1840 strongly suggests that it carried windsails. The double line of holes under the third level is compelling evidence of a reefing stage, which would be needed to attend to the sails. The reference to the 'old windmill', in the 1861 press report provides supporting evidence and the official description of the tower as the 'windmill tower' nearly 30 years later indicates a long remembrance of this prime purpose

Aungier also is clear that these sails were part of a pump for lifting water, and the location of the tower suggests that this was from the river below the sluice up to the leat that served the downstream mills. The workload claimed for the mill was similar to that of drainage mills in the Fens and Norfolk. These drainage mills in the early 19th century used large scoop wheels to lift the water, and it is likely that this system was used at Hounslow powder mills. The narrow gulley or culvert slanting along the side of the tower leading to the lower leat from the river seems to have had no obvious purpose other than to provide a race for a scoop wheel, and a shaped stone lintel under the second level opening next to this race could have been the support for a driving shaft. The description In Dicken's *Household Words* of a large, immobile skeleton like wheel – the diabolical queen of all the rest- is the final piece of evidence indicating the probable origin of the tower as a windmill powering a scoop wheel- a wheel similar to that in the photo below, from Whittlesey in the fens.

Notes

i) Richard Horne, Charles Dickens assistant writer, later complained about being detailed to visit the works, but the article in *Household Words* suggests that he was not alone, and given the difficulty they seemed to have had in arranging the visit, the length, extent and welcome of the eventual tour suggests that Dickens himself was also present.

ii) Sir William Curtis was one of the characters of the age. A biscuit maker's son who became Lord Mayor of London; corpulent, opinionated but good humoured he was caricatured in many cartoons, and is remembered for being the first to extol the virtues of the three 'R's', intervening in a debate on classic education to suggest that these subjects were all that were needed! As a fellow member of the Drapers Company he was closely acquainted with John Butts, who acted as a witness when Charles Berwick Curtis, his son, was admitted to the Drapers company through Patrimony in 1820 .

iii) Colonel Peter Hawker in the 1826 edition of his seminal work' Advice to young sportsmen' praises the quality of the sporting powder prepared by Curtis's and Harvey, as successors to John Butts whose powder featured in the first edition in 1814.

'As I formerly observed, Pigou and Andrews's has the name of being the best, and is unquestionably most excellent; but I have never found any to please me quite so well as the cylinder powder, which was originally prepared by Mr. Butts, of Hounslow, whose more important concerns, in manufacturing for 'government, had for many years (luckily for his rivals) prevented him, in some degree, from showing forth in the sporting world. In my former editions, I stated that the government contracts, though probably not at an end with Mr. Butts, would soon be considerably lessened; and we should, therefore, have reason to hope, that there would not exist that difficulty, which there was then, in procuring this extraordinary good powder. My predictions have since been verified; arid Mr. Butts, after highly distinguishing himself in the sporting world, retired with the ample fortune which he deserved; and, I regret to add, died in November, 1824. His successors are Messrs. Curtis and Mr. Harvey, from whom I continue to receive the cylinder powder, if possible, better than ever. Their mills are on Hounslow Heath; their gunpowder office is No. 74, Lombard Street."

iv) In his 1829 will Sir William left his son Charles Berwick £6000 and also £14,000 to £15.0000 'already advanced to him'. It is likely that this advance had been spent on the improvements to the works, including the construction of the tower.

v) The search for a Mr Jacobs of Hanworth, the reputed builder of the tower, has been elusive; William, Frederick and John Jacob, shown as bricklayers in the 1841 census for Hanworth were too young in 1828 to have undertaken the project. However further research indicates that they were part of a wider family of builders and brickmakers, with their grandfather and uncle Robert described as builders in the 1841 census for Sunbury. Their father also a William, Roberts older brother, is shown as a brickmaker in his children's Hanworth baptism records and was probably also a builder. He died in 1837, and is described as the parish clerk for Hanworth, a position of considerable responsibility. He would have been 39 in 1828, well able with specialist advice and the assistance of his family to undertake the construction of the tower. His move to Hanworth took place after the birth of in Sunbury of his oldest son, William Henry in 1814, and

before James was born in 1816. Land Tax records also show that William had moved into Hanworth by 1816. The surname is alternatively written as Jacob or Jacobs in all records

vi) The interesting story of George Aungier; his work in England, his transportation to Australia and his subsequent life was related by Mary Marshall in the spring 2014 edition of the Honeslaw Chronicle, accompanying part 1 of the original version of this article.

vii) In the early 19th c, with sufficient wind the best drainage mills in Norfolk and the fens could raise water 5ft at a rate of nearly 60 tons a minute, which converts to about 40h.p. This would mean a production of around 30h.p. from the windmill at the powder mills – with sufficient wind! From the 1922 workbook around 45 hp was needed from the four water wheels powering the downstream mills; This had probably changed little since the previous century so the scoop wheel would always have been a supplement to the water flowing into the leat from the Mill Head pond

viii) Charles Berwick Curtis was an engineer and inventor, and as well as improvements for gunpowder safety, in 1841 designed an improved signal system for the railways, He became a member of the Institute of Civil Engineers in 1842

ix) Spindlestone Ducket near Bamburgh in Northumberland is an interesting parallel. Looking very like the Mill head Tower, but smaller at 65 ft (and now a holiday home). Its origins are still contested. Though it is no longer claimed to be a mediaeval watch tower it is described by English Heritage and the County Council as a former dovecote, left behind on a hill when the associated Outchester farm relocated downhill. The local Mills Group and Newcastle University maintain that it was a windmill used for threshing!- see page 24

x) Ed Harris interviewed long term local resident George Willis in 2010, when he talked about his time as a youngster in and around the works from 1927 onwards. His testimony was as follows-

'I saw beams from the first two floors of the Tower being taken away by lorry. There were ladders up to three floors high. The wood was new. The staircase had gone. This was a good staircase up to the first floor. It was carved like a proper staircase and went round the curve of the tower opposite to way the stairs are set out today. The bricked up door at the back of the tower was the way up the stairs. Then there were ladders up to the other floors. There were no metal stairs. There was a hole, maybe for a lift there. The top floor of four floors the window had been taken out and there was an iron ring around the walls to reinforce it.'

'Right beside the Tower was the biggest mill wheel on the site.'

'Coming in from the 'rachet gate' was a ring like the bottom foundation of sort of concrete and beside it what looked to me like parts of a windmill. No machinery, nor nothing but what could be parts from a five angled windmill all piled up. Did they belong to the Tower or somebody else? The Tower might have been a windmill in my opinion'

The rachet gate was at the eastern end of the works and it is possible that the discarded parts of the wind sails and cap had been deposited there. Between 1819 and 1837 a number of 5 sailed mills were constructed in Lincolnshire for corn milling. They provided optimum efficiency but with higher initial and maintenance costs; such an unusual structure at the powdermills is more likely than a traditional 4 sailed mill to have been described by Aungier as a *'curious pump worked by windsails'*. A five–sailed Crane Park tower may have looked similar to the Maud Foster Mill in Boston, Lincolnshire, still a working mill, which is 80 ft high- without a bell cote-, but has windows arranged for its corn

milling function, rather than for a drainage mill powering a scoop wheel. Its photo can be seen on page 24

The evidence Mr. Willis gives on flooring is also useful; the beams could have supported the hydraulic accumulator, already removed. Most of the brickwork filling the rear doorway seems to part of the original structure, but newer brickwork at the top within the arch may have replaced a window similar to the top light of adjoining smaller windows. Also there was extensive landfill around 1930 as the park was developed, and the downstream leat was at the same level as the mill pond, perhaps 5-6ft below present ground level. Possibly there was an entry into the tower at this lower level, initially to provide access between the mill machinery at the second level and the scoop wheel, and later giving separate access to the hydraulic accumulator on the upper level from the workers washing and locker area on the ground floor.

A short film showing the demolition of the boiler chimney next to the storage house, available from the British Film Institute shows a significant drop in ground level behind the tower, making this lower level access a possibility.

On the assumption that the 'biggest mill wheel' refers to a water wheel rather than a millstone, it is possible that this was the scoop wheel or its remains- but more likely that it was the water wheel that had provided power, supplemented by the accumulator, for the two Pellet Press Houses next to the tower.

Credits- *Thanks to*

Colin Reeve –for sharing his detailed research on the mills at Hounslow and Bedfont, for copies of engravings, and allowing use of his transcribed plans .

Ed Harris –for the Testimony of George Willis, and for many helpful ideas, including the inconsistencies in the account of shot tower use, and for his long held doubts about the shot tower designation

Alex Robb of LWT- for access to the tower and for the Percy Morris testimony, who has been helpful and has had to cope with this challenge to the cherished, but incorrect history presented by LWT

Ian McKinnon- for pointing out the stumps of the iron brackets on the tower, and suggesting that the stone block under the second level window might be of significance

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Richmond Environment Trust for the Then and Now project which provided the initial context for this investigation into the history of the tower

Pickwillow Engine Trust- The Museum of Fenland Drainage- for photograph of scoop wheel

Katy Cox, Butts Farm historian, also for John Butts 1804 Lease

Pap Sharma, Prontaprint Hounslow

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Charcoal. Saltpetre and Sulphur, but no Subterfuge – another myth dispelled

In histories of the Hounslow Powder Mills it has been suggested that permission was given in 1757 by the then Earl only for a corn mill, with use for powder making prohibited, to satisfy the concerns of Isleworth residents, and that the powder making was illicit, only being agreed by the Earl- by then created Duke--in 1768. It always seemed highly unlikely that the Earl could have been unaware of the scale of operations, and the intentions of the John and Edmund Smyth, and unlikely also that Isleworth residents would have influenced proposals in Twickenham parish

The contract to supply powder to the Ordnance was signed in June 1757, the first delivery being made that December, albeit of poor quality powder. The extensive work in excavating two channels and the mill pond, and constructing the mill buildings- as shown in the plan on page 23- must surely have started in 1756, workers, including some with relevant experience, would have been hired, and clearly all in the locality. Including residents of Isleworth, must have been aware that these were powder mills, as indeed must have been the Earl himself, who was often at Syon House planning the remodelling of the house and the park.

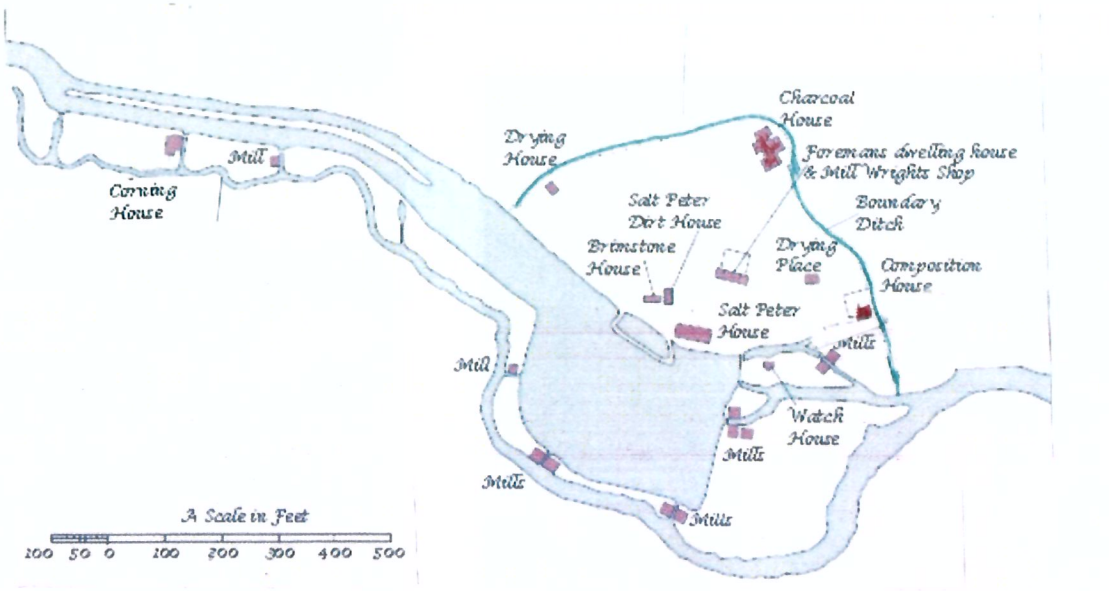
This is confirmed by a lease to the Smyth's dated 10th November 1757, granted for 61 years which refers to the a 6 acre site, and names the buildings as powder mills. A lease in 1776 extending the site area of the mills indicated that there had been 15 buildings in the original area, with 6 more since added. There may be other leases or drafts referring to a corn mill but the powder mills lease was still being relied on by John Butts in the 1800's, when it is then annotated with the end date in November 1818

There were many leases granted by the Northumberland Estate for proposals on or using water from the Crane and the Isleworth River in the mid18th century, including a 1757 lease to George Marchant for a corn mill on the Isleworth River next to the Thames- later this became Kidd's Mill. The Smyth brothers, already had a mill on the river off what is now St Johns Rd, not on the Earl's land, but needing a lease for the use of the water. This mill which had been a paper mill and a copper mill, processed brazil wood for dye. The Northumberland Archive may also include draft leases, and there has therefore been scope for confusion for both contemporaries and later researchers.

Horace Walpole was residing at Strawberry Hill in January 1772, and described the explosion which shattered eight of his stained glass windows as worse than an earthquake. .In a letter to Sir Horace Mann he implied that the Duke himself had undertaken subterfuge, "to raise his rent a trifle' he obtained an Act of Parliament, which only received the support of local gentry through the promise of corn-mills, which when built 'lo, became powder-mills'!

There was no such Act. Possibly the Earl was reticent about the nature and extent of the proposals, but it would have been clear to all at an early stage that the complex of mill building was for powder, not corn.

So, unlike the development of Heathrow there was no subterfuge. The Government urgently needed gunpowder to prosecute the Seven Years War, and was seeking new supplies, and suppliers. The mills constructed on Hounslow Heath were the sole response to this plea, and the leases show that the Earl was a party to this development, which would have been welcomed by the Government and the King.



Plan of 1757 This plan shows the mills as first constructed. The ingredient preparation houses are shown, the composition or mixing house, with a series of incorporating mills and a corning house between the new cut and pond, and the R Crane. There are also drying areas Glazing mills were added in 1768. The pressing process came into use later in the century.

Adapted from a transcription by Colin Reeve of a 1776 plan in Northumberland Estate Archive

Hugh Smithson

He changed his name to Percy by Act of Parliament in 1749 after his marriage to Elizabeth Seymour, Baroness Percy in 1740

Elizabeth was the Northumberland heiress and the Earldom passed to Hugh on the death of her father, the Duke of Somerset, in 1750.

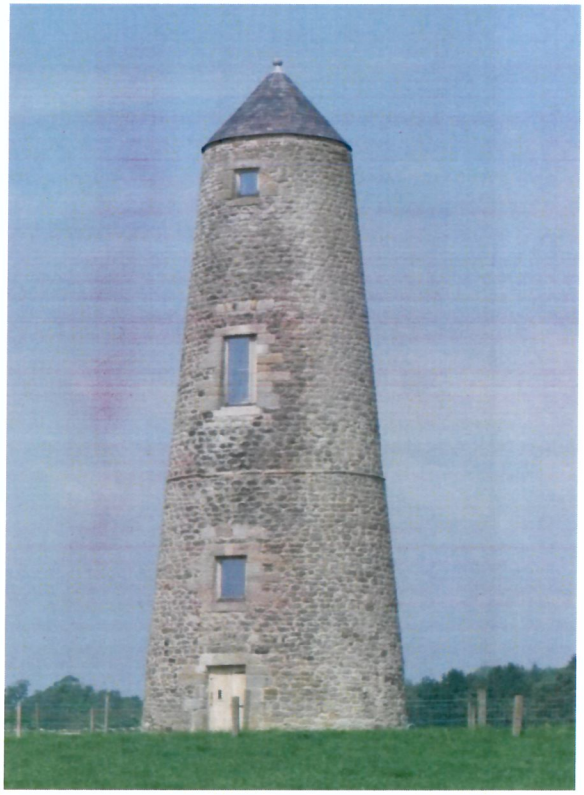
Hugh was created Duke of Northumberland by the King in 1766.Perhaps the King was grateful for the gunpowder supplies as well as Hugh's financial support!

Many alterations to the Syon House grounds were made in the 1750's

Maud Foster five sailed Windmill.
Boston, Lincolnshire

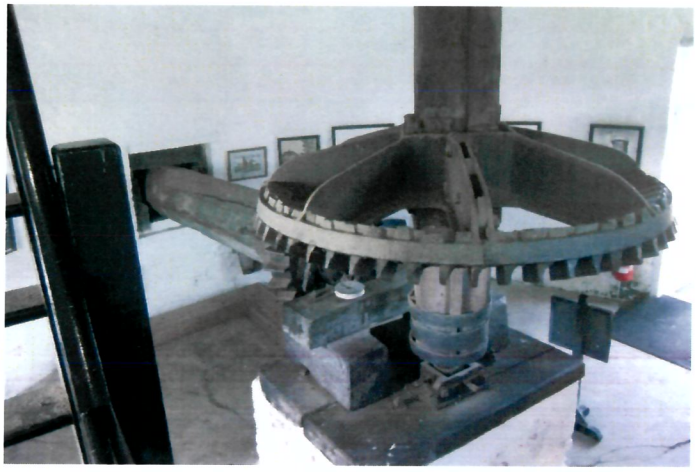
Berney's Arms Windmill
with Scoop Wheel

Shot Tower, Chester



Spindlestone Ducket Northumberland

The shaped stone lintel under the second level window



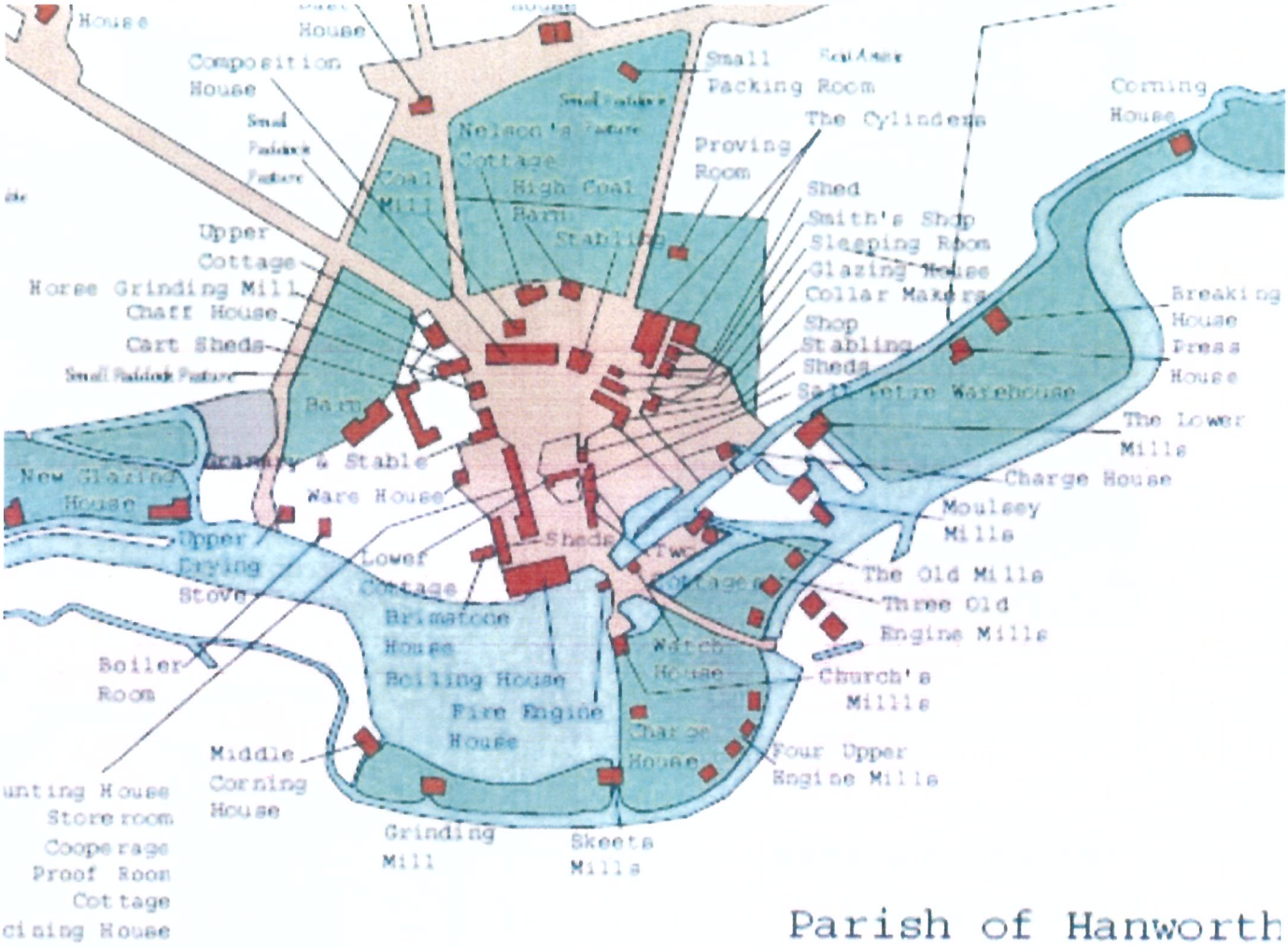
The gearing for a scoop wheel at Horsley Windmill, Norfolk.

Features of a scoop wheel windmill

Coping of the scoop culvert walls still visible next to the tower

The Tower showing a double row of port holes which supported the reefing galley for the sails.

Plan 1818



A plan showing the central part of the powder mills at the end of the Napoleonic Wars. The Tower is not yet built; it will be located behind the Watch House. The buildings on the south side of the river, in Hanworth Parish, probably relate to charcoal burning, and are connected by a bridge to the rest of the works. The plan is an extract from a digital copy prepared by Colin Reeve of a map attached to the 1820 lease to the Curtis's, but dated 1818. The 'Upper' and 'Old' Engine Mills are not water nor steam powered, but are Horse Mills, installed to increase production for the Napoleonic War. By 1820 they were already redundant and would have been demolished by the new company.

As the designation of mill on the south-west of the pond as the 'Middle Corning House' indicates, the original Corning House at the far west of the site, near Hanworth Rd was still in use, By the mid 1820's this was only corning facility, as the Middle House had become a Glazing House, and the Corning House to the east, on the lower leat, decayed, possibly demolished, because of lack of water power The resulting tragedies from explosions and the response of the company are discussed on page 5

John Butts- his story

The work on the origin and uses of the tower is not the only research that has resulted in a reworking of the history of the powder mills. It was known that John Butts was the proprietor between Edmund Hill who died in 1809 and William Harvey who took over in 1817. In 1804 John Butts had taken an 18 year lease on land on the south side of the River Crane which had been allocated as church glebe land in the Hanworth enclosure award. The farm on this land became known as Butts Farm, a name that has continued down to the present day, becoming the name of the large housing estate that was developed on the land in the 1950's.

It was naturally assumed that John Butts was a local farmer, rustic- and possibly jolly, who almost by accident took charge of the mills for 8 years between the occupation of the experts, Hill and Harvey. The first indication that this history was incomplete was to be found in the will written by Edmund Hill in 1805, 4 years before his death, in which the bequests made to members of his former workforce suggested that he was by then no longer the owner. Land charge records show that John Butts was in possession in 1804, but is not mentioned earlier. The Powder Mills are not listed before that date, but might possibly be included as part of Edmund Hill's other holdings in the parish.

From the payments by the Ordnance Office for powder (TNA WO 48 series) the most likely date for this transfer is 1798. Edmund Hill's final contract to supply gunpowder to the Ordnance Office was completed in July 1797. There were no contracts for the Hounslow Mills in 1798, then John Butts took on contracts. The first 500 barrels were delivered in April 1799, and further 500s in June, July and August. The tragedies of two explosions of corning houses that July, claiming 7 lives, with a narrow escape for a manager, possibly John Butts himself, meant that it was February 1800 before a further 500 barrels could be completed.

The original lease in November 1757 to John and Edmund Smyth from the then Earl of Northumberland was for 61 years, transferred, with additional land and mills, to Edmund Hill,- and subsequently to John Butts. A copy of this original lease is annotated with his name and the termination date, November 10th 1818.

The lease of the Hanworth glebe land can now be seen in a new context, Already well established as the proprietor of the mills, and becoming wealthy from sales to the Ordnance Office, John Butts would have been concerned that the future occupier of the enclosed former common land across the River Crane from his works might have the potential to limit his production and generally damage his interests. His solution? He took on an 18 year lease himself, putting in a tenant farmer to develop the land. He also bought from Edmund Hill the land allocated to him next to the Crane between the Glebe land and the Hanworth Rd.

Through the Napoleonic Wars the Hounslow Mills were the biggest private supplier of gunpowder, supplementing the Ordnance owned mills at Faversham and Waltham Abbey. The seven private merchants increased to nine by 1813, but only Pigou and Wilks from Dartford mills- in some years- could match the supplies from the Hounslow mills. By 1811. Following similar expansion at Waltham Abbey, seven Horse mills for incorporation had been added to the ten water mills at Hounslow, increasing production to 15,000 barrels a year-out of a national 80,000 barrels. Between 1812 and 1814 John Butts was paid in total almost £120.000,- worth over £20 million today. He retired with a significant fortune in 1817, with the completion of the last contract agreed two years earlier after Napoleon's escape from Elba to meet the possible demand from sieges of fortified cities. In the event Napoleon staked all on the battle of Waterloo. see page18 note iii

The unused powder at the Ordnance meant that the market was heavily overstocked, and the new partnership of William Gillmore Harvey and Stephen Grueber which took over the Hounslow works in 1817 had to be rescued financially in 1820 by Sir William Curtis, a city financier and friend of John Butts.

Both were freemen of the city and members of the prominent Drapers Company; John Butts had been a member of the Livery Court since 1791, Warden for 3 years and Master in 1805 and 1819. He was born in

1745, named after his father, whose family came from Oxfordshire. John senior became apprenticed as a member of the Drapers company in 1736, he married Rachel Mary Sturges in June 1744: John was born in May 1745, and Elizabeth, who lived only 3 days, in June 1746. John senior, now a coppersmith in Fetter lane had been made a freeman in March of that year, but was to die 9 months later at the end of December.

Rachel Mary, had become known as Mary, possibly as her mother-in-law was also Rachel, and as the widow of a freeman was an accepted member of the Drapers Company. Land Tax returns for 1747 show her in Fleet Street, taking over an Ironmongers business. She was master to a series of apprentices, beginning with Thomas Buckle in 1754, and then her son John in 1759, when he was 14 years old. He became a Freeman in 1767. Mary continued to manage the ironmongers business at 153 Fleet St until 1781. From 1764 until 1777 the firm was known as Butts and Cooke, occupying 153 and 155 Fleet St. John Butts took over 153 in 1778, and both premises from 1782. From 1780 he was in partnership with Christopher Hand, who had been apprenticed to Mary Butts between 1763 and 1771. The firm were listed as Ironmongers, Braziers and Founders and continued until Christopher Hand left to marry a Cambridgeshire heiress in 1788.

John Butts was by then a married man with a family. On the 28th July 1781 he married Mary Martha Godin at the parish church of St Mary the Virgin, Twickenham. Mary Martha had been baptised at St Leonard. Heston in 1757 to William and Sarah Godin, but the Godin family roots were in Twickenham. Mary Martha's brother, also William, was employed at the Hounslow Powder Mills, becoming manager, and was later to die at the mills in July 1796 in the explosion of a corning house. The ironmongery stock included small barrels of gunpowder, and it is possible that John Butts met his wife on visits to Hounslow to discuss purchases. John and Mary Martha had three daughters- Mary Ann (1782), Frances (1784) and Harriet (1785), all baptised at St Dunstan in the West, Fleet St.

St Dunstan in the West in 1800

Henry Downer joined John Butts in 1788, and took over the Ironmongers as sole proprietor in 1794. John Butts had moved to Kensington in 1791, and was developing his business as a gunpowder merchant, based at 6 Chatham Place, Blackfriars, By 1801 he had moved is business address to 1 Savage Gardens, near the Tower of London, joining or taking over from Edmund Hill and transferring to 74 Lombard Street in 1803.This remained his office address until 1823, the year before he died, but by then it had become the London office of his successors at Hounslow Powder Mills, and it remained as the office of Curtis's and Harvey for most of the 19th century.

John Butts was elected a member of the Society for the Encouragement of Arts, manufactures and Commerce- now generally known as the Royal Society of Arts- in 1772, aged 26, and remained a member for over fifty years until his death in 1824, but did not hold office or receive any awards.

The Terrace, Kensington- John Butts lived at No.4

Harriet, John Butt's youngest daughter was married to Christopher John Mills in June 1807; a daughter, Harriet was born in June 1808. Sadly both mother and child died a few years later. Mary Ann died, unmarried in 1818. John Butts died in December 1824, with his wife and his remaining, unmarried daughter Frances as the main legatees. John had been an executor for the will of his partner and friend, Christopher Hand, in 1797. Christopher's clergyman brother, James Thomas Hand, and brother in law, Thomas Ireland, a lawyer, were executors for John Butts, and bequests were made to Christopher's widow and other members of his family. Other bequests included £10 'to my farming man' William Taylor and £10 to....Sylvester 'in my service in Hanworth'. Frances married William Watson in 1826, had no children and died, a widow, in 1862.

John may have regarded Christopher Hand as the younger brother he never had, and 'adopted' his family. He left no descendants, but gave his name to an area which has been the home for many thousands of residents, and is now a designated neighbourhood area, the first in the borough of Hounslow.

Press House explosion 1859

On the 30th March 1859 charges of gunpowder exploded in the lower press house, destroying the building and its hydraulic press, but leaving the 4 press corner posts still standing. The concussion caused a corning house over 100 m to the east to explode, with seven men dying at the two mill houses.

A new press house was built 50m to the west, with protecting mounds which can still be seen. For safety reasons the workers were now based in a separate small pump house on the far side of the second mound.

There are four engravings showing the scene after the explosion; three show the remains of the press house from different viewing points, and one shows what is left of the corning house with stretcher bearers carrying casualties away.

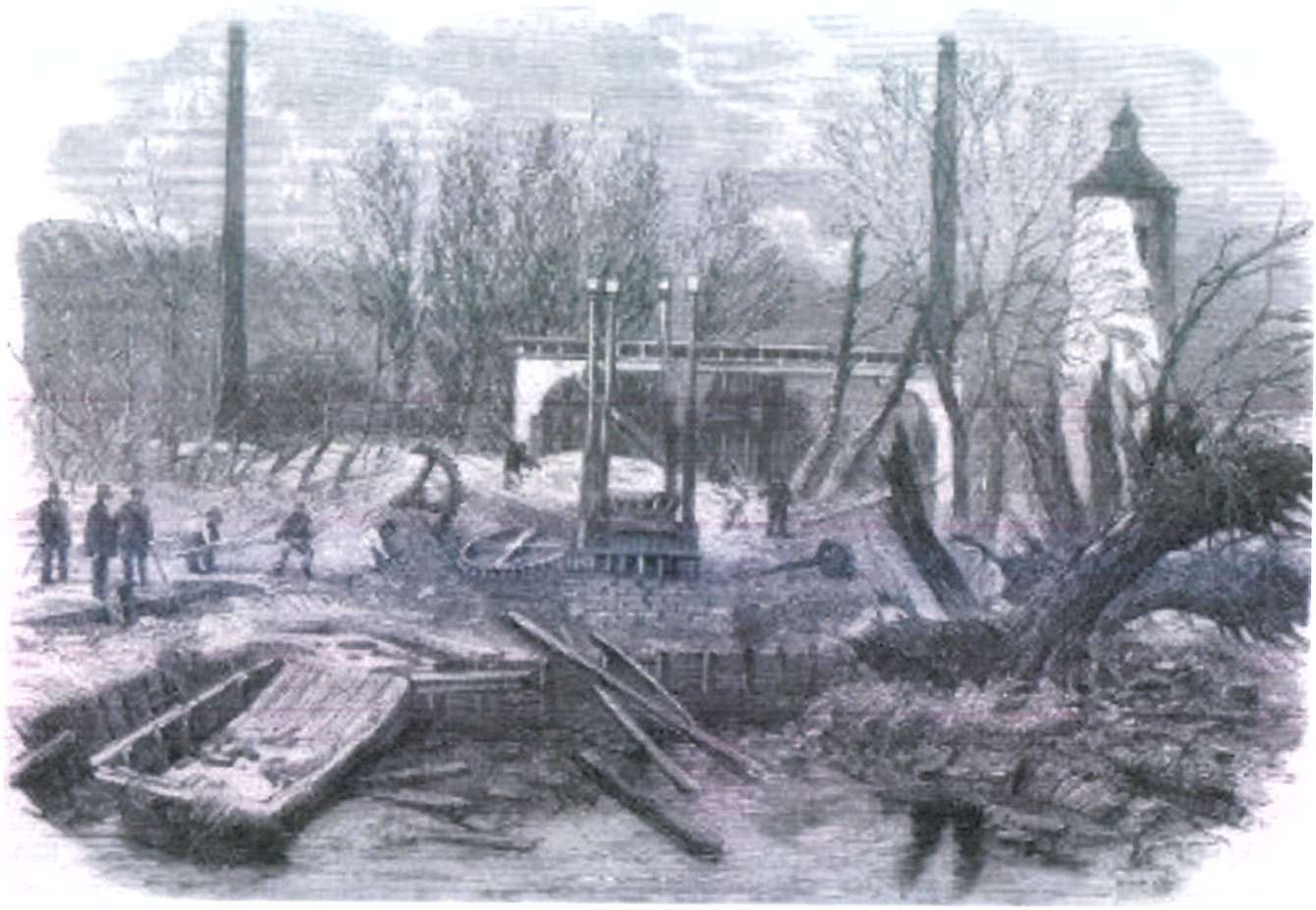
The Inquest into the deaths from the1859 explosions took place under the direction of the Coroner, Thomas Wakley, at the Prince Blucher Tavern, Twickenham Common. After four separated days of evidence the Jury decided that there was not sufficient evidence to determine by what means the explosion took place. As an appendix they added the following.

'In returning this verdict the Jury feel it to be an imperative public duty to express their opinion that the works of Messrs. Curtis and Harvey, where the explosion took place have been conducted in an exceedingly loose and dangerous manner, and that the safety of the workmen employed in such establishments, and of the public, absolutely requires the immediate enactment of a law for subjecting all gunpowder manufacturies to the stringent supervision of Government inspection and control…'

Such an indictment was unprecedented and resulted in a strong but refuted protest from the barrister representing the firm. However it was 16 years before there were regulations to licence and control powder mills under Government inspection.

In recent times it has come to light that the manager, Robert Ashbee, had formed an attachment with Frances Marion Purchase, nearly 30 years younger than him and living in Hanworth. Her father Benjamin was an agricultural labourer; her brother William worked at the mill and she lived at home but was probably a servant at the Ashbee house. By the later1850's she was established in a house in Chelsea, presumably provided by Robert Ashbee, by whom she had two children, Frances Marion born in Feb 1857 and Robert George, born Oct 1858. In the 1861 census she and her two children are enumerated in Hanworth with her father, but in August 1865 she is again living in Chelsea. The two children were baptised that month in St Luke's church with both parents present and were given both surnames.

This was clearly not a casual affair, but a relationship to which Robert Ashbee was committed. However his attendance and supervision at the mills would probably have suffered during his absences and the jurors may well have been aware of these absences. Although many in Hanworth would have known about the liaison it is impossible to assess whether this was also true of the Twickenham jurors, but had the full story been known they might have been even more condemnatory in their additional comments.



The Times reported on the immensity of the explosion

'Not a vestige remains of either of these buildings. The massive machinery contained in both of them has been scattered by the force of the explosion to a distance of several hundred yards in every direction. The trees which separated these buildings have been either uprooted or their branches destroyed, and a solid earthen embankment, twelve feet high, which had been thrown up between them, is levelled to the ground. The appearance presented by the uprooted and dismembered trees is as though a field of artillery had been fired point blank into an immense plantation'.

The engraving shows the devastation, with the supports for the press still standing. In the background is the tower, with the chimney for the storage house boiler behind, to the left is a boiler chimney for one of the new banks of incorporating mills; between them is a structure housing the gearing for carrying a rope power transmission system over the river or leat. There is a shattered tree, pieces of wood and a damaged punt in the foreground. Behind, managers look over the chaos of machinery wreckage, whilst workers move planking and search through piles of rubble, possibly seeking any remains from dead colleagues.

Such scenes were an ever-present possibility at the powder mills, a reality that is further described in the next story in this collection

Gruesome stories, risks and reality

Visitors to the tower often took an interest in the gruesome and gory history of the accidents at the mills, and in those past times, newspapers would give the fullest details, avidly sought by their readers. The Morning Chronicle report of June 12th 1829 reported on the scene of the explosion of the corning House a few days earlier is a particularly lurid example.

'A most appalling sight presented itself- the corning house was blown to shivers, huge masses of brick-work, portions of large iron wheels and planks of timber, lying in various directions, the whole of a blackish hue, produced by the powder; the trees surrounding the demolished house are quite destroyed, many of them being blown into the dam in the vicinity'.

'A search was immediately made for the bodies of the unhappy men who perished; Barrett was discovered about fifty or sixty feet from the site of the corning house, across some water; his body was mutilated in a shocking manner; both his legs were blown off; his death must have been instantaneous, from his head being crushed in'.

'Bird was found a short distance from him, but in a much more horrid condition; his body was nearly severed just above the hips; both his thighs and legs were laid open to the bones; the muscles protruding; every other bone in his body was broken; the body had the_appearance of being in a forward state of dissection'. Both the bodies were moved to a shed near the mills, preparatory to the Inquest.

Forty years on, in the 1869 double explosion of the upper glazing house and a charge house, the reporting was equally dramatic. It was reported that in the case of the three men killed 'on the spot identification was all but impossible, for their heads were disfigured and their limbs lay here and there over the scene of devastation, which was sickening in the extremity of its horrors'...'The explosion broke the river bank and flooded the lower part of the premises, in which the clock face was shattered, the hands stopping at ten minutes to four'

Identification was sometimes even more difficult. At the Inquest into the 1850 disaster the Coroner asked *'have the feet of worker Glazier been found;'* (this to establish if he was wearing his safety boots) Came the reply from Mr Lambourne, clerk at the mill,*' I don't know, the only portion of him I have seen is his finger'.* After the 1887 glazing house explosion a finger was also all that was initially found of the remains of William Lewcock. After continued searching, many more fragments of his body were found 50 to 100+ yards north of the building.

The force of explosions was immense. In that 1887 explosion machinery parts weighing up to 150lbs were hurled southwards for up to 400 yds, the opposite direction from the body fragments; William Hersey and Benjamin Inns, who died in the 1826 Corning house explosion were found blackened and burnt having been blown 300yds from the mill,; one arm was found in a field even further away. The results could be both tragic and bizarre. The body of Thomas Marks, in 1915 the last to die in an explosion, was blown from the glazing house on what is now Crane Park Island, across the wide millpond to crash though the tiled roof of the Saltpetre refinery 100yds away and land, the body still intact, in a vat of saltpetre. Over a hundred years earlier, in July1796, Mr Elliot, an officer in the guards, was bathing in the Crane near the mills, when the leg from one of the men killed in the corning house explosion fell into the water close to him.

Explosions were not the only cause of fatalities; in the mixing house fire of 1874, reported elsewhere in this collection, four young men were roasted alive, their bodies found burnt and charred; at least one workmen drowned in a stream, and another from losing an arm in machinery. It is also impossible to assess how many lives might have been cut short from respiratory illnesses caused by charcoal and gunpowder dust. This would also have affected the wives and families of workers living at houses at the mills; the deaths of a groom living at the mills, Henry Plaster, in 1856, his first wife in 1848 and his second wife in 1853 may be indicative of this.

Though men in the danger houses were most at risk, all workers could be vulnerable. In November 1815 James Tinsey died when a press house exploded; A piece of burning timber fell on a corning house 50 yds away, which in turn exploded. The building was unoccupied, but William Ferris was passing close by on his way home to Hanworth after his day's work, and perished, being blown 40 yds. In February 1842 two workers died when the lower corning house exploded; three men passing by were badly injured, one of whom. Alfred Malthouse died later.

In July 1872 Frederick Lynch had called to deliver water when he became one of five killed in the explosion in the mixing house. Three years earlier the three men that died had taken shelter behind an engine house when the upper glazing house exploded, but the flash carried across the surface of the millpond to the nearby charge house, where gunpowder was stored. It in turn exploded taking the lives of the three, and that of a boy passing by riding a horse. Other buildings were also wrecked, with the slightly wounded numbering 20, including two women. These were hazards faced by workers at all powder manufactories, but happily the fight in a watch house at Waltham Abbey in 1810 when brimstone worker Barnard Pressland struck and killed saltpetre man Noel Sayer, was not repeated at Hounslow.

Managers were not exempt from danger. Henry Clifford, a foreman, was caught in the multi explosion of 1850, and badly injured. He died a few months later. In July 1796 The general manager of the Mills, William Godin, a friend of the owner, Edmund Hill and brother-in-law of John Butts, died when a corning house exploded when he was visiting. Edmund paid his widow, Hannah, £250 a year and made provision in his will for this to continue for life, notwithstanding her remarriage. Pensions awarded to widows and young families of other workers were less than 10% of this.

The explosions were audible for miles around. Wives and mothers would know immediately what this meant, and hurry fearfully to the works gates. Aaron Compton, known as John, was injured in the 1850 explosions; His mother and sister lived at Acton, 6 miles away, and in 1859, hearing the explosions on March 30th, hIs mother said 'Oh that is the mill; my son is dead!' John's sister took the train to Hounslow, and met her brother's wife, just come from the mills where she had learnt of her husband's death. Such anxieties were ever present for the workers families; for the men in the danger houses, where horror could befall at any time, any thought of this would have to be set aside if the production of gunpowder was to continue.

Bravery at Bedfont

An explosion in the corning shed at the Bedfont works resulted in the deaths of the three men working there, but had the foreman John Archer not acted with bravery and resolution, the disaster would have been even greater. An ignited barrel, hurled from the explosion had set fire to palings around a nearby press house, which contained a large quantity of powder. Reckless of the consequences, John Archer obtained several buckets of water, and rushing back to the spot extinguished the flames before they could reach the press house, every second both he and those in the press house were 'being threatened with a dreadful end'.

Tally Ho

The 21 year lease granted in1820 to Charles Berwick Curtis, Sir William's son, and Thomas, his nephew, included a clause which permitted Hugh (the Duke) his friends, and gamekeepers, with or without servants, *'to hunt, hawk, shoot, fish and sport in over and upon the hereby demised lands.* Presumably, like the safeguarding of mineral rights, this was a standard clause in the Duke's leases! It has not been recorded if the Duke or his friends ever took advantage of this and galloped through the works in pursuit of game, but it seems unlikely that they would have wished to share the daily risks faced by workers.

A Gunpowder Plot

To the disappointment of some the Hounslow Powder Mills were established 150 years too late to have supplied any of the gunpowder barrels stacked up under parliament by Guy Fawkes. It was however the source for a later equally unsuccessful gunpowder plot, but one that had tragic consequences.

On Friday 6th December 1867 William Purchase, carman for Curtis's and Harvey had collected four 50lb half barrels of gunpowder from the Hounslow factory and delivered them to a Mr Smith at 8 Pulteney Court, Silver Street, London, to fulfil an order made at the London office at 74 Lombard St on the Wednesday evening. The address was a green grocers' shop; one half barrel was left in the rear yard; the other three were hurried off in a tarpaulin covered cart.

The events move on to 6 days later, Thursday 12th December 1867. Two Fenian prisoners had been lodged in Clerkenwell prison, one of whom, Richard O'Sullivan Burke, had planned a rescue attempt of prisoners at Manchester in which a policemen had been killed. There had been warnings that an attempt would be made to free the two prisoners from Clerkenwell. Armed guards were posted on the prison roof and uniformed police patrolled the surrounding streets with instructions to be extra vigilant.

At 3.30 a man wheeled a handcart up the street adjoining the exercise yard. Balanced precariously on the cart was a large barrel, which was unloaded and placed next to the prison wall. A white ball was thrown over the wall, presumably to alert the two prisoners that the opportunity for escape was imminent.

The man stuck a fuse unto the barrel, lit it, and ran for cover; it went out. He returned to relight it, only for the fuse to go out a second time. Accepting failure the man reloaded the barrel onto the cart and wheeled it away.

The less than vigilant officers from the police took no notice of any of these events.

The next afternoon, Friday the 13th, warders noticed people at widows overlooking the yard. At 3.45 a horse and cart stopped and two men unloaded a barrel which was place against the prison wall. Before the eyes of the watching police one of the men crossed the road to where a group of boys were smoking and talking. He produced two fireworks, one of which he gave to the boys. He begged for a light for the other firework then returned to the barrel, stuck the firework in and ran for his life.

Seconds later the barrel exploded, demolishing a long section of the prison wall. Fortunately the prisoners exercise period had been brought forward to the morning, and they were in the cells, otherwise many would have been killed.

Less fortunate were residents in adjoining houses, a row of which were demolished burying 50 people,12 of whom were killed or died from injuries.120 more were injured, and 400 houses were damaged. P C Moriarty, although close to the bomb was unharmed but had all his clothes blown off. The commissioner of Police offered his resignation.

Needless to say the escape plan was unsuccessful. Michael Barrett was found guilty of being involved in the attack – on likely false testimony from a fellow Fenian, and despite evidence that he was in Scotland on the day of the crime, 5 others were acquitted at the trial. Michael Barrett was executed in May 1868- the last public execution in England.

The scene after the explosion at the House of Detention, Clerkenwell

HOUSE OF DETENTION, CLERKENWELL—SCENE AFTER THE EXPLOSION.

Sources- Old Bailey online; Simon Webb- *Dynamite, Treason and Plot.*

Was John Butts a keen fisherman?

The river now known as the 'Duke of Northumberland's River', was constructed in 1544 as the Isleworth River to bring water from the Crane to provide power for two Isleworth mills that had come into the possession of the king through the suppression of Syon monastery. In 1604 the estate was granted to the Earl of Northumberland, and the river, together with the length of the. River Crane immediately upstream became known as the Isleworth Mill River. Until the purchase by Middlesex County Council in 1931 this river and the water within it was the property of the Duke of Northumberland.

In 1806 John Butts purchased the fishing rights to all kinds of fish in the Isleworth Mill River Fishery, for three years at £16 16s a year. Was this was to prevent others acquiring these rights which might have constrained activities at the Powder Mills? –following on from his earlier lease of the glebe land! Or was John Butts a keen fisherman, ready to pay handsomely for his hobby?

For now this must remain a mystery.

Sabotage, security and stupidity

A more direct Fenian threat was causing concern in the 1880's, with the campaign of the Irish –American Dynamitards targeting key locations with dynamite explosions, including the Tower of London in 1885.The following year Curtis's and Harvey received a letter purporting to have been written by Fenians and bearing an Irish postmark saying that both their mills will shortly be blown up. Watchmen were armed with revolvers and patrolled the premises day and night. Two 'very suspicious looking men were subsequently seen loitering at night near the Bedfont mills. The alarm was raised but men ran across the fields towards Feltham and disappeared. Security was still in place the following year,1887, after the death of William Lewcock, to ensure that only those authorised gained access

During the First World War security was tight, with armed soldiers on guard. The Inquest into the death of Thomas Marks in 1916 was held at the Mills. Members of the press waited at the gate while the manger considered their request for attendance. After half an hour agreement for five to enter was sent. However in the meantime the sentries had been changed and entry was again denied by an armed sentry, following his general orders and not impressed by the permit or the press cards, saying 'How do I know you are not all Germans'. The situation was becoming fraught, to be saved by the arrival of the Coroner, who made it clear that the press should be admitted to his Inquest,

A probable spy for France was apprehended in March 1798 at the Royal Powder Mills Faversham. He had been seen for several days in various parts of the works, asking questions, and was taken in the act of drawing a plan, interrogated and escorted by dragoons to London. It was reported that he attempted to destroy papers that were found on him.

Sabotage always presented a risk to powder mills, as the addition of even a small solid object into the processes in the danger houses could result in calamity, and sparks from a piece of iron meant disaster. In the 1790's- during the French Revolutionary War- there was domestic discontent, and food shortages, with radical reform and opposition to the war being suppressed, all intensifying the fear of sabotage. In 1796 there were three explosions at the Hounslow works, claiming a toll of 14 lives including that of the works manager, William Godin.

Sabotage was suspected, and seemed to be confirmed as after the second explosion two workmen who had been previously discharged from the Bedfont works for bad conduct were heard saying that if they were not re-employed another mill would be blown up, and also a house of Mr Gardner, the manager of Bedfont Mills. However it seems they had been responsible for throwing horseshoe nails into a mill at Bedfont, which blew up without causing loss of life or injury. In 1799 there was another series of explosions at Hounslow Mills, two in July claiming seven lives; sabotage was again suspected, newspapers suggesting that the frequency of explosions indicated that these did not result from the negligence or inattention of workers or the carelessness of management. However, at the Inquest it was reported that the men in the Corning House had been heard wrangling about who worked fastest, and that their competition had resulted in overheating and an explosion

In 1818 the industry faced a crisis because of stock piled powder and reduced demand. The Gunpowder merchants wrote to the Lords of the treasury, one of their concerns being that if worker were laid off not only would experience be lost, but they might take out their frustrations by burning down the manufactories. No such incidents were reported at Hounslow or elsewhere, and although there were improvements to the machinery in the danger houses, and the introduction of steam power to the incorporation mills in the 1850's both these basic process and those in the craft workshops making barrels and tins changed little over the years. There were no Luddites or visits from Captain Swing.

Sabotage was again a concern in 1873. A flint stone the size of a walnut was discovered in the powder about to undergo corning, and a few days later a stone of similar size was found crushed in a corning house trough, rollers having passed over it. The mill was immediately stopped, all corning houses locked

and all danger processes suspended. The company offered a reward for the discovery of the perpetrator, but all attempts to discover who was responsible ended in failure, and after a fortnight men were allowed to resume work.

A month later two of the Barnfield incorporating mills on the northern side of the works blew up. The mill keeper had left half an hour earlier, but a man named Hawkins was discovered badly burnt in the remains of one of the houses, despite having no business whatever at the Parkfield mills. There had been a similar explosion twelve months earlier with Hawkins again the only person injured. He made a recovery from his injuries, and this seems unlikely to be attempts at sabotage, but for the second incident at least, the consequence of mental illness, possibly the long term effect of concussion.

Twelve years later, in 1887 Nathaniel Ingleton, a London cab driver, visited one of the resident engineers at the mills, to whom he was related. He left the same night but was later found wandering around the works, with Lucifer matches in his pocket. He was questioned, but nothing could be made of his answers, and it was discovered that owing to injuries sustained when falling from his cab a fortnight earlier he had become mentally ill. He was removed to the Brentford workhouse.

Fire and sparks represented the greatest of threats to safety at the mills, and Lucifer matches and pipes were not allowed, workers facing searches at the gatehouse. Security had clearly become lax, because after the 1869 explosion an unannounced search of men entering for work revealed no fewer than fifty eight to be in possession of pipes and Lucifer matches. Three years later the jury at the inquest were not convinced that three searchers were sufficient to search the establishment of 250 men, and were concerned that whilst waiting in a queue they were able to discard banned items.Being in possession of matches or pipes on the premises resulted in instant dismissal and possible prosecution in the magistrates court. At Waltham Abbey Powder Mills men were also dismissed for being drunk on duty, or being asleep when on watch, and no doubt these offences also occurred at Hounslow.

Some of the explosions and fatalities were the result of inattention, or an incorrect procedure that in other industries would pass unnoticed; some of these have been mentioned elsewhere in this collection- wearing the wrong footwear to save time; using the wrong tool to clear caked powder; keeping a steel case in a pocket whilst working. Short cuts to save time, but costing lives. On at least one occasion the works management was criticised; sometimes it was clear that machinery had broken or malfunctioned, but most often the cause of an explosion could not be determined.

There was a long history of complaints about the impact of explosions on the locality, from the lobbying of Horace Walpole in 1772 about the damage to his stained glass windows to the petition from Twickenham Local Board in 1869 to The Duke of Northumberland, begging him not to renew the lease of the land to Curtis's and Harvey. The Duke did not renew the lease, instead he sold the site to the firm in 1871!

Postscript

The press could be cynical and unsympathetic to possible sabotage. In November 1796, reflecting on the frequency of explosions that year, an Evening Post editorial stated- *'It is proposed to the Proprietors of the POWDER MILLS at Hounslow, to name one day in the week for the explosion of their Mills, in order for travellers to keep out of the way. Instead of the present mode of blowing them up, ad libitum, which is attended with great danger to those not in the secret'.*

Sabotage was not the only dangerous assault to be wary of in the Hounslow area. Two months after this sarcasm from the press, in January 1797, the proprietor Edmund Hill and his relative John Fish were returning from the Hounslow Powder Mills to Whitton in a carriage when they were attacked by two highwaymen, well mounted, with crapes over their faces, about a mile from Hanworth Bridge, who robbed them of their watches and money.The previous July Edmund's manager and friend William Godin had died in an explosion; his sight was declining, and this robbery may have been the last straw. This was to be his fortieth and final year as proprietor of Hounslow Powder Mills.

A lost generation at Hounslow Gunpowder Mills

The gunpowder mills on the R Crane at Bedfont were established in the 17th c; in 1757 responding to the demand for gunpowder in the Seven Years' War a manufactory was developed further downstream- in the parish of Twickenham, but always known as Hounslow Powdermills. In the 1820's it was owned by Curtis's and Harvey, who also acquired the Bedfont works in 1833. In the 19th century it was the most important local employer, with over 300 workers, drawn from all the surrounding communities. The works extended over 100 acres, with the complex production process passing through a succession of 'houses', widely separated to minimise the impact of explosions- over 100 workers died in explosions in these 'danger' house in the century to1875. Workshops where constituent materials were prepared; where services such as cooperage, tailoring, tin making and carpentry were undertaken, and packing sheds (employing women) were regarded as safe, but still subject to a stringent safety regime.

Generations of families worked at the mills. Ernest Alderman, writing about his first days working there in 1920 as a 14 year old leaving school was following his grandfather, with nearly 40 years' service, his father an engine driver, probably looking after one of the three large stationary steam engines that each provided power for six incorporating mills, and his mother who had also been a packer there.He had to start at 6 am, and leave at the entrance lodge any matches and tobacco. His first job was to collect water and clear up the wash house. Next he had to get the men's dinners from the cupboards in the tower and warm them in an oven. He was shown how to harness and look after horses,- and after a month became a cart boy transporting powder around the mills,- and was taken to all the danger houses and instructed on the many essential safety precautions.

The learning process with its emphasis on safety, necessary for new young workers at the mills, would have changed little over the years.- except of course that in the 19th century boys at the mills could be even younger The story of another worker who started at the mills as a young boy half a century earlier, in1869, was found by Mike Day, a genealogist,- and fellow member of the R Crane friends group- in the Willesden Chronicle for February 7th 1943. This was a short article about the life of Richard John Hurst who had died in Hounslow in his 85th year. More information on his 57 years of service at the mills was reported in the Middlesex Chronicle of 29th May 1926. Richard's father, grandfather and elder sister all worked at the mills and he started aged 12 making tins in the Japan shop at 6s a week. His first years at the mills were traumatic because of several tragic accidents that claimed the lives of many of his friends

On June 17th 1869 three men and a boy died after an explosion in the upper glazing house. The flash from the explosion traversed 150m over the surface of the mill pond and ignited powder in an underground store, The men- Samuel Gardiner, 31 from Hounslow, Richard Pulham 57 from Feltham and William Penfold, 40 from Hanworth were standing nearby the store, next to an engine house powering a line of incorporating mills, all of which were demolished. 15 year old Albert George Holloway who lived in Hounslow was passing on horseback and was blown a considerable distance and killed. The explosion breached the mill pond embankment wall, draining the pond and flooding the lower part of the works. The clock face located on the factory tower was shattered, the hands stopping at ten minutes to four. (This building, now known as the 'shot' tower-without a clock!- remains on site as the visitor centre for Crane Park, with its Gunpowder history and nature reserve managed by London Wildlife Trust). (*See engraving on page 40 overleaf).*

Three years later, on September 6th 1872, four more boys died in a double explosion when powder was being moved from a mixing house onto a punt to be taken to the next stage of the process. George Cobb, 28, in charge of the boat also died. One of the boys, James Cooper, 17, was looking after the horse and cart being used to carry the barrels from the mixing house to the platform next to the boat. James had not worked long at the mills- in the 1871 census he is to be found working as an ostler at the Old Crown, Church St, Kingston.

A VIEW WITHIN THE BOUNDARIES OF THE FACTORY.

Mixing House is on the right of the photo. The rope transmission taking the charges to the nearby charge House can be seen far right. The storage shed and the Watch House can be seen in front of the Tower

Frederick Lynch, also 17, who died in the mixing house, had been at the mills for an even shorter time. In 1871 he was the toll keeper's assistant and living at the Tollgate House at the Bell Rd gate in Hounslow, and would have started at the mills just three months before the explosion, in June 1872, when tolls were abolished and the gates removed. One report suggested that Frederick had just arrived at the mixing house bringing flagons of water. Two other boys who also died in the mixing house; William Palmer aged 15 from Feltham and Stephen May,16,- who lived with his family next door to George Cobb in Hounslow- were certainly employed there.

At the inquest the thoroughness of the searching of workers was questioned, and suggestions were made that the explosions were caused by a boy lighting a cigarette in an idle moment. The jury could not determine how the explosion was caused, but added a rider that there should be greater care in searching workers.

Although the lack of experience of the boys was not raised, their maturity appears to have been questioned. Probably in answer to Captain Smith (The Government gunpowder mills Inspector) Edward Goddard, called as a witness, said that he was in a weighing room close by, preparing materials for mixing and was blown into the water; He 'never left the boys for more than a quarter of an hour at a time. They were 'well conducted seldom being seen laughing or 'giggling about'.' But like all boys of that age when friends arrived they would be diverted, and attention to the strict demands of safety could be forgotten.

The Times newspaper took up this concern, doubting whether 'at any age boys can be trusted to be as careful as such work requires', and suggesting that the public will 'feel wonder at hearing that boys are employed in so dangerous a place as the mixing house of a powder mill'- in which 'a single act of foolhardiness may involve a whole neighbourhood in disaster'.

100 years earlier Horace Walpole had expressed a similar concern for nearby property as his stained glass windows, and those of his neighbours, were blown in. Over the years however there was also greater concern for the work force, both in the national press and at inquests, in particular the Inquest into the 1859 explosion -with Thomas Wakley as Coroner- and these changing responses deserve further examination.

The rebuilt Mixing House was the scene of another tragic accident two years later on 3rd November 1874. Eight mixed charges were about to be taken on to the incorporating mills. One charge caught fire and the rest instantly ignited; there was no escape from the flames and fumes for the four men in the mill who were suffocated and roasted. The new building had been lined with wood to limit danger from grit, and this increased the force of the fire.

The four who died were young men of a similar age to Richard Hurst; Stephen Butler 18 and John Day 22 from Feltham; William Henry Archer 20 and George Todd 22 from Hounslow. The leading man, named as William Goddard, but possibly the same man who was a witness to the earlier incident, was outside starting to load the cart; Josiah Chapman aged 17 stood between him and the Mixing House door. When the fire started both ran to the nearby river and jumped in, William Goddard was seen to be burnt about the legs; Josiah was more severely burnt and died from the effects of his injuries on 9th November.

Richard Hurst was 17 in 1874 and would have seen or been aware of the deaths of 9 friends and colleagues similar in age or slightly older- but he stayed with the firm for 52 years more, putting in many long shifts during the 1st World War.

The Inquests into the deaths in 1874 were less thorough than that of 1872. An adjournment to enable a Government Inspector to attend was ruled unnecessary by Coroner Thomas Diplock. A juror asked if it would not be better to employ older and more experienced hands on such a dangerous occupation, and Joseph Brown the manager of the works responded *' No, quite the contrary, they were engaged in the least dangerous process there is in the manufacture of gunpowder'.*

Although mixing houses may have been safer than the mills undertaking pressing or corning, contrary to Joseph Brown's assurance it was also a dangerous process. In mixing house explosions 2 had died at Gatebeck, Cumberland in 1859; 4 at Faversham in 1867; one at the same place in 1872. Just as relevant was the mixing house explosion at Hounslow in April 1857. A blue flame light was seen flickering, and knowing at once what would happen amongst so much combustible material the instant cry of 'fire' was raised and then 'run for your lives'. Three workers were quick enough to run out and reach safety; two others were injured by the blast and debris. Significantly the hands were described as 'youths' and 'lads', suggesting that it had long been the practise to employ younger workers on this process

At the second 1874 inquest, into the death of Josiah Chapman, the manager fended off a juryman's comment that explosions took place at the Hounslow mills more often than anywhere else by saying that they were quite as frequent at other mills but being near London more notice was taken of the occurrences

The latter was probably true; it was the proximity not just to London, but also to the arcadian residential environments of Twickenham and Richmond, that prompted press commentary; nevertheless, analysis of the available statistics suggests that explosions causing fatalities were more frequent at the Hounslow mills than at Waltham Abbey, Faversham, or Dartford – though fatalities elsewhere in some explosions had been greater, including the 21 who died during early guncotton manufacture at Faversham, amongst them 5 women.

There were to be later mixing house fatalities elsewhere, notably 5 dying at Faversham in 1906, but at Hounslow 1874 saw the last of the explosions with multiple deaths. Until closure over 50 years later in 1926, only three older men were to die in explosions, one in each of the glazing houses and. one whilst cleaning an incorporating mill, and one man, William Henry Davis, died after his powder-caked clothing caught fire in the watch house. His story is to be the next- on page 42-, and last, to be told.

The dry millpond after the 1869 explosion. The supports for the transmission drive shaft stand beyond the river and can still be seen today on Crane Park Island

There had been legislation in 1860 to increase safety in making, transporting and storing gunpowder and other explosives, but despite being added to piecemeal, control and enforcement were lacking. Major Majendie was appointed Chief Inspector of Explosives at the Home Office in 1871 and with his team undertook a systematic examination of working practices in the industry, noting the many violations of the law and making many recommendations to factory managers for safety improvements. As he reported to the parliamentary select committee in 1874, all too often their advice was ignored, one factory failing to take notice of 10 separate safety improvement recommendations. The committee heard from Mr Curtis as a major factory owner. He --and other owners- was supportive of tougher legislation with enforcement powers but wanted it to be reasonable in its impact on the better run works. In October 1874 the explosion of gunpowder in a barge on the Regents Canal resulted in the deaths of only the crew but caused havoc and panic, destroying a house and damaging much other property, including the Zoo. A detachment of Horse Guards was called out to maintain order and to provide safety from wild animals.

The minds of Members of Parliament became suitably focussed on the dangers of gunpowder and the Explosives Act was passed the following year in 1875, requiring the licensing of factories and storage, regular inspections, and including enforcement provisions. Curtis and Harvey adopted a stringent code of practice the following year, when the Hounslow works gained its 'Continuing Certificate'. There were still many explosions, principally in the unattended mills where the powder was 'incorporated'; In fact Hounslow and Glyn Neath, Wales, also owned by Curtis and Harvey, had significantly the worst records with averages of one explosion a year. But as I have described fatalities were rare and no more young lives were lost.

A basin of cocoa

The last fatal incident at the Powdermills was one of the saddest and demonstrates that millmen could face danger even in a safe building, and that even the most experienced of workers could have a moment of fatal inattention.

William Henry Davis was born in 1849. His father was Henry Davis who died in the Press House explosion of 1859; In 1861 he was being looked after by his uncle William Davis, aged 42, both lodging with Charles Burrows in Holly Cottage on what is now Layton Road. In 1863, aged 12 or 13 he started work at the Powder Mills, initially at the Bedfont works before transferring to the Hounslow mill. In 1871 he was still lodging with Charles Burrows, now in a house on Orchard Rd, off the Wellington Rd- but not for much longer, for living in the same house as a general domestic servant was Mary Bax, who he was to marry later that year.

William Henry continued working at the mills; he and Mary had two children. In 1901 both were also employed at the mills; Mary, aged 28, as a machinist sewing safety clothing and Henry, aged 17, cutting packaging material. William Henry became a millman looking after the incorporating mills. He was injured in when a series of four mills exploded in March1902, being badly burned about the head, with his clothing catching fire. He fainted from the shock, but recovered after medical treatment.

These mills were a section of the 7 incorporating mills powered by the Hicks Corliss engine, on what is now Crane Park Island. In 1917 William Henry still had responsibility for these mills, as part of a team of three; He and Thomas Crane loaded the mixed powder into the edge runner bowls, ensuring there was an even spread and sufficient liquor. William Tillier was the engine driver, acting as stoker for the boiler and responsible for its smooth running. Once the edge runners were in motion the millmen could go to the Watch House, checking back regularly to make sure the mixture was still properly liquored.

Both millmen were in the Watch-house shortly before 11am on 19th December 1917. It was a cold day, and Thomas Crane poured William Davis out a basin of cocoa. The next he saw of him was that he was a mass of flames. William had gone to the grate–covered fire to warm his hands when a spark blew onto his powder-caked clothing. Thomas Crane could not assist his workmate by smothering the flames because his clothes were also covered in powder, so he ran to get William Tillier the engine driver, who rushed in and pulled the rest of William Davis's clothing off, and applied oils, available for such accidents.

William Davis was taken to Hounslow hospital- he said he could walk there, but was not allowed to- and was treated for his burns. Sadly septic poisoning set in and he died on 28th December. At the inquest a suggestion from a juror that hot water pipes would be better for heating was rejected by the firm as too expensive, and not pursued by the coroner, who felt that that accident had occurred because William Davis had not followed a warning. The jury expressed sympathy to his family and appreciation for the prompt manner in which the engine driver acted in the emergency.

The photo on the opposite page shows a similar team of mill men from Oare, Faversham, taking a break from duties. The photo on the rear cover shows the mill men from Hounslow / Bedfont with the management, c1910

Hounslow Powder Mills memorial

The history of the gunpowder industry in Crane Park has always been recognised by London Wildlife Trust and is featured equally, if inaccurately, with nature conservation in exhibition and documentary resources in the Tower centre. In recent years LWT community projects undertaken by LWT, funded by the English Heritage Lottery Fund, and enhancements to Crane Park financed by the Mayor of London focused attention on the archaeological possibilities presented by mill remains, and the need to set this within the historical context.

This also prompted a more detailed analysis of explosions and other accidents at the mills, particularly those involving loss of life. This has shown showed that there had been over 100 fatalities at the mills over the 170 years of operation- many more than had been thought These deaths were recognised as a sacrifice in the national press, -in aiding the county's military needs, It also became clear that these workers came from all the surrounding communities- Hounslow. Feltham, Hanworth, Twickenham, Whitton, which was particularly relevant as residents of L.B. Richmond had successfully opposed a bridge linking their side of Crane Park with Hanworth. Although plans for a shared present for the park were not been universally welcomed, emphasis on the shared history is surely desirable, taking the form of memorial commemorating the dangers faced and the sacrifices made by workers at the former gunpowder mills.

A memorial would also remind the users of the park of this earlier industrial history and the sacrifices of the workforce, indicate the contribution to this history from all surrounding communities, and encourage an appreciation of the continuing relevance of this shared history.

The roll of those who died is set out on the following pages.

Mill men from Oare, Faversham, taking a break from duties

Hounslow Powder Mills explosions and accidents. Men who fell a sacrifice

1757 June 24	Contract agreed with Ordnance Office to supply gunpowder			
1758 March 11	Mills blown up, 3 Pestle mills and a Horse mill built by early June 1758			
1765 October 30	One powder mill on Hounslow Heath blew up. Three persons died. (Gentlemen's Magazine Nov 1765 p.535) No burials yet found.			
1770 September 27	One man died. (William Till- Buried Twickenham Sept 29)			
1772 January 6	Corning and Dusting Houses exploded. Child reported to have died in nearby house and deaths from wagon overturning			
1774 April 24 Twickenham		Thomas Money John Harvey	} }	Buried St Mary's April 26
1781 September	An accident at the Powder Mills	John Bird		b Hanworth Sept 4
1796 January 24	Corning House (+ punt)	William Hollis Matthew Weeving Joseph Perry Richard Winterburn	} } } }	Buried St Mary's Twickenham January 27
1796 July 29	Corning House 4 men died (Works manager)	Edward Ponter William Joise James Joise William Godin	} } }	Buried St Mary's Twickenham July 31 Buried Heston Aug 2
1796 November 17	Two mills	Richard Boother James Hall John East John Kerrold Daniel Woolger	} } } }	Buried St Mary's Twickenham November 19 Buried Twickm. Nov 20
	Cart driver	William Ludman		Buried Feltham Nov 20
1798 June		Henry Holmes 14		Buried June 19 Twickenham
1799 July 13	Corning House	William Payne William Skeats John Drake James Tugwell	} } } }	Buried St Mary's Twickenham July 15
1799 July 19	Corning House (another) (3 men fell, a sacrifice)	Benjamin Clements Thomas Ricketts Joseph Knight	} } }	Buried St Mary's Twickenham July 22

There had been other, non-fatal explosions earlier in 1799 and concerns that these were all sabotage attacks

1801 June	James Goodall James Chandler	} }	Buried Twickenham June 27
1807 October	William Nuth Benjamin Kemp	} }	Buried Twickenham October 4
1810 February 19	John Hart Henry Gill James Linch John Sommers	} } } }	Buried St Mary's Twickenham February 21

1811 September 7	James Quich }		Buried St Mary's
	James Dowls }		Twickenham
	Nicholas Brocklebank }		September 9
1812 March 16 Corning House	Benjamin Vincent }		Buried
	Peter Page }		St Mary's
	John Bell }		Twickenham
	Thomas Tyler }		March 19
1812 July 4	two men hurt in explosion died in St Georges Hosp		
	(Gentlemen's Magazine July 1812 p.77)		
	James Cox }		named by Oxford Herald
	Richard Trott }		no burials found
1812 August	George Strickland		Buried Twickenham August 27
1813 August 21 Two mills	George Worster	60	Twickenham } b Twickm
	Thomas Taylor	60	Twickenham } August 22
	John Jones	63	Twickenham }
1815 November 27 Press House	James Tinsey	19	Feltham } b Hanworth
Passing by Corning Ho.	William Ferris	50	Hanworth } Nov28
On way home			
1816 July 23 Corning House	Nicholas Culverwell	40	Twickenham b July24
1817 October	Edward Hall	32	Twickenham. Buried Oct 10
1819 May 15 Corning House	James Benham	23	Whitton } Buried May 17
	Richard Beck	38	Hounslow } Twickenham
1823 December	Charlotte Harvey	21	Died at Powder Mills
			Buried Dec 5 Hanworth
1826 July 25 Corning House	William Inns (Ind)	37	Hanworth } b Hanworth
	Benjamin Hersey	44	Hanworth } July27
1827 August 23 Corning House	Nathaniel Edmonds	33	Hanworth } b Hanworth
	William Parks	28	Hanworth } August 26
1829 June 10 Corning House	Robert Barrett	37	Bedfont b June 14
	Henry Bird	31	Hanworth b June 13
1830 March 1 Found drowned in	Thomas Cordery	69	Hanworth
The millstream			b Feltham Mar 9
1835 August 5 Corning House	Thomas Colvin	26	Hanworth } b Hanworth
	George Vaux(Voakes)	35	Hounslow } August 7
1839 December 18 Corning House	Thomas East	27	Feltham b 24 Dec
1842 February 19 Corning House {	Henry Finch	42	Hounslow b Houn. 23 Feb
(lower) {	William Woolman	36	Hanworth } b Hanworth
Passing by	Alfred Malthouse	26	Hanworth } 23 Feb
1850 March11 Treble Dust House	Henry Strange	22	Hounslow b Houn 15 Mar
	Robert Glazier	39	Hanworth } b Hanworth
Sporting (U) Corning House	George Goddard	34	Twickenham } 15
Roller (L) Corning House	Thomas Penfold	38	Hounslow } March
	William Burrows	43	Hounslow } b Hounslow
	James Bookmaster	27	Hounslow } 15 March
Glazing House	Joseph Perry	24	Hounslow b Han. 15 Mar
Foreman	Henry Clifford	39	Hounslow
	Died from injuries		b Hanworth 11 August 1850

1856 September	died at mills	William Henry Plaster	44	from powder mills b Hanworth Sep 14
1856 November		William Warrick	53	Hounslow b Nov.20
1858 December 22?	Mixing Ho	one man died		
Possibly Inq. 18 Dec		Edward Lush	36	Feltham b Dec 19
	Wound caused by explosion			
1859 March 30	Corning House	Thomas Albone	33	Hounslow }
		Aaron (John) Compton	37	Hounslow } All
		Stephen May	45	Hounslow } buried
	Press House	George Lewcock	31	Hounslow } Hounslow
		Henry Davis	33	Hounslow } April 3
		William Littleford	27	Hounslow }
		Jacob Stout	27	Twickenham b April 4
1861 December 21	Killed by machinery	William Green	38	Whitton b Hounslow Dec 29
1862 August 8	Barnfield Mills	John Bennett	27	Lampton b Houns, Aug 13
d from wounds c19 Aug		William Shrieves	28	Feltham b August 20
1869 June 17	passing on horseback	Alfred George Holloway	14	Hounslow } b Heston
	Sheltering	Samuel Gardiner	31	Hounslow } June 22
	behind mill	Richard Pulham	57	Feltham } b Feltham
		William Penfold	40	Hanworth } June22
	(Explosions at Upper Glazing House and Charge House)			
1872 September 6	Boat	John Cobb	28	Hounslow } b Heston
	Cart	James Cooper	17	Hounslow } Sept 10
	Composition House	Frederick Lynch	17	Hounslow }
	(Mixing House)	William Palmer	15	Feltham b Sept 10
		Stephen May	16	Hounslow b Sept 10
1874 November 3	Mixing House	John Day	22	Feltham b. Sept 3
(died in fire)		William Henry Archer	20	Hounslow }
		Stephen Butler	18	Feltham } b Heston
		George Todd	22	Hounslow } Sept 5
		Josiah Chapman	17	Hounslow }
1887 May 3	L. Glazing House	William George Lewcock	47	Hanworth b May 9
1887 May 3	Floodgates	Body of middle aged man found in river during search b Twickenham May 9 as 'John Smith' aged 56		
1906 Feb 2	Incorporating mill	George William Ryder	27	Hounslow d from injuries Feb 7
1915 July 9	Glazing House	William James Marks	33	Feltham
1917 December	Watch House	William Henry Davis	67	Hounslow
1926	Mills ceased production			

After the acquisition of the Bedfont mills in 1833 by Curtis and Harvey, workers often transferred between the two sites, and men possibly originally based at Hounslow mills died as a result of Bedfont explosions. The roll will record the sacrifice of these men also

1856 March	(Inquest March14)	Henry Walker	18	Hanworth b March 16
	(Inquests Mar 8 &18)	James Edwards	54	Hanworth b March 13
	(Inquest Mar 18)	William Holt	21	Hatton b Bedfont Mar 23

1857 June	(Inquest June 19)	John Greaves	59	Feltham b June 20
	(Inquest June 19)	Richard East	28	Feltham b Bedfont June 20
	(Inquest June 20)	John Walker	69	Hanworth b June 21
1869 December	Corning House	Sidney Malthouse	43	Hanworth b Dec 21
		Henry Rutter	39	Hounslow b Heston Dec 23
		James Hedges	59	Feltham b Hanworth Dec21

There were earlier Bedfont deaths that might also be included on a Memorial Roll

1728 '(blank) from the Powdermills was buried in April'

1741 John Bishop drowned in powder mill stream. b Feltham

1774 September 25 one man died. From Mr Taylor's mill,(Bedfont)
Only burial- Fareman Bakehouse b Bedfont Sept 29

1799 August 13	Two men died	Thomas Knight }	Buried Bedfont
		Richard Stanwell }	August 19

Reported as 'Mr Butts' (Hounslow) mills. Burials at Bedfont and mention of upper and lower mills indicate that the men were at Bedfont mills

1825 October 20		John Young Hounslow	b Bedfont Oct 22

Although the workforce at Hounslow mills was drawn from all surrounding parishes nearly all burials in the 18th c. were at St Mary's Twickenham, as the mills were in that parish and because separate identification of bodies and body parts was not always possible. From 1813 the home parish or street is included in the register and the Roll includes this if different from the parish of burial.

Explosions at the Hounslow Mills were heard in central London and were a concern to fashionable Twickenham residents so were usually reported in the national and regional press and the Gentleman's magazine. There are long gaps in Inquest records, but in the 19th c for the major explosions inquests are reported in the national press. From 1796 until 1812 explosions or accidents at the powder mills are indicated in Twickenham registers as the cause of death, and there are single similar references in Hanworth,1781 and Feltham,1796. Only in Hanworth in the new post-1813 registers are deaths from explosions indicated, and then only for multiple burials. There may be other deaths at the mills from accidents not recorded in newspapers, parish registers or in available inquest records. The full indexing and digitising of civil death registers may eventually reveal those from 1837. Overall the roll is more complete than available records for other gunpowder works apart from the Government factory at Waltham Abbey.

Charlotte Harvey who died at the mills in 1823 may well be a relative of the then owner, Wiliam Gillmore Harvey who at that time lived in the mill grounds. William Henry Plaster was a groom living at the mills; buried in Hanworth in 1856 it is likely that his death from pulmonary consumption was related to his work. 5 years later his brother-in-law William Green died after his arm was injured in machinery. William is described as a labourer in the 1861 census, living in Whitton, and his death certificate indicates that this accident was at the powder mills.

Other incidents

1839 December 18	Corning House	John Jacobs	Badly injured and close to death but still working at mills in 1851

1850 March 11 Glazing house William Pearce 21 Reported died in St Georges Hosp. and later that he survived after amputation of right arm. Described as a Powder mills pensioner in 1861

1859 May Hicks inc. mills Man named Allen reported to have died but no record found

1873 September 1 Two Barnfield incorporating mills exploded. Worker named Hawkins from another part of the works found badly injured, Possible sabotage attack.

On 6th December 1867 William Purchase, carman at the Hounslow factory delivered 4 50lb half barrels of gunpowder to a Mr Smith at 8 Pulteney Court, London. A week later, the 13th, the gunpowder was exploded next to the wall of Clerkenwell Prison, with the intention of freeing two Fenian prisoners. A long section of the high prison wall was demolished, and the force of the explosion was such that a number of houses opposite also collapsed. The escape plan was unsuccessful but 12 residents or bystanders were killed or died from their injuries. See.page 33.

Millmen, possibly from both Hounslow and Bedfont, C 1910

Charles Dickens concluding remarks after his visit in 1851 provide fitting final words for this collection

'We pause to listen to the sound of rustling boughs, and the sullen rush and murmur of water wheels and mill streams; and over all the song of a thrush, even while uttering blithe notes. gives a touching sadness to this isolated scene of human labours- labours, the end of which may or may not be necessary to the progress of civilisation and the liberty of mankind '