

Time Team - Big Dig

CRAIG TELESCOPE ON WANDSWORTH COMMON

Final Dig Report

The Telescope

The telescope was of a novel design - slung on a pulley on the outside of a tall brick tower.

By carefully reconstructing the plans of the basic telescope (since none exist today), it is possible to begin to understand how the telescope operated and discover some interesting facts about its limitations.

The tube was constructed very much in the manner of a steam ship of the time, having separate panels of steel riveted together along seams. The great length of the tube would have required internal strengthening otherwise it would tend to sag.

In some of the journal and press reports of the time there were references to the angles of inclination to which the telescope could be positioned. However, on examination of the construction plans, it becomes clear that the telescope was unlikely to have been able to point to the horizon or indeed any higher than about 74° from horizontal: even after having allowed for some licence in the dimensions of the tower (the brickwork may have measured 64 feet in height, but this figure may not have included the rotating wooden roof structure). Indeed the telescope could not be raised any higher whatever the height of the tower, because the dimensions of the cradle hoop supporting the telescope tube would have become prohibitive!

The tower was made of brick, but what type and colour. On the site of the old assylum north of the telescope, Wandsworth Prison was built just a few years before the telescope. The bricks for this came from Frying Pan brickworks. It may be that for simplicity's sake the bricks for the tower came also from this source.

The operator could simply move the end of the 'scope with small lateral movements using the eyepiece "dolly" controls. Greater sweeps of the sky would require the rotation of the tower top and base.

There did seem to be a finderscope, used to locate and centre celestial objects so they could be viewed in the main telescope. Whether this was as useful as it could have been is still a point of conjecture.

In order to set the telescope to a particular azimuth, the observer may have placed marker flags around the perimeter of the azimuth rail. However, the accuracy of this particular method would only have been made less uncertain

if the altazimuth housing at the top of the tower also had some kind of calibration.

Moving the 'scope around would probably have required a "knack". Since the eyepiece end of the tube rested in a kind of sling on a wooden "dolly", small pointing corrections would have been undertaken by simply slewing the 'scope "left and right" and "up and down" one or two degrees without having to move any other part of the instrument. Indeed, with some training, tracking something like Venus or the Moon, would have become second nature.

It seems that from the little technical information we have, there are several ways to move the whole telescope. It would certainly have been easier with several people to assist, but essentially it could just about have been operated by just one individual - but only just!

Firstly, the telescope would have been readied for use. This would have required removing the lens cover, releasing the "brakes" on the azimuth armature and those at the top of the tower in the rotatable wooden altazimuth housing. After attaching the large 3-metre steel dewcap (this may have required assistance!), the operator would then have winched up the tube from its near-horizontal "parking" position and attached the eyepiece unit.

The operator would then have rotated the whole instrument, bringing it to within a few degrees of the correct position by pulling on "reigns" attached to the altazimuth housing while nudging the azimuth armature as he / she walked around the tower. Once this course setting had been made to the azimuth, the "reigns" would have been tied up to the azimuth "dolly", this in turn would have been pushed either away from the tower or toward it - depending on the altitude of the observation. It has to be remembered that the inward/outward movement of the "dolly" has to be accompanied by the raising or lowering of the telescope tube - this is achieved by turning the handle on the small winch on the opposite side of the tower. Although the telescope is said to have weighed about three tons it was counterweighted, therefore the effort in changing its inclination would have required little effort.

If the winch "reeved" rope onto a drum, it would only have required two or three turns at any one time. Indeed the rope would have passed from the underside of the telescope tube down to ground level, passing through a system of guide wheels attached to the underside of the track around the tower to the opposite side, onto the winch and then up vertically to the underside of the counterweight.

Once it was ascertained that the target object was nearly in the telescope's field of view, the azimuth armature could have been moved perhaps as much as ten degrees without having to rotate the tower (much more than this, the telescope tube would have made contact with the tower, the torque on the instrument would then have become dangerous!). The smallest of adjustments to the eyepiece "dolly" would then have brought the target object into view.

At the top of the tower is the altazimuth housing, this is designed to hold the telescope tube while allowing it to be raised and lowered and also rotated to the correct azimuth bearing. Around the outside of the structure there appear to be four grilled openings, spaced at 90° intervals. These could have been used as communication ports. So, to facilitate the easier use of the 'scope, an assistant would have remained in the tower during use. Instructions would have been "yelled" up from the ground. Instead of using the "reigns" to position the tower in azimuth, the assistant would have simply moved the tower around by hand. A good idea would have been to mark compass bearings on the static rail inside the housing, sadly this would not have been very useful as the telescope itself was not directly in contact with the tower!

As has already been seen the telescope was not the easiest of instruments to use. The telescope could only be operated during fair weather with extremely light winds.

Although the tower could have its floors weighted to provide vibration damping, the external chains supporting the tube may have resonated much in the manner of a guitar string.

It is interesting, but in the illustration by Sargent, small flags are shown attached to the "reigns" at regular intervals. These could be for many reasons. Apart from decoration, they may have been to scare birds so their acidic droppings did not rot the ropes, they may also have been for crude calibration of the telescope tube in some way or they may have been to dampen vibration from wind.

One aspect of the 'scope that might have played a role in damping, was its shear weight!

As the lens' whereabouts is unknown at present it is only possible to use references from publications at the time to guess as to what may have been so wrong with it.

The lens figured made by Mr. Thomas Slater of Somers Place in Euston Square. It was a composite of two pieces of glass, one of flint and the other of plate. The plate glass lens had a positive focal length of 9,182mm, the refractive index being 15103. The flint glass component had a negative focal length of 15,201.9mm with a refractive index of 16308. Combined, they formed an achromatic lens (reduced colour fringing especially at the edge of the field) with a focal length of 23,164.8mm.

We know it was 24-inches in diameter - a huge size for the time. There have also been references to the fact that on many occasions in order for it to work at all, it needed to be stopped out (masking the central part of the lens and only allowing light to pass through the outer circumference). Certainly any error in figuring could have easily been corrected. Alas, this appears never to have been undertaken!!

4th Earl Spencer's Donation

There were many people that helped John Craig in his efforts to construct the world's biggest telescope on Wandsworth Common.

The Rev. Mr. John Craig was vicar of All Saints Church in Leamington Spa. He was well respected by the local community.

The need for an increase in aperture was quite evident in the 19th century. Starting around 1820 was the lens made for the Dorpat Observatory with a diameter of 23-cm. After this came that of James South's Private Observatory, where a refractor with an object-lens of 30-cm was installed in 1829. Then there were a few of increasing aperture from 1834 to 1839 culminating in the great refractor built at Harvard College in 1847. This had an object-lens of 38-cm figured by the famous Messrs Merz & Mahler.

Craig's telescope came into its own in 1852. The 61-cm lens was the work of Mr Slater using glass cast by the Chance Brothers who at first were not keen to take on the task. But once completed and handed over, Mr Slater duly worked the glass blanks into the correct figure.

When installed in the telescope at Wandsworth, Mr Craig's refractor held the record for sheer aperture for eighteen years until Thomas Cooke had a great telescope with a 64-cm object-lens erected on his private estate at Gateshead. However, the weather was so poor that the instrument rarely ever performed as it should.

Craig had a mind to build his vision in or near London. The Great Exhibition of 1851 in South Kensington and Hyde Park had no doubt helped to influence his choice. Everything about the 'scope was to be the "best of British", indeed he refused to employ any parts of the instrument that may have been made in foreign countries.

He approached a Mr Nelson Esq 10th February 1852, an acquaintance of the 4th Earl Spencer, the Lord of the Manor of Wandsworth and Battersea. In the communication Mr Nelson says, "I had a visit this morning from Mr Craig vicar of Leamington to request the assistance of the Leasees of the Common in procuring for him the ground of a small portion (say about an acre) of the Common for the erection of a telescope of great power".

We may never know for sure why the Earl Spencer granted permission for the plot of land to be "given" to John Craig, but many Victorian gentlemen often had a brass telescope in their studies bringing them out after dinner for perhaps the occasional view of the Moon, so having the biggest telescope on your land had quite a bit of prestige!

It was clear in several other letters that Mr Craig was in a great hurry to get the 'scope up and running as soon as possible, for in a letter to Mr Goodford Esq. from Charles Lee, the lawyer of Earl Spencer, he writes, "The Rev. John Craig has been with me about the plot of ground for his "monster telescope". I

hardly know what to do, he requires it within a week or his telescope will not be up in time to catch Mr Orion, who is now above the horizon, and it is a great object with the scientific gentlemen to put a little salt on his tail before he departs". The same letter also mentions how the land should be used, "...call it temporary occupation - for Mr Craig will stipulate to restore the land to Lord Spencer when the telescope is removed". On the reverse of the letter Mr Lee had drawn an illustration of the telescope as he understood it from what Mr Craig had said during their conversation, noting that the tube was 80-feet long!

Indeed the rapidity of the building work becomes clear with a communication dated 26th April 1852 to the builders, "I duly received your letter conveying to me the restitution past at the Homage, on the 22nd of March last. Immediately on its receipt I commenced most active operations - the centre tower will be built this week, & all ready for the telescope, by the 8th of the approaching month on Saturday week in fact".

The land given over to Craig was just under two acres. In a summary of work carried out by the Earl's solicitors on 19 Oct 1852, it mentions in that entry a "peppercorn" rent of 1 shilling paid in respect of the Homage granted to Craig on the 23 March 1852.

Overview of site

Although the location of the site is known within a very small margin of error, the position of the telescope within the site is known with less certainty.

The site lies in the south west corner of Wandsworth Common, its northern boundary being defined by the public path that runs just south of the gardens of the houses in Routh Road. The western side stops on the grass verge pavement in Lyford Road.

In 1852, Lyford Road was not built up and would almost certainly have been narrow and poorly made. However, it would have afforded easy access to the highest part of the site - the northwest corner.

The land was clearly marked on the deed "Indenture" held at the Public Records Office in Northampton. This shows where the plot was to be placed, even including the bounding areas of the late Mr Shepherd to the west and Mr Forbes to the north. According to the map the actual size of the plot was a little under two acres.

Today the area is covered with trees and many footpaths criss cross the common.

Since the site was returned to common land once the telescope had fallen into disuse in 1871, there are no features remaining whatsoever. However, the method of removal and demolition in those days was probably not so thorough as it is today, it may be that the footings to the central tower still remain hidden under the shrub and trees.

A cursory investigation of the area in late 2002 showed no indication of land features such as a mound or depression that might represent the buried remains of the central tower.

Examination of the many pathways on the common are similar in appearance except for the small one passing close to the assumed tower site. This particular path shows small flint boulders embedded in the topsoil.

There are many paths that cross the common. Some of these have remained more or less unchanged since the 1850s since they appear on the early maps of the time. Examination of these paths reveal all are of the same basic soil/loam type. They are well trodden. Evidence that the tower site may indeed be near here is further corroborated by evidence of flint ballast well embedded in the surface soil. It is because the path has cut through the remedial landscaping after the telescope was removed revealing this ballast.

Several other important facts can be gleaned from what appeared at first glance, rather circumstantial evidence. The flint ballast was ungraded - the stones were of a variety of sizes - something that is more difficult to come by these days. It would suggest the ballast is old. When the tower was weighted to limit the effects of vibration, ballast would have been the obvious choice; because it could easily be handled after it had been bagged and then hauled up the narrow vertical stairway inside the tower to the various floors. Perhaps the clear up operation to return the site to "common" usage, was not as diligently carried out as it could have been and that there was some spillage or indeed infilling of the tower's footings with the broken ballast bags.

Some years ago a visit to the site by Stewart Mclaughlin a member of the British Astronomical Society revealed two short posts that appeared to be parts of the 32 metre diameter outer rail, however, the Roads Department at the Wandsworth Council assured me that these had nothing to do with the telescope and had been removed from the roadside paths in a clean up operation to remove footpath "clutter". It is an interesting fact that at the site, and one has to assume that this was the case at the time of the telescope, the land slopes slightly downhill from west to east. In all the engravings and illustrations the outer rail is shown as being more or less level with the ground – inlaid perhaps. However, if this indeed was the arrangement it must have caused many problems. Stones and gravel would have plagued the smooth running of the azimuth motion. Making sure the eyepiece did not move up and down when observing - even by a small margin - must have also been a problem! There may be some value in investigating this particular point further.

The lie of the land just here would have given Mr Craig excellent uninterrupted views of the sky. London lay to the north, while the small town of Wimbledon was a short distance to the south. The "docks" of Wandsworth, just a mile or two north, would have made the transportation of, say, the telescope tube, very easy. London Town had ample rail links to many of England's large towns.

The bricks for the central tower of the telescope may have come from the same source as those of the Wandsworth Prison built only a few years earlier. These had come from the Frying Pan Brickworks not far from the site. If this is so, then any masonry finds on the site that could be associated with the central tower may be the same as those making up the Wandsworth Prison today. A cursory investigation of the site in September 2003 showed no sign of any bricks although this may simply be because of the amount of overgrowth.

An article written in 1856 mentions, "...surrounded by a wooden hoarding to keep off intruders". The fence shown in the engraving in the Illustrated London News was drawn from a daguerreotype photograph and so would suggest that the perimeter fence did exist.

Using some old maps, especially one created in 1856, not only is the two acre plot marked, but also a dark spot with the word "Observatory" written above! It is worth mentioning the two buildings on the northern boundary - each appear to be about half the size of present housing in Routh Road. The 1870 map reveals no "telescope" marking. It may be that the telescope had been either removed or was in such a state as to be unrecognisable for any particular purpose.

The present day Ordnance Survey map shows the modern day sprawl of the housing now occupying this part of the common. The properties in Lyford Road were built at the beginning of the 20th Century, while those in Routh Road are of a slightly earlier period. Notice, also, the positioning of the trackways crossing the common from one map to the next, this may help in pinning down the tower's location. Notice also the elevation contours showing the 30-metre height of the ground. The highest part of the site is the northwest corner, although not by much.

The aerial photograph only goes to show how much the vegetation and foliage has grown up since the days of the 'scope, when all that was there was more or less gorse and brambles.

World War II

During the Second World War, Wandsworth was subject to many high-explosive bombs during German air raids on London. It was important to see whether any of the bombs had destroyed the remains of the Craig Telescope. From a map of bombing raids during WWII, found at the Wandsworth Reference Library, it was obvious that no damage was done to this particular part of Wandsworth Common. However, a metal detecting survey conducted in mid-June 2003 of the whole site showed there were plenty of pieces of shrapnel that had been scattered over the whole area.

Other building work

From all the studies to date, no other building work has ever been carried out on the site before or after the Craig Telescope.

Field Walk

The field walk was carried two weeks before the dig in association with the metal detectorist survey and produced a mixed bag of finds lying either on just under the surface. These have been clearly marked on the map. One interesting point was that there were no Victorian coins found, although there was a dog tag but no dog attached!

Preliminary Surveys

The first 20-metre x 20-metre survey was undertaken on the common by the Orpington & District Archaeological Society (ODAS) early June 2003. After many hours of pondering over the maps and intuitive “best” guesses, an area in which the survey was to be conducted was placed on the site map. It was essentially placed over the part of the Stamford 1856 map that contained the telescope tower as marked. The argument that Mr Stamford may have at least placed the tower in roughly the right position, was based on nothing more than if he were simply just to put it in the two acre site not knowing anything about the project, he would have probably placed it in the very centre. This is not the case. The tower is marked towards the south of centre. Does this make sense? The lie of the land shows that the most level part of the site is near the centre but taking into account the outer rail, placing the telescope slightly further south provides a greater amount of level (ish) ground.

The whole area near where the proposed survey would be done had to be fully measured out, so that any future surveys could be placed down just as accurately. A point on the ground near a dying tree was chosen as the “triangulation” marker. From here, all other markers would be gauged. It became known as “Tree Point” and was exactly 36.7-metres from the pavement edge in Lyford Road.

On the attached map the “resistance” geophysics map is marked, showing its relative position to that proposed in Stamford’s map.

The nature of the ground near this area is very overgrown with stinging nettles, brambles, grass, bushes and trees. However, despite this difficulty the survey was conducted well.

The results were fairly inconclusive because of the high resistance signals recorded. Indeed the only conclusion that was reached was that something very reflective lay under the ground. Dr Alan Hart of ODAS and the survey’s leader suggested it maybe the signature of gravel beds or concrete. Certainly the concrete was possible a good omen.

Unfortunately, after the purchase of a geological map of the area from the Ordnance Survey, it revealed that the whole area around Wandsworth Common was covered, just under the topsoil, by a layer of Lynch Hill Gravel beds. This was not a good result for the “resistance” geophysics.

A metal detectorist was persuaded to carry out a survey that covered Craig’s original two acres. This proved quite useful in that it picked a number of artefacts some associated with WWII and others from interesting and as yet unexplained sources. No doubt some of the finds near Lyford Road may be attributable to the building of the houses there in and around 1910. The metal detectorist’s opinion of the site was interesting. He suggested that the site did not look as if any demolition had taken place or if it had it had been well cleared away.

Because of the inconclusive results of the “resistance” geophysics, there was an urgent need to exploit another method of non-destructive surveying – radar. Ground Penetrating Radar (GPR) uses radio waves to investigate underground stratas. After several frantic phone calls, Sandberg, a GPR company in Clapham said they would conduct a survey for our dig team.

Two days before the Big Dig weekend, the GPR survey was undertaken. This survey was undermined by the terrain on the common, so we knew the results might be difficult to interpret. This second 20-metre x 20-metre survey was moved 5-metres east and 15 north of the “resistance” geophysics survey. This move was intuitive, based only on the higher levels of resistance recorded at the northern edge of the first survey results, so if there was anything beginning to show up it would be more likely to show up in the new survey. It also meant that there would be a 5 x 15-metre overlap on the two surveys.

The results of the GPR were expected by late Friday – they came in on time. It was, as expected, not clear. One of the key positions under investigation did not show up well at all, while an area around a huge acacia tree showed up as a clear possible target despite the tree roots.

With all the survey data in it was time to make some judgements about the actual dig itself – where to put the trench. We only had a small window of opportunity and we had to make it count.

The site was divided into three target sites. “Site 1” was placed right over the centre of the dot marked on the Stamford Map. Since this site revealed little during the first tentative explorations it was not going to be investigated with a trench.

“Site 2” was the smaller of the circular features that showed up on the GPR. This would have placed the telescope tower very close to the eastern limit of the Craig Telescope site – but it could fit – just.

“Site 3” was the area a little south of the huge acacia tree. This is where the trench was going to be put.

The Excavation

Saturday morning – 28th June 2003 - very early, the site was marked out. When all the lines had been staked out it resembled a life-sized version of the computer model map that had been constructed for the purpose. All the “Sites” were now clearly identified. Almost immediately, the “dig” square metre that had been chosen to coincide with the grid on the map was marked out. The area cleared of the long grass and so the dig began.

Using spades to cut off the top layer of grass roots the dig proceeded using small pointing trowels stopping frequently to record any finds. The spoil was piled onto a large clean tarpaulin some metres away to the south east. Each bucket of spoil was sieved for smaller finds not spotted during the dig.

“Site 3” trench 1 proved to be just as difficult as the survey. The first “context” had to be cut into hard London clay type soil impregnated with small pieces of flint. We knew at this point the dig would take a little while.

By the afternoon on the Saturday, it decided to open a second trench on a new site not marked out on our map – “Site 4”. This was a very interesting development. While we were digging the first trench on “Site 3”, the activity of all the people trampling the rough grass slowly revealed a shallow circular depression in the ground. This was measured. It was about 8 metres in diameter. If this had anything to do with the telescope – it was perfect!

Once a quick survey had been done the centre of this depression had been located – almost exactly in the middle of the rough footpath from Lyford Road.

So at a distance of 7 1/2 feet and once again matching the grid, a trench was marked out. Digging began. At this point our resources were very stretched.

Because “Site 3” trench 1 had revealed little in the way of finds once “context” three had been completed it was decided to stop digging. It seemed that the soil in this trench was natural undisturbed London clay. One interesting feature of this trench was a large lump of what appeared to be “ferro-crete” a natural very hard concrete welded together with some kind of rust!

“Site 4” trench 1 was also becoming less interesting as the digging progressed. By Saturday evening, two trenches had been dug, one to three “contexts” the other to two. Both had revealed a limited amount of information, but it was quite important. The quantity of brick rubble was much less than expected even allowing for the fact that we might not have hit the absolute centre of the tower’s location. The bricks were predominantly rusty-red and there were very few bits of mortar or concrete chippings.

For safety reasons, the trenches were back filled overnight.

Sunday was a different day. Another early start. Some of the helpers from the previous day were to return, assisted by new interns.

Both “Site 3” trench 1 and “Site 4” trench 1 were left alone. A new trench was opened – “Site 4” trench 2. This was proposed as a possible corrective action, based more on the “resistance” geophysics map.

Certainly the first three “contexts” proved fruitful with many more finds per “context”. They were similar to those found in the first two trenches – bricks, charcoal, glass etc, but just in greater quantity.

By the afternoon, a last trench was proposed – “Site4” trench 3. This was going to be a disappointment, not because we didn’t find anything, but because we could not finish it – we ran out of time.

It actually proved to be the best. It was sited two meters north east of “Site 4” trench 2, very close to where the depression would suggest the outer wall of the tower might be. By digging it so close to “Site 4” trench 2 it might be possible to understand what lies under the ground better.

The Finds

The finds ranged from brick fragments to small pieces of what appeared to be charcoal. Once all the various fragments had been catalogued and recorded it was noticeable how little evidence there was that there had been a large brick tower on the site. Overall it was expected that once the first trench had been put into the ground that there would have simply been more material. The total amount of finds only weighs 4.01kg! Nearly all of the brick was PMS159 in colour – a dull rusty red.

_____ “Site 3” Trench 1

Because this was the first trench the recording was excessive. Every tiny little mark, blemish, bump or find not matter what, was recorded. Later on in the dig the recording was more “filtered” and less “excited”. Apart from the finds the trench contained an unexpected find a large piece of natural concrete. According to our site archaeologist, this is sometimes referred to “fero-crete” – a conglomeration of flint “welded” together by some natural agent; in this case it seemed like rust. The “fero-crete” lump was mistaken for part of the foundations of the tower. It extended from context 2 through to context 3 and beyond. It was left in situ in the trench. As this was our first trench everything was new to us, but it was becoming obvious that there was definitely some association with building work having been done near here – little bits of reddy brick and very, very small pieces of brick that simply could not be picked up, but made a small smear as the trowel was dragged over the surface.

During the sieving exercise a small metal “button” was found although as to whether it really was a button or just a piece of rusty metal we do not know.

This trench contained the most amount of square sided nails reminiscent of floor board nails today – one was very large, cut short probably by its removal and slightly bent at the broken end.

The trench's cross-section was a little confusing. Since we had found finds in the trench it was expected that the natural "layering" would be disrupted. However, on all four sides the section showed a relatively complete set of layers. Grass at the top. Next a tree loam mulch soil. Then London clay on top of a layer of well compacted flint about 100 – 150mm thick.

Since London clay had been reached and there were no more significant finds found, the dig leader decided to not dig the final context.

_____ "Site 4" Trench 1

This trench was cut into the northwest side of the circular depression, named on the Saturday as "Site 4". As a consequence, the trench's mean "context" reference was taken as being halfway up the sloping side.

This proved an interesting trench. There seemed to be more of the brick dust that was seen five metres to the southwest in "Site 3" trench 1. Context 1 revealed some floor board nails.

Because of the slightly awkward placement of this trench the contexts were becoming a little shallow, so for clarity "contexts 3 & 4" have been merged into one record – "context 3".

Overall this trench proved a little disappointing, as the expectation of finding something significant was palpable. However, it did confirm yet again that there was some kind of building remains embedded into the surface soil layers.

_____ "Site 4" Trench 2

On the Sunday morning a regrouping took place. Since the first two trenches had reveal less than expected in the way of finds a decision was taken to open yet another trench – but where? Looking back at the original surveys, especially the geophysics, it was seen that on the northeast side of the survey, the levels of resistance measured were significantly higher than elsewhere. So a trench was placed right into the heart of that location.

Trench 2 on "Site 4" was very telling. It revealed the very first piece of mortar, something that had not been seen up to this point. It was only 10-grams, but it was mortar. It seemed quite modern not like the lime cement mixtures of the past.

Like "Site 4" trench 1, there was also tile. The two similar pieces were large and thick. They were red in colour but not complete enough to tell how big the

final tiles would have been (although the larger piece did seem to one complete side = 111mm [4 1/4-inches] – very difficult to tell). The tiles were both 11mm thick and had similar markings on. The colour of the tiles were similar although the smaller one was slightly darker than the other. The big tile was PMS159 the smaller PMS470.

The brick was similar to before. Small broken pieces. But once again not as much as expected.

Interestingly, no nails were found.

Noticeably, there were what appeared to be broken modern drainage ceramic pipes.

“Site 4” Trench 3

The last trench was a final attempt at locating the buried remains of the tower’s foundations.

“Context 1” revealed our first pieces of ceramic finds. These were two small pieces of ochre yellow pottery. They had brown painted marks on them as if a tool had been dragged across the surface while the glaze was wet. The glaze was only on the “inside” curve. The pottery fragments were of light coloured clay (PMS155). By pressing the small curved pieces onto the rim of several reference bowls it was possible to guess at the size of the original, about 200 – 230mm in diameter having a thickness of 6mm.

Another tiny fragment of pottery was also found. It was glazed on both sides. The clay was almost white about 3mm thick. The glaze on the “outside” edge was white. That on the inside was a “mottled” blue (similar to PMS Reflex Blue) and white.

There was lots of mortar here. One particular piece is of interest. It was laying down in “context 2” as if it was the start of the foundations we had been looking for. Unfortunately, it was not what it seemed. Once the piece had been carefully removed it was found to be a cement render to a wall. This is interesting because up till moment the tower’s outer appearance was always assumed to be brick despite the poor quality of any illustrations from past publications. Now it seems the tower may have been rendered. Sadly the small size of the mortar pieces does not reveal any curvature. In the largest piece there are small brick remnants of the same colour as the other brick finds. The render on the brick face is interesting. Clearly there was a rough render that filled up the uneven brick surface (5 – 15mm thick) applied to the bricks, followed by a fine more carefully applied out render about 6-7mm thick. No evidence of paint on the outside surface was seen. There was also some evidence of a courser sharp sand cement mix being used on the same site. One piece is obvious others less so.

In the trench a single horse's tooth was found in "context 2"! It certainly looked as if it had given the animal no end of trouble and pain.

This trench also had the most amount of brick fragments, some large. They varied in colour. Some were a yellowy colour (PMS131), some were darker and browner (PMS160- PMS1535). But the dominant colour of the brick pieces was red (PMS159 – PMS174).

The largest piece of brick (PMS174) reveals some data. Of the two dimensions that can be measured the brick was 65mm x 73mm. The other dimension was probably the longest.

No bricks had any mortar fragments attached. Also none of the bricks samples appear to have been broken deliberately by being struck with a cutting tool.

Conclusions

The dig was a great success overall. No we did find any solid remains in position such as walls or foundation concrete. What we did find was an interesting story of demolition and removal.

The finds show that there was a building on this site. It was centred very close to where we had finished off the dig with the fourth and final trench.

The finds themselves reveal several possibilities as to how the tower may have looked. It seems it was rendered with a mortar/cement mix. The bricks varied in colour from ochre to red. They were house sized bricks.

Also, since we did not find as much material as expected, it seems as if the demolition process removed everything from the site – the whole tower including any underground footings were removed! The site almost swept clean.

The 8-metre depression centred on the pathway directly in line with Frewin Road seems to be associated with the removal process.

When the metal detectorist said he did not feel this had the hallmark of a demolition he may have been closer than originally thought. In coming to that conclusion.

An alternative possibility is that when the dig leader stopped digging in the first three trenches it was because in his experience the diggers had reached "natural", this may not have been the case and this ground/land deception prevent the dig uncovering even more – although the finds had petered out in the first few contexts.

The Future

It may be that a return to the site armed with this information might reveal the remains if the trenches were halted early. Also armed with this information it would be possible to better understand where to place the exploratory trench.