

St Helen's Church, Ashby de la Zouch

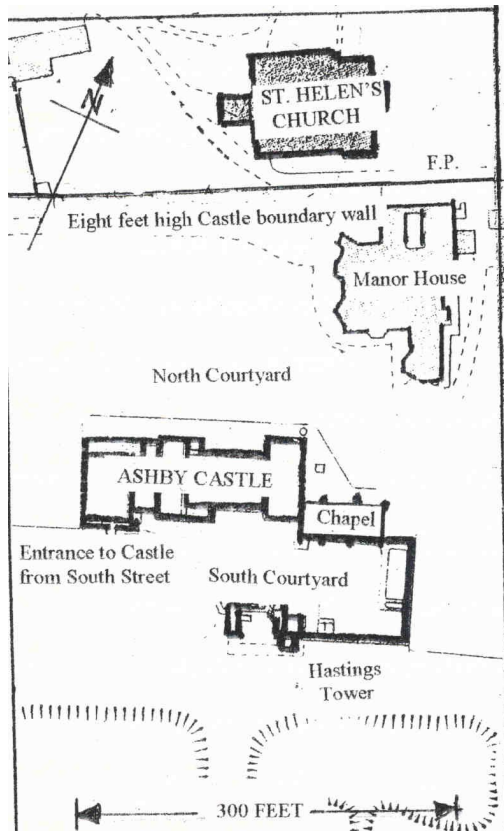


RESTORATION OF THE ANCIENT SUNDIAL ON THE SOUTH SIDE OF THE CHURCH TOWER





Ashby Castle



Introduction

During the Spring of 1999, the late James Tyldesley, Fellow of the Institution of Civil Engineers and Honorary Technical Adviser to the PCC of St Helen's Church, suggested the restoration of the ancient sundial as a Millennium Project for the Church.

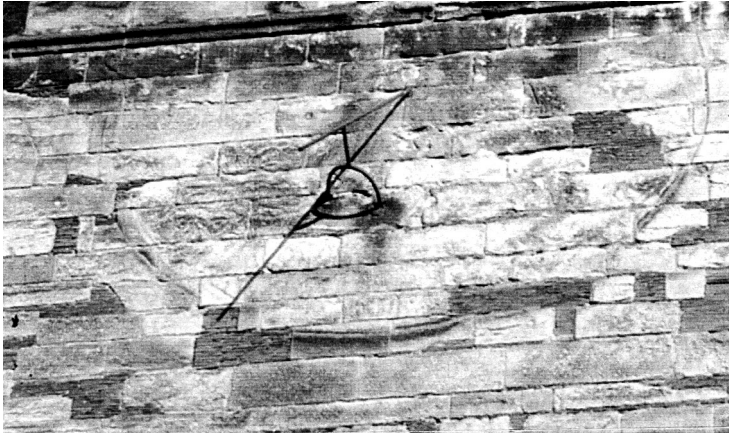
Until then, most people in Ashby would have been unaware of the sundial's existence as the metal gnomon which casts the sun's shadow was rarely noticed because of its height, 16.7 metres above the ground. No mention of the sundial has been found in any records so far.

The restoration of the hourly markings and the numerals would enable the sundial to provide accurate local time once more. As the Millennium was all about time and the fact that it was 2000 years since the birth of Christ, it was considered an ideal Millennium Project for the Church.

Main events leading to the restoration in August 2000

The restoration required a Faculty from the Diocesan Registry and observations by English Heritage. The application for a Faculty required a full description of the proposed work including calculations for the position of the hour lines, drawings, how the work would be done, type of paint proposed and proof that the final work would enable accurate local time to be read. The height and position of the sundial site made both ladder and 'cherry picker' access impossible, so scaffolding was needed to carry out the restoration.

Photo 1



Sundial, pre restoration, viewed from the foot of south side of the Tower.

This photo was taken at 8.30 am. The metal gnomon is producing a straight line shadow which will move slowly anti-clockwise around the arc shown, which extends for over 3.3 metres. The gnomon does not point downwards, indicating that the church is not on an exact east-west line. Thus we have what is called a Declining Vertical Sundial, making the calculations for the hour lines, etc more difficult.

At the lowest point of the arc there are two masonry blocks in the face of the Tower which are projecting outwards several centimetres from the surrounding masonry. These blocks have a curved exposed face cut by the mason to resemble the frame of a picture, the picture being the hour lines, the Roman numerals and the rest of the sundial. Darker areas on *Photo 1* with closely spaced horizontal lines are in fact red brick tiles used around the beginning of the 20th Century to replace weathered sandstone blocks. There are many areas repaired like this in the outer walls of the church. Not so easily visible are other 'picture frame' like worked masonry blocks, as these are severely weathered. This suggests that the 'picture frame' effect

existed over the full length of the arc surrounding the sundial. This in turn suggests that the sundial must have been built as the Tower was being constructed .

Mr Tyldesley records that the base of the Tower dates from around 1200, but that the knowledge of how to design a Declining Vertical Sundial is first recorded in about 1450. However, William Lord Hastings (1430-1483) was raising the height of both the Hastings Tower at the Castle and the Church Tower in the 1460s, so the sundial was most probably installed at this time.

William Hastings was, in the 1460s, one of the richest and most powerful men in the country and Lord Chamberlain to King Edward IV. As the King's representative, he regularly visited the Continent so it is no great leap to assume that he had access to the finest craftsmen of his age, including an expert who could design a declining vertical sundial. It is possible that this is the oldest sundial of its kind in the UK.

The position of the sundial suggests that its use was connected with the castle rather than the church. Nevertheless, a sundial on the church would have been useful for clergy to call locals to worship by using a handbell. People could also look up to see the time from the foot of the Tower. Even after the year 1600, when the church first had a clock, the inaccuracy of early clocks required correction from a sundial on a sunny day. This was common practice until the coming of the railways, when the telegraph system provided accurate time checks.

Church and Castle are just 120 metres apart so the sundial would have been clearly visible from the windows of the Castle's Solar and from the Hastings Tower whilst the family were living there, until the slighting of the Castle in 1649 made it uninhabitable. It is likely that

the lines and numerals on the sundial were not repainted once the Hastings family left the Castle. Several early lithographs of the Tower, dating between approximately 1700-1800, show the gnomon but none show numerals or hour lines.

Before the lines and numerals were re-drawn on 28th July 2000, tests were done at ground level to check the size of the numerals in order that they could be seen from the Hastings Tower. They were re-drawn 45 cm high and hour lines were re-drawn 5 cm thick, all in a matt black masonry paint. The completed work is shown on Photo 2.



Photo 2: after completion of the restoration

Technical Information

The Church is on latitude $52^{\circ} 45'$, longitude $1^{\circ} 28'$ west of Greenwich. The amount of declination of the church from due south is 25° , which makes the calculation of hour angles more difficult than for a straight vertical sundial. There are five trigonometrical formulae necessary to provide all the angles required. The three fixing points of the gnomon are built into the masonry of the Tower with caulked lead joints. The

sign writer worked from a carefully calculated diagram provided by Mr Tyldesley, marking first in chalk before filling in with masonry paint. The spacing of the hour lines is not constant—those close to noon increase in both directions. Due to the uneven motion of the sun, local time on a sundial can vary by as much as 15 minutes slow or fast. During February, our sundial will be slow by about 14 minutes, but at the end of October and in early November it will be about 15 minutes fast. It will be an hour slow during BST!

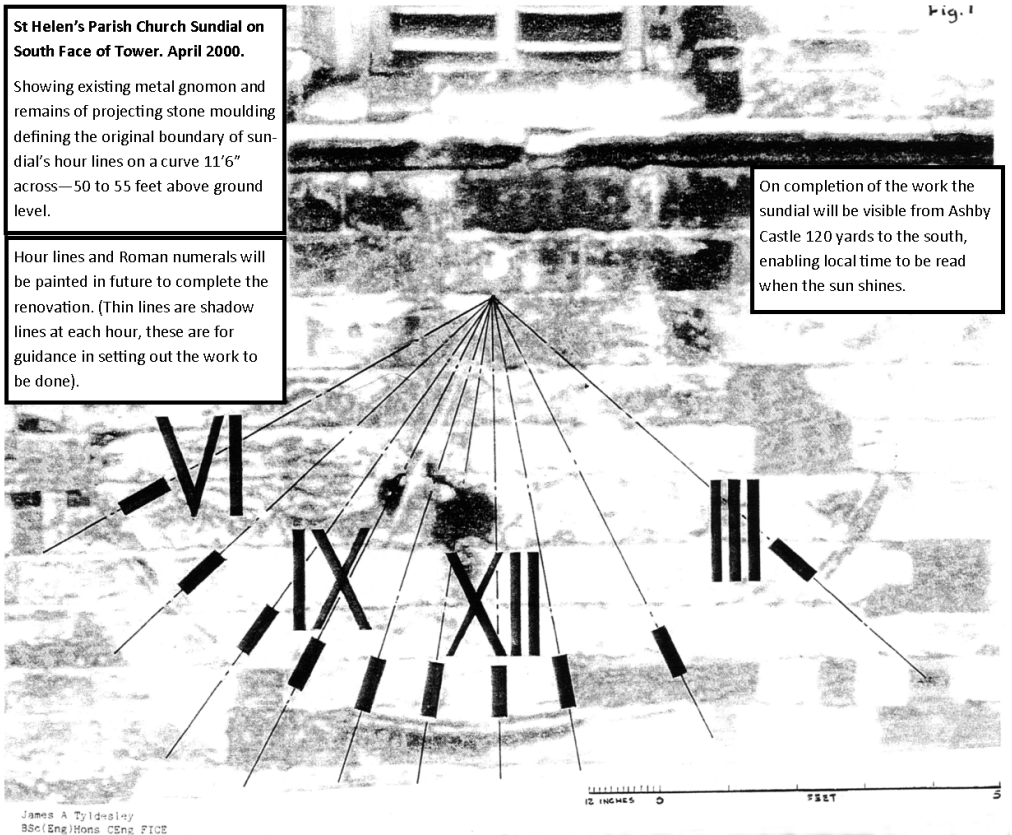
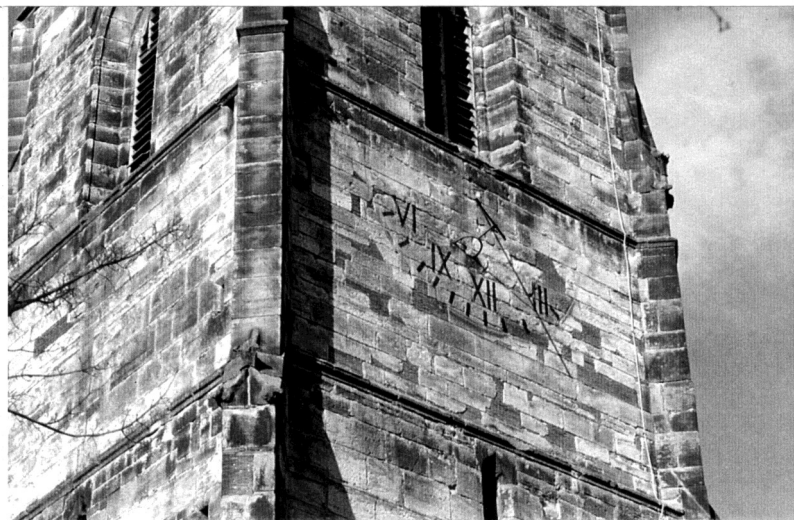


Photo 3 - showing Mr Tyldesley's diagram before the lines and numerals were re-marked.

And finally ...

A Re-dedication Service for the restoration of the ancient sundial took place on Sunday 3rd September 2000, led by the Rector, Revd Canon Charles Dobbin.



The restored sundial, indicating about 2.30 pm.

This short booklet is a revision of Mr Tyldesley's original booklet.

Revised May 2020 by Julie Starkey.