



A Salisbury-Cathedral-centric view of History.

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A QUESTION OF BALANCE

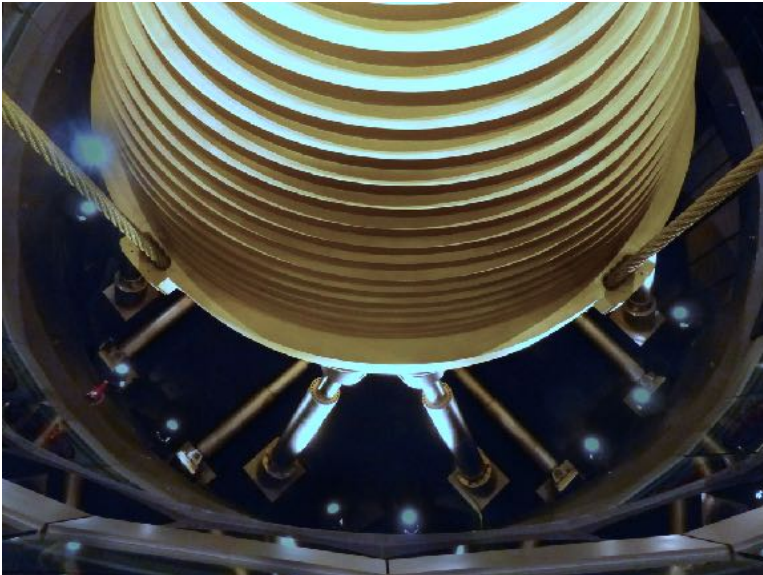
I received a fascinating e-mail (with photos) from Austin Thorpe: I read J&T 107 with some interest. When I did my guides training some 20 years ago it was pointed out to me that the internal scaffold only touched the tower stonework at the base of the spire; at the top a phosphor-bronze bar was spliced to the central timber post and was inserted into the capstone. The purpose of this arrangement was twofold: to provide a heavy weight suspended from the capstone thus ensuring that the spire was in compression at its weakest point ie at the top where the weight of stone was least, thus ensuring that the top of the spire would never blow off again; and as a subsidiary purpose to provide internal access so that the spire could be more easily inspected.



Fast forward to 2014 when we visited my daughter then working in Taipei One of the attractions we visited was Taipei 101, the tallest building in the world from 2004 to 2009 (509m tall). It is a tribute to its designers that it is still standing as it is built in an earthquake zone and the foundations are rubber. It is also in the Eastern typhoon belt. The winds are strong enough to cause the whole building to sway. The external shape was designed to cut down wind vortexes and cross winds; high strength concrete was used up to level 90 and a tuned mass damper was mounted in the top floors. This consists of an 18 Ft diameter round steel ball weighing 726 tons suspended from the top of the building by 4 steel cables. As soon as the building starts to sway the ball sways in the opposite direction transferring its energy to a series of hydraulic dampers which convert the building's energy into heat. The building has resisted winds of over 130mph.



The moment I saw this



arrangement I thought of the scaffolding in the spire suspended from the capstone. My guess is that in any strong wind the spire would start to sway; the scaffold would start to sway in the opposite direction and the energy would be damped out at the bottom where the scaffold touches the top of the tower which is strong enough to absorb the energy generated. Thus they created a third effect – damping of vibration and movement of the rebuilt spire.

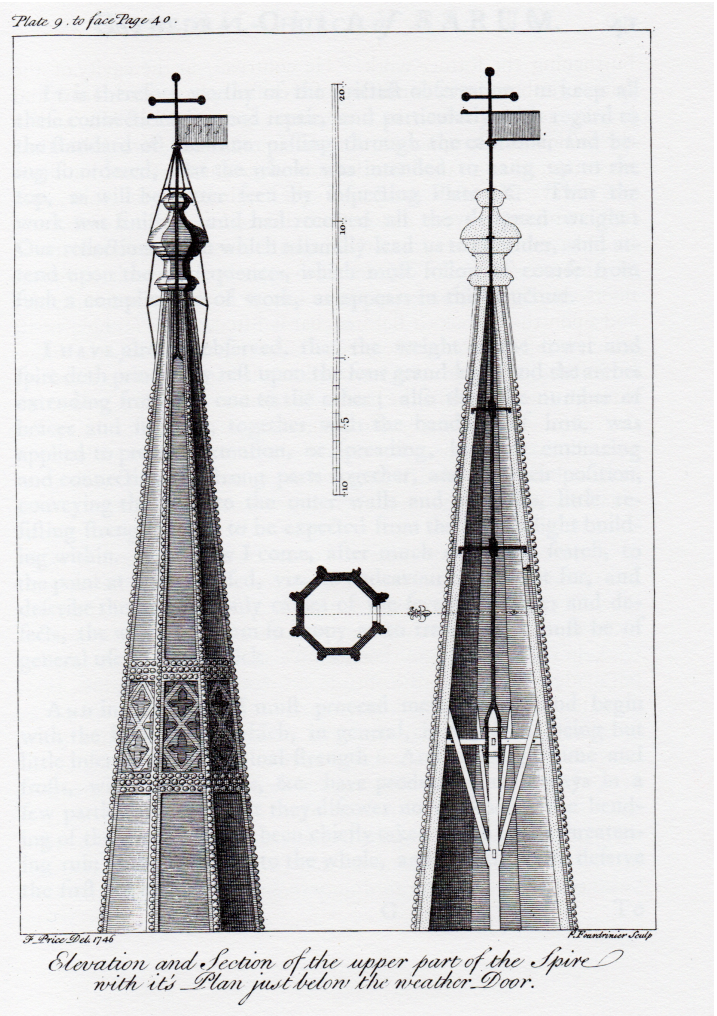
This raises an interesting question: if the physics above is indeed what is happening did those who built the internal scaffold know what the effect would be? Certainly not from calculations - I'm told by structural engineers that a considerable amount of computing power would be required to model and calculate this effect! But perhaps they made an educated guess from observation elsewhere and empirical evidence?

Ed: As I am out of my depth here I passed the message to our spire specialist, Ian Wheeler, who replied as follows: Thank you for sending me Austin's comments about the spire. He is absolutely right in identifying the two functions of the internal scaffold (compression and access) but I am wary of any suggestion that it was intended to act as a counterbalance (although I can see similarities as pointed out by Austin).

Modern skyscrapers can only survive in active tectonic regions if they are fitted with some sort of damping mechanism. This is necessary because of the nature of earthquake shock waves that hit in 3 different planes. The first of these is the "P" wave that gives a sudden push, that is followed by longitudinal and vertical shaking. The push displaces the building but not the suspended counterbalance within it which pulls the structure back to its original position.

To work effectively the counterbalance only touches the structure at the point of suspension. It is therefore quite different to the spire scaffold that is only threatened by high - and often gusty - winds rather than sudden displacement.

So although there are apparent



similarities the two designs are very different, the counterbalance having only one contact point. The heavier it is the better it performs - and inevitably it also adds compression to the weakest point. The photos are fascinating. This counterbalance has been made a feature of the building whereas conventionally they are hidden away in central lift shafts. The drawing is taken from *Observations of Salisbury Cathedral* published by Francis Price in 1753.

Ed: This debate opens up all sorts of questions as to the technical knowledge of the medieval masons and carpenters. If you would like to contribute a point, please feel free to do so.

ERRATUM

Ruth Newman writes: In J&T No.108 you quote correctly that *Women in Salisbury Cathedral Close* (Sarum Chronicle, Sarum Studies 5) has an article on Mistress (Mary) Turberville. This slim volume was edited by Jane Howells and myself and in fact I, not John Chandler, wrote the slight chapter on Mary Turberville. Following discussion with John Chandler, and with his full permission, I wrote an edited summary of his brilliant conclusion to the well known story of the Salisbury apparition. The chapter, *Distress of the Turbevilles* was included in his book, *The Reflections in the Pond*, Hobnob Press, 2009 as I acknowledged. I should not want this brief chapter attributed to him when in fact his detailed research brings him to a very different conclusion to the standard ghost story of the apparition.

THE PHANTOM OF THE CLOSE

Beatrice King writes on-line in *Her Salisbury Story*: Mary (Turberville) played a pivotal role in one of Salisbury's most famous ghost stories about an incident that occurred in June 1666 at no.17 of the Cathedral Close. It was the time of the Great Plague and Charles II had fled London, staying briefly in Salisbury before moving to Oxford. The air was full of rumours and superstitions; a good ghost story would have had its place. No.17 had previously been occupied by William Hearst and his family who had moved out following the death of William's wife in September 1665.

Soon after they moved in, Mary reported seeing 'a ghostly lady' claiming to be a 'wronged first wife.' The apparition told her that a document hidden behind the wainscot in this house would prove this, and Mary did indeed find such a document. We are told that Mary, on discovering the document, took it round to William Hearst, still living in Salisbury, and demanded justice for his first wife's children. After initially denying everything, Hearst then admitted that a wrong had been done and set about putting it right. Salisbury historian John Chandler suggests that this is the 'best fit' of all the available facts and that she had invented the ghost story to save the reputation of William Hearst; later she embellished the story to include 'celestial singing, blue swirling smoke and angelic voices.' The story demonstrates that Mary was a clever detective, a sensitive person and not afraid to challenge a perceived wrong.

Tomb ledger in the south transept (above) is of Mary Hearst - the Ghost.



CHAPTER MINUTES

In April 1924 an application was minuted that a Mrs Merriman sought approval for a wall tablet (below). This was agreed *as long as no black background and the lettering should be [Roman] plain block.*

To the Glory of God
In memory of
Four Clerks of The Peace of the county of Wilts.
Being the last to hold office on appointment by a
Lord Lieutenant of the County.
James Swayne
Born 1753 held office 1796 - 1824 died 1827
John Swayne
Born 1778 held office 1824 - 1864 died 1865
William Clark Merriman
Born 1805 held office 1864 - 1875 died 1877
Robert William Merriman
Born 1836 held office 1875 - 1912 died 1924

So, what was a Clerk of the Peace? It was a very ancient office which in 1361 was referred to as a *person who draws indictments, arraigns prisoners, joins issue for the Crown, enters judgements, awards their process and makes up and keeps records in respect of proceedings before justices assembled in quarter sessions to hear and determine felonies and trespasses.* In the Tudor period he was recorded in the Year Books as *Attornatus Domini Regis.* The office was abolished by the Courts Act 1971, magistrates instead being advised by the Justices' Clerk.

Dickinson's Guide to the Quarter Sessions and Other Sessions of the Peace provided an updated view of the role in 1841. *An officer of, by whatever name called, whether clerk and attorney for the Crown, clerk of the justices, or clerk of the peace, appointed to assist the justices assembled in quarter sessions to hear and determine felonies and trespasses.* He was appointed by a *custos rotulorum.*

He was required to be *an able person, learned and instructed in the laws of the realm and was to be an able and sufficient person, residing in the county, riding, division or other place for which he was appointed (for life).* By himself or his sufficient deputy, was required to be in constant attendance on the court of quarter sessions. He was to give notice of its being holden or adjourned; issue its processes; record its proceedings; and do all the ministerial acts necessary to give effect to its decisions. It was his duty, when prosecutors did not choose to seek professional assistance elsewhere, to draw the bills of indictment for felony at a fee of only one shilling each. The portrait (right) is of John Stock Barnes, Clerk of the Peace (1836 - 1887) by Josephine Saville (1836 to 1906) courtesy of Colchester and Ipswich Museum Service.



A *Custos Rotulorum* is a Keeper of the Rolls, or keeper of the county records. It is the highest civic post and is entitled to be referred to as Honourable and to have special CR car licence plates. He originally came under the Chancellor but now the Crown under the *Royal Sign-Manual.* Signature of the Monarch or Seal of the Realm.