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British Horology Chapter 159 of the National Association of Watch and Clock Collectors

(This article was presented at an AWI mtg. in 2011, and is reprinted here with permission of the author & presenter, Chris McKay)

NOTES ON THE TURRET CLOCK BY JOHN HOLMES in GREENWICH HOSPITAL

The Hospital and the Key People Involved

A Royal Charter of William and Mary dated 25 October 1694 established the Royal Hospital for Seamen (latterly known as Greenwich Hospital). Its objective was for "The reliefe and support of seamen serving on board the shipps or vessells belonging to the Navy Royall who by reason of Age, Wounds or other disabilities shall be uncapable of further service at sea and being unable to maintain themselves." The Hospital was designed by Christopher Wren, and built between 1696 and 1712.

Langley Bradley in 1704 supplied a clock that was installed in the east dome; it was a 30-hour movement and cost £35. Davis of Windsor gave an estimate for a new clock in 1754 but we do not know if this was fitted. In January 1779 a serious fire

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destroyed the chapel along with the existing clock. Re-building work commenced and a new clock was commissioned about June of that year. John Holmes (1727- 1797) the London clock and watch maker was chosen to supply the clock, he was paid £120 and it was installed first in the west dome and moved to the rebuilt east dome around 1781. Thwaites of London made the movement which was designed by Holmes with the help of John Smeaton (1724–1792) a famous engineer and the Rev. William Ludlam (1716-1788) mathematician and astronomer.

In 1819 Thomas Reid published his book A Treatise on Clock and Watch Making. It was the first major work on Horology in English. An appendix included correspondence exchanged between Holmes, Smeaton and Ludlam; from this we gain an insight into the reasoning behind the design of the clock.

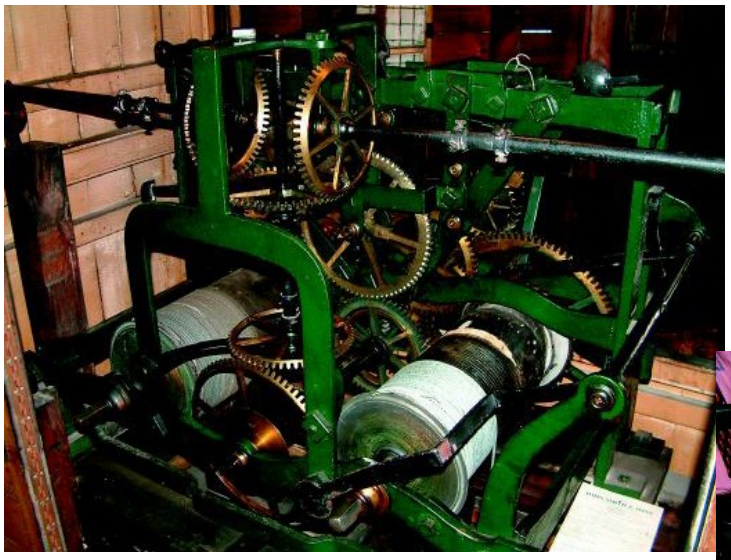
When The Hospital ceased to use the buildings, they were then occupied by The Royal Naval College from 1873 until 1998. Today the buildings are administered by the Greenwich Foundation for the Old Royal Naval College, a charity established to take responsibility for preserving, finding new uses for, and encouraging public access to the Royal Hospital site, and is currently leased to Greenwich University and Trinity College of Music.

Turret Clockmaking in London

In the late 18th century, the making of turret clocks in London was dominated by one company, Thwaites. This was started around 1740 by Aynsworth Thwaites who had been apprenticed to Langley Bradley and was succeeded by his son John. The company became Thwaites and Reed in 1828 and is still in existence today but has been through four different owners since the Thwaites family ran the company. Thwaite's clocks used the birdcage frame, their design changed little from 1750 to 1850. The only difference being the employment of cast-iron for the frames instead of wrought iron. It was a common practice that the seller of a clock would have their name added to a clock although they were not the real maker. Thwaite's clocks appear bearing the names of several famous makers.

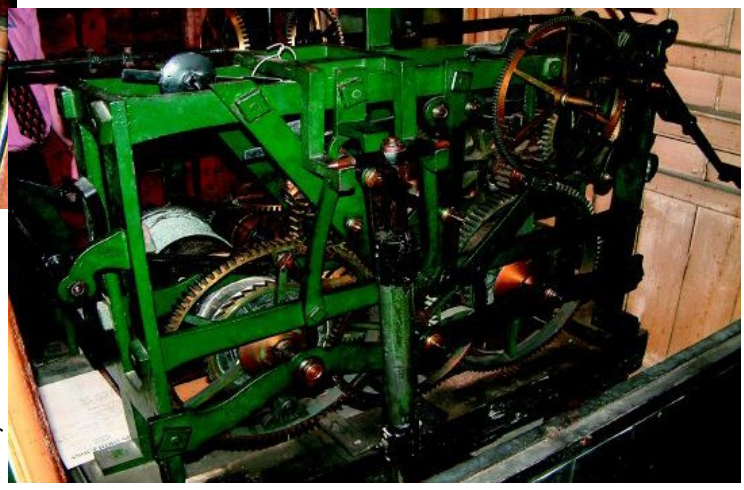
The Letters

John Holmes was a successful clock and watchmaker reputed for his high quality of work, he was not directly involved in turret clock work so he enlisted the help of his friend Smeaton. Ludlam was also involved in the correspondence, and these two came up with a whole range of ideas and proposals for the clock. Smeaton was from Yorkshire and familiar with turret clocks by the famous maker Henry Hindley of York, so a lot of Hindley's features were suggested. The key points proposed by Smeaton and Ludlam are listed below, but not all were taken up by Holmes…



Left: Holmes' movement from the front. The going train is on the right. Maintaining power by bolt & shutter. Note the tied-up striking release lever.

Below: Movement from the rear. The pendulum rod is wood. Bushes are fitted with oil holes.



Points to Look for when Viewing the Clock

Frame

The frame is a double frame as used by Hindley; i.e. a long frame for the barrels to allow many turns of line to get a long going period and a short strong frame to contain the wheel work. Most of the bars appear to be cast-iron, and have cast-in wrought iron

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Our Next Meeting
Will be at the
Southern Ohio Regional
Ft. Mitchell KY
April 12—14, 2012
We will look at a historically significant watch with sun & moon dial which was discovered last spring in New Hampshire, and learn about it's maker, John Wright.

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President's Message:

I hope everyone had a good holiday and new year. I've had the same New Year's resolution for the past 3 years now and that is simply to laugh more. A large part of my spare time enjoyment comes from doing research, and sharing experiences and stories related to clocks & watches. While I have certainly had a number of decent finds on eBay, the pieces in my collection that have brought me the most smiles over the years are the ones with histories and stories that came from fellow NAWCC collectors. I've really enjoyed meeting many of you in person over the past year and look forward to continuing to have fun, tell stories and help put together quality presentations and newsletters for our chapter. As a reminder, we need your participation in the chapter and ask that you consider sending in an article or volunteering to give a presentation at one of our meetings. Topics can cover just about anything related to British horology. If you've come across an interesting timepiece or have a good collecting or repair story to tell, we want to hear about it!

I'm pleased to report that 2012 will be the 12th consecutive year that our dues will remain at the same $5 ($6 for non-US addresses) level. It's no secret to say that membership is down across the board so please consider introducing one of your colleagues to our chapter. Membership material is on our website, available at our meeting, or simply contact Pete with an email. We also must find ways to offset the higher cost of supplies and postage, and a small dues increase for 2013 is being considered. One change we will be implementing soon to help defray the high cost of publication and postage is an option to receive the British Horology Times electronically. More details will be communicated to members with email addresses on file. Please consider the environment and also help us achieve a more balanced use of our resources and time by giving the new paperless option a try.

Rich

Editor's Corner:

As I put this issue together, we are experiencing our first winter storm of the season. Up until now it has been a mild winter. Our snow accumulation is not the problem, it is the accompanying wind. Good weather to stay in and do some clock work. I am in the midst of a very temperamental German movement. If nothing else, clock repair hones my skills in patience.

Original on left, mine on right

The machine class I wrote about in November ended successfully. I received a grade of 87, based on book work and 2 class projects. One project I initiated. I brought in a clock weight from a Monitor clock. The instructor looked it over and saw so much potential in it that he dropped the project he had planned on using. We all made clock weights instead. It gave us the opportunity to use the shear, layout and measuring tools, lathe and mill. The weeks went by too quickly and then it was over. Now I know for sure I would like to have a mill one day.

Do any of you read Clocks magazine? The December 2011 issue featured an article by John Robey titled The Tytes of Wells. I was quite taken with the engraved dial of what John calls "typical Bristol figures", which in this case were men with dogs, shooting birds and rabbits. I loved the figures of the men and animals. Do any of you have dials similar? Send me some pictures, we'll print them in a future issue of BHT.

Deena

Workshop Notes

By Dennis Radage

I have heard of fixing autos with duck tape, but this attempt to fix a clock is beyond belief !

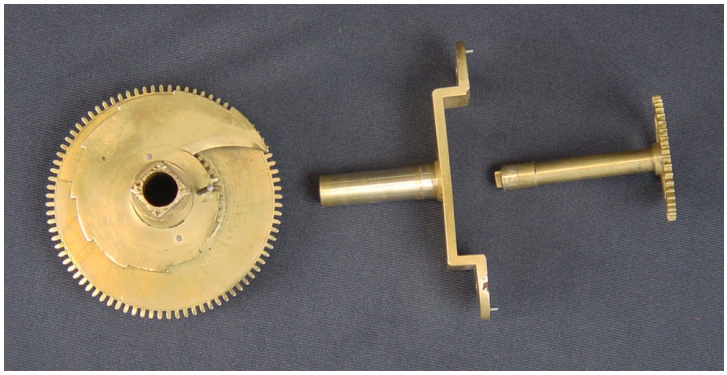
A Longcase clock recently came into my workshop. The owner indicated that the clock's performance was poor and unstable. He suggested that the clock likely needed a clean and lube job.

My nature is to dismantle every movement as part of a professional repair technique, it makes sense and always benefits in the long run. I also photograph the before and after, just for my records. This clock had two very "creative" repairs, obviously by an amateur who considered himself a "skilled" mechanic, but in practice, one who obviously had no knowledge of horology.

Firstly I noticed that the anchor and its arbor were patched with mounds of soft solder, but the anchor somehow seemed loose, likely resulting in much of the impulse power from the escape wheel being lost. Upon inspection and when trying to tidy up the assembly by removing some of the solder, the entire assembly fell to bits. This revealed a broken anchor which had been wrapped with stranded wire and then finished by coating with globs of soft solder. I'm not quite sure how the repairer had achieved this concoction, but it likely took some skill with a micro blow torch. I rebuilt the entire assembly after cutting a new anchor and arbor in the manner of the original.

This same clock had a poorly functioning and sloppy motion works. On dismantling I found that the hour wheel bridge assembly was missing most of its pipe. To prevent a total slop of the hour wheel and snail, this fixer had made a "spacer" by wrapping thin brass sheet into a roll, then placing it over the cannon pinion; this becoming a loose and "floating" bearing for the hour wheel. It was sloppy enough that most of the striking control by the snail was ineffective. The photo explains it all. The correct repair of course is quite simple. A new tube was turned and attached to the bridge as shown in the next photo.

Of course there were several additional fixes that when corrected resulted in a properly functioning clock. It is easy to see why this clock was not performing. I don't believe that the owner was cheap, so these fixes are likely the result of an amateur believing that a clock is simply a bunch of gears that any self respecting mechanic can repair. I have seen quite a few attempted fixes, but these two must rate near the top for creativity. Let's hope that all members of our chapter operate in a more ethical way when restoring their antique English clocks.



Canterbury Cathedral and the US connection

By Stuart Kelley

While touring southeastern England last Fall, and retrieving a restored Regency bracket clock case, my wife and I toured Canterbury Cathedral. We entered the Cathedral grounds through the Christ Church Gate on the Butter Market, and entered the Cathedral through the main entrance. Purely by chance we encountered a plaque mounted at eye level along the southern (on the right as you face the pulpit) wall. It's in the Crypt, near the entrance to St. Gabriel's Chapel. The plaque is a monument to Major Simon Willard, 1604 - 1676, and reads, 'who was an early pioneer in the settlement of the British Colony of New England from 1634. He was Commander-in-Chief of the British Forces against 'hostile Indian tribes' as well as being 'distinguished in the military legislature and judicial services of the American Commonwealth' until his death at the age of 72. I was quite surprised to see such a plaque, and the name on it must certainly be an ancestor of That Simon Willard.

When we returned to the states, I googled the Major, and found the website www.moonsmusings.com/genealogy/Willard.html that allowed me to trace the Major's offspring. The Major was the first generation Willard in the new world. He had numerous children, as did his offspring, and their offspring, but the horologically interesting "begats" is via the Major's son, Benjamin, Sr., 1664 - 1732, his son, Joseph Willard, Sr., 1693 - 1774, his son, Benjamin Willard, 1716 - 1775, to the fifth generation Simon Willard, 1753 - 1848, THE Simon Willard of horological fame. Fascinating the things one can bump into.

As an unrelated P. S., my wife, a former travel agent, had a surprise in store for me, but she wouldn't say what it was. She insisted we visit the medieval town of Rye, where she snaked us through the cobblestone streets, medieval alleys, and ancient shops that surely look just like what 17th century cities must look like, but today's smells are far more agreeable That Sunday, our route led us to the cathedral. After the service was finished, my wife pointed up to the tower, where a long pendulum swung. She sought out the plaque beneath it and showed it to me, knowing I would find it fascinating. The plaque read to the effect that this was the oldest pendulum clock in England. Now that got my attention, for I thought that honor was held by the tower clock in Salisbury Cathedral. Then I read on: The pendulum clock was installed in 1502. Whoa! Christiaan Huygens invented the pendulum clock on Christmas Day, 1656! I told my wife that I must see this error rectified, and moved towards the minister who was seeing parishioners out. There was a line, so I had time to think about whether a man of the cloth would care much about such an error. As we approached the head of the line, I took my wife by the arm and silently swerved around the minister, who was clearly devoted to the well-being of his parishioners, and toured some more of this intriguingly ancient town.

As another unrelated P. S., one day in Arundel I had for lunch a pork pie, and unsurprisingly I am able to confirm that, yes, it is of precisely the shape as Joseph Knibb's famous pork pie-shaped bells. The pork pie is a pastry of about 3-inch diameter and 2-inch high, filled with ground pork and spices. Quite tasty. I'd always wondered about those pork pie-shaped bells. I'm glad Knibb didn't fancy seafood.

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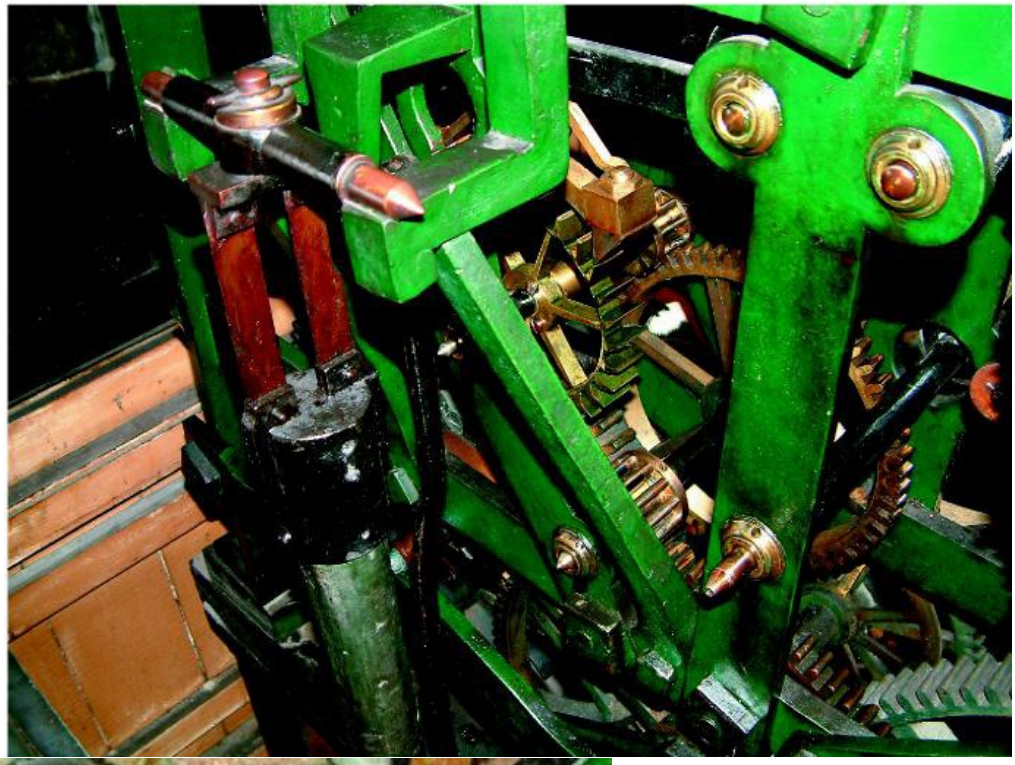
threaded studs. In the letters it was proposed that the clock should be more built for solidarity considering its exposed location rather than for accuracy of timekeeping.

Right: The recoil escapement and double suspension.



Below: Built up pinion of dead-hard leaves set in a brass frame

Wheel Work

Wheel work is brass and the built-up pinions follow Hindley's plan. These comprise a slotted bobbin into which profiled leaves are placed. The leaves can be hardened so they are dead-hard. Shrouds at the end of the bobbins retain the leaves. Look to see the amount of wear over 230 years.

Most arbors retain their male or female centres and bushes are fitted with oil holes, a feature that Hindley employed in his clocks. Bell metal bushes were proposed for the escape wheel and pallet arbor, but of course, the clock has been re-bushed over the years,

Going train

A standard bolt and shutter maintaining power is employed. A separate winding jack reduction gear can be seen inside the clock case.

Escapement

A one-inch thick escape wheel was proposed, it would have agate pallets that recoil, but are dead in the larger pendulum arcs. Holmes wrote that he could not afford agate pallets so today they are hardened steel and the escapement is a recoil. Beat adjusting screws on the pendulum bear on the steel crutch. Again agate was suggested as a bearing surface.

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Pendulum

A two-seconds pendulum is employed with a wooden rod and a sphere as a bob. A small auxiliary bob is used for regulation. The double suspension spring is intended to reduce the pendulum's tendency to weave. Ludlam wrote that the pendulum should be "Bolted to a rock as big as the Hospital". A wooden case protects the pendulum from drafts and inside the case can be seen the signature of James Watt and the date 1797.

Striking Work

The release system is very unusual and follows Hindley's plan. Locking is by a locking lever acting on a detent on the third wheel, the lever is held in place by a hook arrangement.
As the hour progresses the going train raises a weighted lever and a hinged pallet on the end gets underneath the locking lever. On the hour the weighted lever falls and knocks the locking lever up releasing the striking train. Strike control, is by a count wheel driven by a pinion of report. When the right number of blows have been struck, the pin on the count wheel lifts a lever that latches the locking lever back into is normally locked position. Today the striking train is not used.

Motion Work

Proposals for motion works and leading off work were followed. The bevel gears are of good size and the motion works and the dial bearing can be easily lubricated from inside the tower. Note there are rollers that support the long leading off rods.

Dials

The dials were the subject of much discussion. One suggestion was to make sure the minute hand was counterbalanced externally, not only for weight but for surface area as well to reduce the effect of the wind. Today the dials are to some extent protected by the stonework round them.

C h r i s McKay
May 2011