Tall Clocks in the Colonial Williamsburg Collection

By Tara Chicirda (VA)

As a furniture curator, it is quite daunting to write an article for the Watch & Clock Bulletin on the tall case clocks in the Colonial Williamsburg collection. Clock movements are not my area of expertise, but I have delved into them channeling the spirit if not the knowledge of my great-grandfather, a Waltham watchmaker.

Colonial Williamsburg’s clock collection includes American and British tall case, table, shelf, and banjo clocks, as well as pocket watches from the late 17th through early 19th centuries. The exhibition Keeping Time: Tall Case Clocks opened at the DeWitt Wallace Decorative Arts Museum at Colonial Williamsburg on November 14, 2020, and will remain on view through December 31, 2022. The exhibition displays a timeline of American and British clocks, discussing changes in case and dial style and design as well as innovations in clock movement technology over the times and places represented by the collection. Five pairs of Southern tall case clocks highlight various case design features such as Pennsylvania influence in the Valley of Virginia, pagoda pediments, and portrait dials. While most of the clocks will be in their cases, three movements including an English brass-dial clock labeled by Williamsburg, VA, silversmith James Craig, a wooden work movement signed by Riley Whiting of Winchester, CT, and an intricate London movement by William Scafe will be visible from all sides in a vitrine. The exhibit also includes three table or bracket clocks and a running reproduction 8-day tall case clock movement by David Lindow of Pennsylvania that has had its brass plates replaced with plexiglass so that the motion of the gears is completely visible as the clock runs. Since most of Colonial Williamsburg’s visitors are not as clock savvy as NAWCC members, the interpretation introduces the public to the form and history of the tall case clock and provides more detailed analysis for those visitors who choose to look more deeply.
While not discussed in depth in the exhibition, I thought I would share with you some interesting technical details of a few of the clocks on exhibit. The circa 1720 George Graham, London clock is in a burl walnut veneered case with a domed or sarcophagus-shaped pediment (Figures 1 and 2). A Fellow of the Royal Society, Graham was one of the most important clockmakers in 18th-century London. Master of the Worshipful Company of Clockmakers in 1722, Graham was in partnership with Thomas Tompion, and together they dominated the London clockmaking trade during the first quarter of the century. Graham perfected the deadbeat escapement, visible on this clock (Figure 3) and more accurate than the commonly used anchor-recoil escapement, and he invented the temperature-compensated mercury pendulum for even greater accuracy.1 Graham numbered many of his tall clock movements; this example is number 705. The high level of Graham’s workmanship can be seen in his use of five rather than four pillars, brass plates thicker than typical, the use of swiveling latches to secure the dial movement and dial pillars to the front plate (in place of the more common tapered pins), and his use of a bolt-and-shutter mechanism to maintain power during winding (Figures 4 and 5).

Another item in the exhibit with an elegant mechanism is the regulator timepiece made by John Berridge of Boston, England, 1760–70 (Figures 6 and 7). Because the focus of a regulator is on telling accurate time, often to the second, the movement is in a plain mahogany case so as not to distract from the timepiece, and the silvered dial is organized with the large hand indicating the minutes, the small hand on the subsidiary dial indicating the seconds, and the hour showing in the inverted lunette below the hands. Often used by scientists, astronomers, and clockmakers, the accuracy of the instrument was paramount. While round dial clocks are quite common today, they were only rarely used on tall case clocks beginning in the mid-18th century, primarily on regulators.2 As a regulator, this clock only has one train rather than the more typical two, lacking a strike train and bell. Berridge arranged his gears in a simple, elegant, vertical configuration with a deadbeat escapement at the pinnacle (Figure 8). He also utilized a temperature-compensating pendulum with precision adjustment (Figure 9). This pendulum has a center shaft of steel flanked by two brass rods with a compensation mechanism between the brass rods and the bob. The difference between the thermal expansion of brass and steel combined with a mechanism that adjusts the position of the bob based on those expansions keeps the bob at the same distance from the pivot point at all times, thus allowing the swing of the pendulum to remain consistent and the clock to remain accurate despite changes in temperature. Berridge is documented as having made a clock with a compensated pendulum in 1738 for a Mr. Fotheringham, a Quaker of Holbeach.3 The high quality of Berridge’s work can also be seen in his bolt-and-shutter maintaining power, six plate pillars, and comma-shaped covers on all the pivots to keep out dust (Figure 10) and the swiveling latches holding the pillars to the plate like those on the Graham clock.

William Scafe, another London clockmaker, produced this exceptionally complicated movement around 1730 that has survived without its case (Figure 11). Scafe placed the seconds dial in the arch via a contrate wheel and flanked it with a strike/silent on the right and pendulum regulation dial on the left. In the central aperture under his name, Scafe included from top to bottom, sun faster/sun slower, equation of time, months, and days (Figure 12). The equation of time is a chart that indicates whether the solar time (based on the earth’s rotation with respect to the sun, as indicated on a sundial) for a certain date is faster or slower than the solar mean time kept by the clock. Solar time can be slightly more or less than 24
Figure 5. Graham’s bolt-and-shutter mechanism: the lever on the side of the dial plate is connected to two shutters that cover the winding holes. As the shutters are opened, the mechanism engages a bolt with the teeth of the center wheel, exerting pressure from the maintaining spring so the clock can continue to run while the clock is wound. Detail of the clock in Figure 2. PHOTO COURTESY OF THE COLONIAL WILLIAMSBURG FOUNDATION.

Figure 6. Tall case regulator, John Berridge, Boston, England, 1760–70. Mahogany, oak, and glass; brass, silvered brass, steel, and iron. Museum Purchase, 1954–931. PHOTO COURTESY OF THE COLONIAL WILLIAMSBURG FOUNDATION.

Figure 7. Detail of Figure 6. PHOTO COURTESY OF THE COLONIAL WILLIAMSBURG FOUNDATION.
hours in a day, whereas solar mean time will only be 24 hours. This calculation assisted the clock’s owner in setting the clock at noon, using apparent solar time (when the sun was directly overhead). He then could compensate using the equation of time to set the clock for solar mean time. The rear view of the Scafe movement shows an unusual trident-shaped backplate with a tall, vertical element that allows the escapement to be elevated, thereby enabling the seconds dial to be centered in the dial arch (Figure 13). The horizontal bar across the top of the trident shape pivots when driven by the pendulum regulation dial, enabling the pendulum length to be adjusted from the front of the dial.

An American clock with an interesting feature was made by John Bailey of Hanover, MA, in 1800–15 (Figure 14). Bailey was one of the most influential clockmakers in southeastern Massachusetts during the late 18th through
Figure 10. Detail of rear of pendulum in Figure 9. Note the comma-shaped covers on all the pivots on backplate of the timepiece in Figure 6. PHOTO COURTESY OF THE COLONIAL WILLIAMSBURG FOUNDATION.


Figure 12. Detail of Figure 11 illustrating the equation of time. PHOTO COURTESY OF THE COLONIAL WILLIAMSBURG FOUNDATION.

Figure 13. Unusual trident-shaped backplate on the clock in Figure 11. The elevated location of the back cock, from which the pendulum would be suspended, aligns with the seconds register in the dial’s arch. The horizontal bar across the top of the trident relates to the pendulum regulation dial located on the upper right (proper left) of the dial. PHOTO COURTESY OF THE COLONIAL WILLIAMSBURG FOUNDATION.
early 19th centuries. He began working around 1772, making brass dial clocks, but by the early 19th century was producing clocks with white painted dials. He trained a number of apprentices, including his sons John Jr. and Joseph, who went on to open their own shops in the region. The case that houses John Bailey’s movement was probably made by a nearby cabinetmaker, possibly by Theodore Cushing of Hingham (Hingham is about 12 miles from Hanover). The case follows the general style of neoclassical Boston/Roxbury clocks of the period yet has a few elements that differ from those products. The case is highly decorated with inlaid geometric stringing, an oval pictorial inlay on the case door depicting Prince of Wales feathers, and pendant bellflowers on the hood door and plinths. The intricate inlaid elements were probably purchased from a specialist maker possibly in Boston or even England, and the stringing and banding could have been imported or produced locally depending on the maker’s skill. Many of the cabinetmakers working in southeastern Massachusetts during this period trained in the Boston area and continued to make furniture using the designs and motifs they had learned there, but often with a local or personal twist. Unlike the high style urban products that often have stop fluted corner columns and pillars made of mahogany and inlaid brass, the maker of this case chose to inlay a light wood into his fluted elements. This feature is commonly seen on clocks with works by John and his brother Calvin Bailey and appears to be a regional choice, possibly by Theodore Cushing. One interesting feature of John Bailey’s movements are the skeletonized plates (Figure 15). According to clock scholar Gary Sullivan who has studied Bailey’s work, this casting method reduced the cost of the brass needed and was a regional characteristic among clockmakers trained by John Bailey.4

One final clock to mention, which is on display in the British Masterworks exhibition, is an exceptional burl walnut veneered clock with gilt metal mounts by Thomas Tompion of London (Figures 16 and 17). Surmounted by a figure of Minerva, Tompion made the clock around 1700 for King William III. The British monarchy owned the piece until Queen Victoria gave it to her cousin, the second Duke of Cambridge. Colonial Williamsburg purchased it from a private collector in 1956. Recognized as one of the world’s greatest clockmakers, Tompion produced timepieces and barometers for three successive British monarchs: Charles II, William III, and Queen Anne. The Royal Collection Trust still owns a Tompion barometer and two other Tompion tall case clocks, which share some features with this example.5 Tompion provided this instrument with such advanced features as mechanical compensation for leap years, a bolt-and-shutter mechanism, and three months’ operation on a single winding. There are two calendar apertures in the lower central area of the dial. The upper shows the name of the month with the number of days in the month above (automatically showing 29 for February every four years) and below, its symbol or sign of the zodiac and the date of the month upon which that sign commences in the Julian calendar. The lower aperture shows the day of the month for the correct number of days in each month throughout the four-year cycle.

Colonial Williamsburg’s clock collection includes many more examples of clock movements and cases than presented here. The Keeping Time: Tall Case Clock exhibit is located in the Iris and Mark Coblitz Gallery at the DeWitt Wallace Decorative Arts Museum, one of the newly expanded Art Museums of Colonial Williamsburg.

Notes and References
3. Frederick J. Bitten, Old Clocks and Watches and Their Makers (London: E. & F. N. Spon, Ltd, 1922), 644. My thanks to Tom Schwartz for finding this citation.
5. Royal Collection Trust RCIN 2754, RCIN 30102, and RCIN 1233.

About the Author
Tara Chicirda is the Curator of Furniture at Colonial Williamsburg. The clock movement cataloging done by Tom Schwartz, Colonial Williamsburg volunteer and member of the NAWCC, was invaluable to the writing of this article and can be seen in most of the clock dial and movement descriptions on https://emuseum.history.org/.
**Figure 14.** Tall case clock, movement by John Bailey, Hanover, MA, 1800–15. Case attributed to Theodore Cushing, Hingham, MA. Mahogany, light and dark wood inlay, oak (modern), white pine, glass, brass, iron, and steel. Bequest of Mary B. and William Lehman Guyton, 2011–80. PHOTO COURTESY OF THE COLONIAL WILLIAMSBURG FOUNDATION.

**Figure 15.** Skeletonized plates on Bailey clock in Figure 14. PHOTO COURTESY OF THE COLONIAL WILLIAMSBURG FOUNDATION.

**Figure 16.** Tall case clock, Thomas Tompion, London, England, ca. 1700. European walnut, oak, gilt bronze, brass, steel, silk, and glass. Museum Purchase, 1956–436. PHOTO COURTESY OF THE COLONIAL WILLIAMSBURG FOUNDATION.

**Figure 17.** Detail of Figure 16. PHOTO COURTESY OF THE COLONIAL WILLIAMSBURG FOUNDATION.