AN UNUSUAL ENGLISH LANTERN CLOCK

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This article discusses an unsigned lantern clock that is unlike any other recorded to date. The much altered movement appears to be English and possibly from a very early period. The escapement has been updated from a balance wheel via a verge pendulum to anchor and long pendulum. Also the going duration has been increased. The most obvious difference from a conventional clock are corner posts comprising a naïve cast-brass male figure instead of the usual turned pillars with finials. No similar figure has been found in any other context, but it is felt that the discovery of something comparable will eventually reveal more about the clock's date and origins.

A very unusual early lantern clock has recently come to light that is quite unlike any other so far recorded. The top and bottom plates are made of wrought iron, instead of the usual brass, while, most unusually, the brass corner pillars are cast with a male figure in what appears to be simple Tudor or Jacobean dress. Each pillar is identical and has two lugs at the rear to which the plates are riveted. These pillars have been made specifically for a lantern clock and not modified from some other use. The frame has not been altered since it was assembled. As might be expected the movement has undergone a number of modifications over the last three and a half centuries. The chapter ring and hand were inappropriate modern additions (Fig. 1) and have now been replaced with more suitable items based on a clock by Robert Harvey of London.[1] The frets are missing. Although the movement is conventional, it is an interesting example of how a great deal can be learned from a careful analysis of its components.

The dimensions of the frame are as follows: iron plates 6⅛ in. wide x 6 in. deep, separation between the plates 6½ in. The pillars are 9⅞ in. tall, with a 'finial' 2⅜ in. tall and a 'foot' ⅞ in. tall. The hefty bell is 6 in. diameter and ¼ in. thick at the rim, compared with 5½ in. diameter for a London lantern clock bell of the mid-seventeenth century. The bell is fixed to an iron bell strap with a nut screwed onto the base of a brass finial. A conventional turned finial might have looked incongruous with the cast corner pillars and it may have been cut off when newly made. Overall the clock is a little larger than a 'standard' London clock (Fig. 2).

Fig. 1. Front view of the clock as found and before cleaning. The very wide chapter ring is made from modern rolled brass sheet, and the hand is made from mild steel sheet.

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1. J. Darken and J. Hooper, *English 30 Hour Clocks* (1997), pp. 16-23.

Fig. 2. The clock with its bell and restored chapter ring and hand (right). The frets are missing. Compared to a standard-size London clock by William Selwood from the 1640s (left), the clock is wider and due to the short feet appears to be squatter.

The movement has brass vertical bars and brass wheels with cruciform front and rear bars and the arbors of the strike work pivoted at the ends of the cross arms, all in the English manner.[2] It originally had a balance wheel, but has been converted, firstly to a crownwheel-and-verge escapement with a short pendulum, and then to anchor escapement with a long pendulum. At some time it has been altered from separate weights for the going and striking trains to a single weight and Huygens' loop, but it cannot be determined if this occurred during the conversion to long or short pendulum. During the conversion to long pendulum the opportunity was taken to alter the motion work so as to give a longer duration between winding. It is clear from the large amount of wear, as well as the replaced and modified components, that this clock has been kept going for a considerable period. Figs 3-6 show the movement after cleaning, but without the bell in place.

2. Cruciform movement bars on lantern clocks, and later on thirty-hour posted-frame longcase clocks, are specific to English clocks and are not found on Continental examples. The arrangement of the hammer, its spring and counter is also English.

Fig. 3. Movement from the front with replaced hour wheel and pinion of report to increase the duration. Note the single screw hole near the centre of each front pillar for fixing the dial. The purpose of the two screw holes in the right-hand rear pillar is not known.

Fig. 4. Rear view with the later iron backcock and crutch after conversion to anchor escapement.

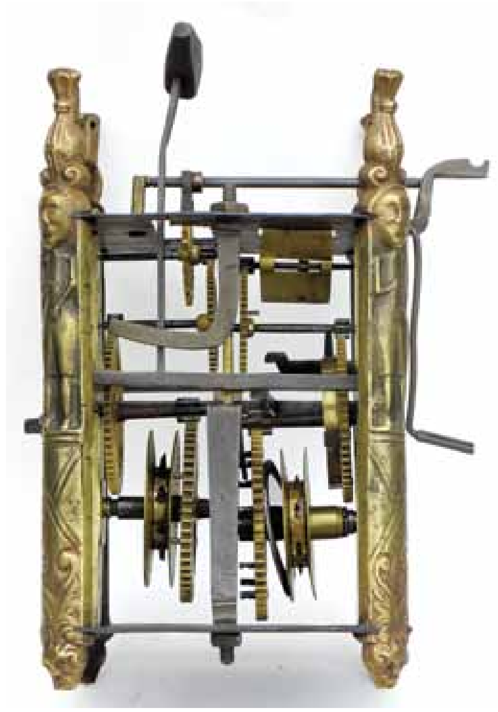

Fig. 5. Right-hand side. The hammer counter is crudely formed. The warn and fly arbors and the fly are later replacements.

Fig. 6. Movement from the left. The winding click on the going greatwheel was removed during conversion to Huygens' loop.

Fig. 7. The striking train, showing the four-pronged pinion of report. The fly is later.

Fig. 8. Teeth of the greatwheel have considerable wear. The punch marks on the tips show that the teeth were marked out with a dividing plate before being cut and rounded by hand.

THE STRIKING TRAIN

As expected on a balance-wheel clock the hammer is on the right, along with the hammer spring and counter. The hammer spring is plain but neatly shaped at the bottom. The counter is also neatly shaped at the top, but its free end is a long and rather crudely shaped curve. Although the fly and the warn wheel have had their arbors and pinions replaced, probably due to excessive wear, the striking train remains essentially as it was first made (Fig. 7), with the usual four-pronged pinion of report filed on the end of the greatwheel arbor. The fly is a later lighter version and there is evidence that the aperture in the top plate was enlarged to accommodate it. The hoop-wheel arbor is steeply tapered and has a turned ring near the wheel, which is fitted directly to the arbor without a separate collet. Punch marks are visible on the tips of the teeth of the hoop wheel and the greatwheel where they have been marked out using a dividing plate before being slit by hand and rounded with a file (Fig. 8). The wheel counts for the striking train are identical to those of a typical English balance-wheel clock:

fly		-	6
warn wheel	48	-	6
hoop wheel	60	-	7
greatwheel	56	-	4 (8 hammer pins)
countwheel	39		

THE GOING TRAIN & CONVERSION TO PENDULUM

There are signs on the centre movement bar where the potence for the vertical pallet arbor was riveted, as well as the bridge that straddled the pallet arbor and into which the rear of the crownwheel arbor was pivoted. The top of the front movement bar has an unusual triangular shape and the bar has been repaired with brass strips riveted onto both sides. As usual, there is space between the going greatwheel and the centre bar to accommodate the lower block for the pallet arbor. (Clocks made with either a short or long pendulum as original do not need this space and the wheel is closer to the centre bar.) Originally there were winding clicks on both greatwheels, but the one on the going train was removed when converted to a single weight. The wear on the crossings of the going greatwheel from the former click is evident. In fact there is twice as much wear on the crossings of the going wheel as on the striking wheel, which implies that when it operated as a balance clock it was run for a long period with the striking train disabled. Neither train has been reversed so

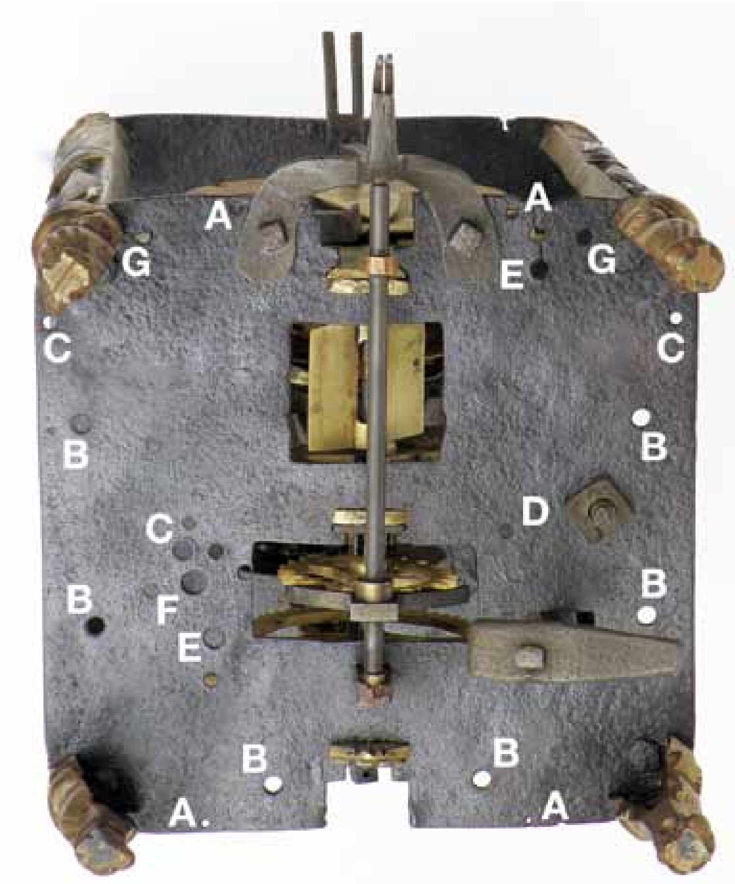

Fig. 9. The iron top plate with empty holes. A = pins for holding dial (see text) and back plate. B = frets, closer spacing than usual. C = position of balance cock. D = position of 'hog's bristle' or banking pin. E = position of front and back pallet cocks of verge escapement. F = position of crownwheel cock of verge escapement. G = hoop. Note the method of fixing the hammer to its shaft.

the weight of the later Huygens' loop crosses the counterweight. This was often done and although in theory it is not ideal there are few problems in practice, particularly if the bottom of the weight is rounded so that the counterweight can easily slide past it. The centre movement bar also shows signs of where the potence for the crownwheel of the later short pendulum escapement was fixed.

Presumably the going train was converted to short pendulum by replacing the crownwheel of the balance escapement by a contrate wheel, and a new vertical arbor with a crownwheel at its upper end added to the train. Relatively few balance-wheel clocks were converted to short pendulum, and even fewer then converted to long pendulum. Most conversions were directly from balance wheel to long pendulum, and few lantern clocks survive with their balance and vertical pallet arbor intact — no more than a handful of clocks with their original escapements are known. It may be significant that this clock, despite being unsophisticated in some aspects, was regarded as special enough for it to have undergone a couple of major mechanical updates. Empty holes in the top plate confirm the conversion from balance wheel to short pendulum and then to long pendulum (Fig. 9).

Normally when converted from short to long pendulum the contrate wheel was simply replaced by an escapewheel with radial teeth and new pallets for an anchor escapement fitted. This clock was converted by replacing the contrate wheel with a third wheel and adding an escapewheel at the top of the train. Hence it now has a going train of four wheels instead of the usual three (Fig. 10). This allowed the use of higher-count pinions and a slower running train, which in turn meant that the motion work could be altered to give a greatwheel that rotated more slowly and hence provided a longer duration. Technically it was a great improvement, but from an antiquarian perspective a retrograde step. The present anchor pallets, arbor and crutch appear to be from the nineteenth, or even the twentieth, century, but the conversion to long pendulum is likely to have been made in the eighteenth century.

The original pinion of report, which would have been four fingers filed into the end of the greatwheel arbor (identical to the striking pinion of report), was sawn off and a new stub end with a square brazed in position. To this was fitted a larger brass 'pinion' of 21 teeth meshing with a new hour wheel (also known as the dial wheel) of 36 teeth. The replacement hour wheel is marked with dots on the tips of the teeth, indicating that it was cut by hand, and not with a wheel-cutting engine. The crossings of this wheel are thinner in section than either the centre or rim of the wheel, and are unlike the wheels normally seen on domestic clocks. The rim has the remains of a substantial iron pin which has been filed flush, while there are two registration marks filed either side of a tooth (Fig. 11). The only wheels in an ordinary clock that would have such a pin are either a warn wheel, but no marks are needed as it only engages with the fly pinion, or a reverse minute wheel of a two-handed clock, where the marks allow correct setting so the strike is let off exactly at the hour by the now cut-off pin. However, this re-used wheel is too large for a domestic clock and too small for a normal turret clock, so its origin is uncertain.

The present going train is given below, with the later wheels and pinions in brackets:

escape wheel	(24)	-	(8)
third wheel	(56)	-	(7)
second wheel	60	-	7
greatwheel	56	-	(21)
hour wheel	(36)		

Note that all the pinions have seven or more leaves, rather than the inefficient six leaves usually found on lantern clocks and thirty-hour longcase clocks. This train gives 54.8 beats/minute and a pendulum of 46.8 inches, about seven inches longer than on a seconds-beating longcase clock.

DURATION

It appears that the running duration has been an issue, both when it was a balance-wheel clock and when converted to pendulum. Balance-wheel lantern clocks, as well as early watches, horizontal table clocks and other Continental clocks, only ran for twelve hours between winding. It has recently been said that this was of no great concern as these devices were mainly 'sun-chasers', reset regularly against a sundial and primarily employed when a dial could not be used, such as at night or when it was cloudy.[3] Despite this, such a short duration was clearly an inconvenience, and efforts were made to increase the duration of this, and many other lantern clocks. Originally each train would be powered by its own weight and counterweight, the latter necessary to keep the ropes firmly engaged with the spikes on the pulleys and prevent slipping, which would have reduced the duration even further. The running time could be doubled by simply looping all the free ends to the bottom plate of the movement and adding pulleys for both the weights and counterweights, all of which need to be doubled in size. On this clock four holes were drilled in the bottom plate through which the ropes could be threaded and fixed with a knot (Fig. 12). This may even have been done when newly made — there is no way of telling, except that it would have been while the clock still had a balance.

At some stage the proliferation of doubled-up ropes was replaced by a simpler and neater single weight and an endless rope on the now familiar Huygens' loop system. Simply converting a balance-wheel clock to Huygens' loop gives no advantage as regards duration. There is just the rather doubtful advantage of only having one weight to pull up — surely it was no great chore to raise two weights, and the automatic addition of maintaining power which was of no practical consequence for a lantern clock. When converted, a single weight to power both trains will fall half the drop in twelve hours to drive the going train, and in addition half the drop to drive the striking train. Hence the clock will still only run for twelve hours, rather than the twenty-four hours obtainable by doubling up the weights and counterweights.

To increase the duration of the going train when using a single weight, the motion work needs to be modified, but this can only be done if, as here, the wheels in the upper part of the train are modified to suit. For a given diameter of spiked pulley, the only components affecting the duration are the counts of the hour wheel and pinion of report. Balance-wheel clocks usually have an hour wheel of 48 teeth driven by a four-leafed pinion. Hence, since the hour wheel rotates once in twelve hours, the spiked pulley on the greatwheel arbor turns once an hour. With the usual size of spiked pulley the weight drops by about 4½ in. for every revolution of the pulley, with a fall of 54 inches in twelve hours. After allowing for the height of the weight, hook and rope pulley, the bottom of the clock needs to be at least 6 ft off the ground to give twelve hours duration. Very often it was appreciably

3. George White, 'Not a Bad Timekeeper: the English lantern clock in the seventeenth century', *Antiquarian Horology*, 31/5 (Sept 2009), 21-36.

Fig. 10. The four wheels of the going train after conversion to long pendulum and anchor escapement, together with the starwheel and later pinion of report and hour wheel.

Fig. 11. The hour wheel with alignment marks (left) and an iron pin filed flush that indicate its former use as a reverse minute wheel, possibly from a very small turret clock. The crossings are of an unusual section for a clock.

Fig. 12. The iron bottom plate with two extra holes at each side where both ends of the two ropes were attached to double the duration by using pulleys for the weights and also the counterweights.

higher than this and the top finial has often been reduced in height to give the maximum weight fall in a room with a low ceiling.

Similar considerations apply to the striking train, where the countwheel, which rotates once in twelve hours, has a 39-tooth wheel driven by a four-leafed pinion. Hence the spiked pulley turns a little slower at 0.8 turns in an hour and for the same drop (and same spiked pulley diameter) would run for 14¾ hours. This avoids the striking train running down before the going train and the consequent problems of the striking being out of synchronisation with the hand.

To increase the duration of the going train the 12:1 ratio on the motion work needs to be reduced. For comparison, a thirty-hour longcase clock usually has a ratio of 4:1, sometimes 3:1 or less frequently 6:1. On this clock the altered motion work gives a ratio of 2⅔:1, so the weight falls 4½ times slower. With a double rope the

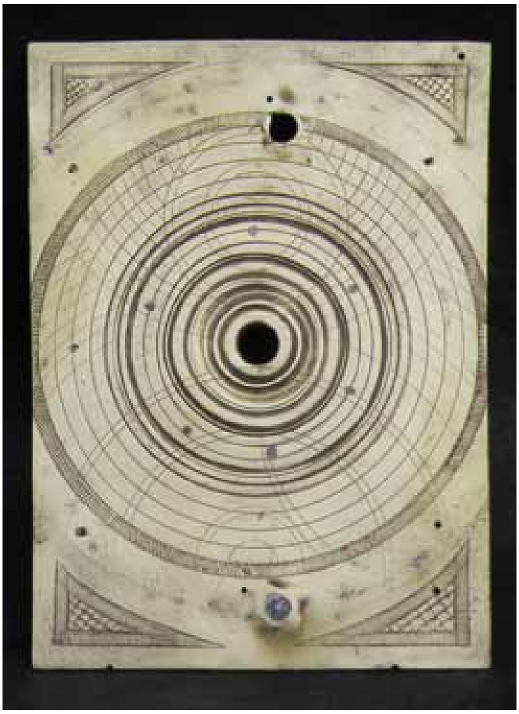

Fig. 13. Front of the dial with decoration in the form of deeply scribed circles, overlain with several sets of lighter circles. The corners have wigglework borders with similar wigglework round the inside of the chapter ring. Note the iron dial foot at the bottom and the location of another near the top.

Fig. 14. Rear of the dial with the insertion of a thicker central section.

weight falls just six inches in twelve hours, and with the striking inoperative the clock would run for about 4½ days. Since the striking train has not been altered, during a twelve hour period the weight will fall a further 21½ in. to drive the strike train, giving a total duration of 23½ hours for the same total fall. This emphasises that no matter how slow the weight falls for timekeeping, the total duration is largely determined by the faster drop of the weight during striking.

Of course, if the strike is disabled (by preventing the fly from moving for instance) then extended running can be achieved. Alternatively, if the countwheel is removed, so that there is just one strike per hour, the weight will fall 6½ times slower during striking, resulting in a total running duration of almost three days. While duration might not have been important when it had a balance wheel and needed regular adjustment, when converted to the much more accurate long pendulum it would have been considered to be a timekeeper that could be relied upon, and not merely a 'sun-chaser'.

THE DIAL

The unsigned brass dial is 6½ in. tall and 4¾ in. wide, decorated with deeply scored concentric circles, overlain with three sets of more lightly scribed circles (Fig. 13). The latter may have been done to imitate a scientific instrument, but are certainly not a form of simple astrolabe or a means of indicating unequal hours, as used in Italy. It is clear that the person who made the dial did not possess engraving skills and relied on simple scribed lines for decoration. The centre is a disc of thicker brass soldered in place (Fig. 14), the join coinciding with one of the heavily scribed circles. This separate piece does not perform any practical purpose, and it is likely that the circles were scribed so deeply that they cut through the thin brass sheet and a repair was made by adding a thicker central section. This central disc has the remains of six iron pins or rivets that have been filed flush on both sides. They serve no purpose and are unevenly spaced, so they are not part of an alarm mechanism, for instance. It may be that this disc was a reused piece of metal and the pins are remnants from its unknown former use.

The corners have a simple 'wigglework' border filled with cross-hatching, while the inner edge of where the original chapter ring would have been is delineated by a wigglework circle. There are six small holes where the chapter ring was intended to have been riveted to the dial sheet, rather than using pinned feet. They do not appear to have ever been used for this purpose, and the method finally chosen for fixing the dial to the frame made these holes redundant (see below). The chapter ring would have been 6 in. diameter, but only ½ in. wide — narrower than on any other known lantern clock of normal size.[4] There are a couple of other small holes in the dial plate of unknown use — there is no evidence that they were for an alarm. The rear of the dial has signs of a few plugged holes, which are a further indication that it was a re-used sheet of brass. A new chapter ring has been made from an old scrap brass dial to fit the space delineated by the wigglework bands, and engraved with squat Roman hour numerals of the type found on early clocks. There is little room for even a simple quarter-hour track.

An important practical, and probably unforeseen, consequence of using corner posts of the type shown here, rather than the conventional English style of turned pillar, is that the dial cannot be fixed to the movement in the usual way. Conventional pillars have square bases at the top and bottom, which project about ¼ in. forward of the central part of the pillars. The plates are normally flush with these square bases,[5] and the dial sits between the top and bottom plates, set back by about 3⁄16 in. from the edges of the plates and held in place by two pins through holes near the front edge of the top plate and by either something similar at the bottom, or, more usually, by a central lug on the bottom of the dial fitting into a hole in the lower plate. The chapter ring is normally held to the dial by short dial feet, although there are much less commonly found alternatives, and it usually overlaps the central section of the pillars.

The pillars of this clock are effectively parallel with no bases, and the top and bottom plates do not project beyond the profile of the pillars. Hence the dial with its chapter ring cannot be set back far enough for it to be held by the usual pins through the top plate, as described above. The clockmaker, clearly not foreseeing this problem, had drilled the appropriate holes in the plates, before trying another method. He decided to hold the dial to the front movement bar with two dial feet, one of which remains, the other being indicated by a hole towards the top where it would have been. The surviving iron foot has had its spigot cut off so that the end now just rests on the front of the movement bar. There are holes in the front movement bar to take the spigots of these posts, but they do not align correctly. They align at the top if both the dial and movement bar (which is not exactly in the centre of the iron plates) are turned over, while they align at the bottom if only the dial is turned over. The rear of the dial has eight scribed circles (not visible in the photograph) at about 5⁄16 in. spacing, which are not exactly concentric with the centre hole. It is possible that this was initially intended to be the front of the dial. It is suggested that the clockmaker was inexperienced and got himself into a muddle when marking the positions of the holes and feet. The mistake was only discovered after the feet had been riveted in place so the spigots were cut off and a third method of fixing used.

The fixing method finally chosen was a couple of screws through the chapter ring into tapped holes in the front pillars. (There are two similar sized tapped holes in one of the rear pillars, but their purpose is unknown.) The chapter ring traps the dial plate against the inner edges of the front pillars and there is no need to fix the chapter ring to the dial, hence the rivet holes are superfluous and explain why they appear never to have been used. While not particularly neat, a similar method of holding the dial is known on a few very early lantern clocks, where a large screw through the chapter ring and dial screws into a triangular iron piece set into the top plate.[6]

4. A very unusual lantern clock, said to date from about 1600-10, which shows the moon's phase and times of high tide, has a chapter ring ½ in. wide, but it is only 5¼ in. diameter, compared with 6 in. for the present clock. See Brian Loomes, *Lantern Clocks & Their Makers* (2008), pp. 42-44. One of the earliest surviving English lantern clocks of conventional form, made by Thomas Harvey before 1615, has a comparable size of chapter ring at 6 1⁄8 in. diameter, but is ¾ in. wide. See Darken and Hooper, *English 30 Hour Clocks,* pp. 6-23.

5. A few lantern clocks have plates that are set back a short distance or have round bases, but the edges of the plates are still forward of the central section of the pillars.

6. Loomes, *Lantern Clocks & Their Makers,* pp. 23, 30.

Fig. 16. Lower part of the pillars decorated with a cross, scrolls and a lion's head at the base. The latter is clearer on some of the other castings.

Fig. 15. Top half of the pillars include a male figure with what may be a headdress or leather money bag above his head acting as a finial or support for the bell. Close inspection of the actual castings shows five large buttons down the outside of the right leg of the breeches, another on the inside of the left leg, with a row of tiny buttons down the centre of his jerkin.

Despite these alternative fixing methods (brought about by inexperience and the consequences of various changes having not been thought through properly), the dial fits neatly between the plates and side pillars, and the author is of the opinion that it was fitted to the clock when originally made. It has been suggested that some of the features discussed here may be the result of the current dial being a later substitution, but in that case any replacement dial would have been to a later design, not the very early style seen here.

Fig 17 A typical male figure, as found on seventeenth-century carved oak furniture.

THE 'TUDOR/JACOBEAN' FIGURE

The most unusual, and so far unique, feature of this clock is the use of brass corner pillars each cast with a male figure and other decoration (Figs 15-16).

Not only is this figure not known on any other clock, but no similar examples have been found on any form of metalware, furniture, or ceramics, or in architecture or archaeology.[7] It is unlike the caryatids on some renaissance table clocks.[8] It consists of a man with a large head, oval face, flat nose and a bald or shaven forehead to reveal hair or a wig at the top and sides. The clothing on his upper body is not clearly defined, although there is a row of small buttons down the centre. His spindly arms do not appear to be covered, which would be unusual in the sixteenth and seventeenth centuries. He is wearing breeches, padded out at the top, with a row of five large buttons down the outside of the right leg and one on the inside of the left leg. He is wearing short boots rather than shoes.

Above the figure is a scroll-like feature that acts as a finial to hold the bell stand. It has been suggested that this may be a leather bag, perhaps containing money or corn. It may even be a very large and elaborate hair style. Carved figures of native Americans are known with such hair styles, and a headdress of feathers was the attribute of America personified. Could the clock have been made for the family of a very early settler in the New World? Below the figure is simple incised decoration, including a saltire, while at the base is a lion or leopard's head.

Opinions from various costume experts have been inconclusive. Pear-shaped breeches of this style with buttons down the outside seams were worn in England from the 1570s and are known on portraits from 1600 to 1620. Petticoat breeches with buttons continued to be used until the 1660s and later, but the lack of a frill or other decoration is unusual. While the breeches may be quite fashionable, the boots are those of a labourer, and a hat and full wig would be expected. Is it an attempt to be deliberately unfashionable? The hands are in the 'Venus pudica' or modesty position[9] and are likely to be symbolic, as are some of the other features, such as the bare head, working boots, the 'money bag' decoration above his head and the lion/leopard head at the base. There does not appear to be any religious or masonic iconography.

The wooden pattern for the figure has been carved in a 'folksy' manner, but by someone who had done this sort of work before and possibly copied from an existing image. It is therefore surprising that nothing similar is known in other contexts. The nearest parallel is a cast brass toy figurine of about 1550-60 in the Museum of London, but this has more decoration visible on its doublet and breeches.[10] There are some medieval erotic carved stone figures in English churches that have a vague resemblance, but it is unlikely that they were the inspiration for the figure on this clock. An obvious comparison would be the caryatids (female) and atlantes (male) seen on English and Welsh carved oak furniture, but they usually only show the upper part of the body. The lower part is either swathed in a cloak or represented by a plinth and the arms are often crossed (Fig. 17) or are above the head holding an entablature. A few exceptions that show the full figure, including the legs, are known: a couple on carved Welsh furniture, one of about 1530, the other 1597, and an Elizabethan overmantel at Speke Hall, near Liverpool, but they are all dressed in very fashionable costume and do not compare with the simple figure on this clock.[11]

The inspiration of this figure and its date (and hence the date of the clock) remains uncertain. Any clock made during the first half of the seventeenth century (the likely period of this one) would have been for a relatively prosperous customer and a fashionable figure would have been expected. Why model a man in plain working clothes? Does the symbolism of the hands indicate a Puritan connection, if so why no hat or full wig? Was it an attempt to portray an archaic medieval figure in a similar manner to the 'Billy and Charley' fakes of the nineteenth

7. Requests for information on anything remotely similar have been made in the newsletters of the Antique Metalware Society, Regional Furniture Society and Vernacular Architecture Group, without any positive response.

8. For example one by Ahasuerus Fromanteel and Edward East, see P. G. Dawson, C. B. Drover and D. W. Parkes, *Early English Clocks* (1982), p. 30.

9. As seen on Greek and Roman statues and also Botticelli's *The Birth of Venus*.

10. http://www.museumoflondonprints.com/image.php?id=64896&idx=4&fromsearch=true

11. Richard Bebb, *Welsh Furniture 1250-1950* (2007), Vol. 1, pp. 82, 162. A range of caryatids, atlantes and other carved oak figures are shown in *The Clive Sherwood Collection*, Sotheby's Catalogue, 22 May, 2002, pp. 80-83, 110, 112, 134-45, 182-90, 198-211, but none have any resemblance to the figure on this clock.

century? Yet there is no evidence to suggest a Victorian modification to an original clock with a pseudo-medieval/Celtic/Nordic design, nor is it an early movement put into a later frame. At present it is unique and enigmatic.

CONCLUSIONS

Who made this clock, where and when, remains unknown. As stated earlier, there is no indication that this is a made-up piece, and in any event the height of the movement bars is different to that on most other lantern clocks, so they were made specially to suit the spacing of the plates. One constructional detail that may give a clue to its region of origin is the hammer shaft, which goes through the centre of the hammer head and is riveted over at the top (Fig. 10). The deep rectangular mortice would have been much more difficult to make than the conventional method of a slot filed in the side of the head into which the shaft was firmly riveted. The mortice-and-tenon method is known on a couple of very rare eight-day lantern clocks from Somerset and a re-dialled lantern clock from the same area.[12] This is very slender evidence and it is not claimed as being definitive proof of where it was made.

It is suggested that this clock was made by a provincial maker some time before 1660. The fact that the clock originally had a balance wheel, rather than a pendulum, does not necessarily mean that it was made before the first recorded use of the pendulum. Balance-wheel clocks were being made in the provinces into the 1680s, almost thirty years after the introduction of the pendulum, and even in London they were made long after the accepted date of 1658 for the first pendulum clocks.[13] The fact that the movement was changed from a balance to short pendulum, and then to long pendulum, indicates a reasonably early date for its original making, otherwise if it was a late balance-wheel clock (made after about 1660) the conversion would have been directly to the much easier and more satisfactory long pendulum. The very narrow chapter ring, if on a conventional lantern clock, would indicate a very early date, possibly pre-1630, but a country-made clock is unlikely at such an early period. Its very early appearance may be due to the maker basing the dial and chapter ring shape and size on an early London example, but interpreted in a very 'country' manner.

The wheel and movement-bar castings are not of a particularly high quality and may have been the work of the clockmaker himself (especially as they are not of the usual size). The dial indicates that it was made by someone not skilled in even the most basic engraving, nor with easy access to an engraver. This rules out a London maker, who would have had engravers not too far away that could do such work. In any case the iron top and bottom plates make a London origin unlikely. The various inconsistencies relating to the fixing of the dial indicate a tradesman who had not made a clock of this type before. Perhaps it was a country clock repairer who, having cleaned an early lantern clock, decided that he could make something similar, but wanted to add his own unique contribution to the design. He cast the pillars, using a pattern made by a local wood carver, as well as the rest of the brasswork. A further indication that all the brasswork was cast specially for this clock is that the frets, the originals of which are missing, were fixed with the usual screws through lugs in the fret castings, but with their centres only two inches apart. Most lantern clock frets have fixing holes of 2¼ inches or more apart.

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12. Loomes, *Lantern Clocks & Their Makers,* pp. 389-91, 427-32.
13. Loomes, *Lantern Clocks & Their Makers,* pp. 283-85, 42-43 (Samuel Stretch of Leek, Staffordshire, who was born in 1657 and not making clocks until at least 1678); pp. 125-6, 148 (John Barnett, who was not free of the Clockmakers' Company until 1682, while a London ironmonger was still offering balance-wheel clocks in 1696).