# DONISTHORPE'S EARLIEST CLOCKS

## part 2 of 3 An abandoned alarm conversion


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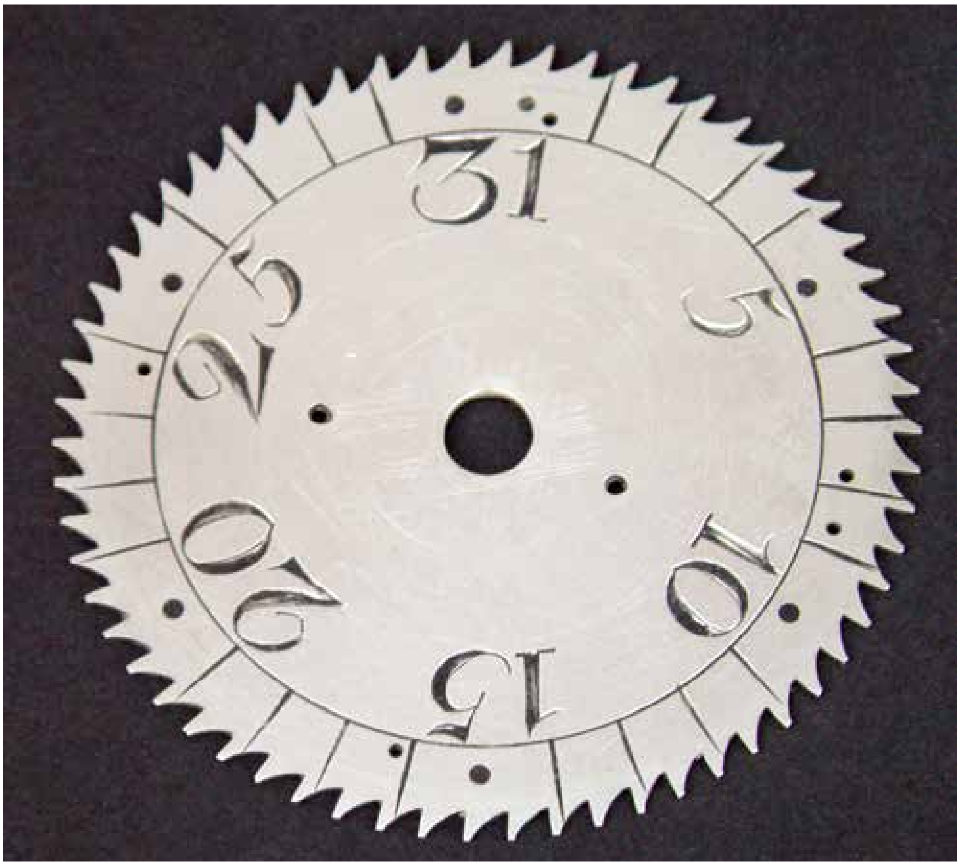
The first part of this article (Clocks, May 2014) described a single-handed 30-hour clock (Clock 1) by the north Leicestershire clockmaker Joseph Donisthorpe. Despite being called a 30-hour clock it actually runs for barely a full day in its original oak case. Nevertheless, both Clock 1 and the one described here, called Clock 2, will be referred to as 30-hour clocks, which is the normal convention nowadays. Clock 1 was shown to have a most unusual posted-frame movement, with a combination of features that make it unique to this clockmaker.

*Figure 19. The dial of Clock 2, similar to Clock 1 but with a calendar and an alarm hand.*

Clock 2 has the same type of movement, with just a couple of detail differences, but most importantly it is dated. In addition there have been modifications to the movement that are of particular interest. Unlike Clock 1 it has been divorced (or should it be orphaned?) from its case.

The dial, **figure 19**, has the same type of 10½in square solid brass dial without cast gaps behind the chapter ring. There are identical female Four Seasons spandrels and with diamond- or lozenge-shaped half-hour markers instead of the more decorative pattern used on Clock 1. This dial has the addition of a typical Midlands-style arched calendar aperture where the date should be advance by half a day at about 6am and 6pm. This means that during most of the daylight hours the date is unambiguous, but for the rest of the time the date will be half a day 'slow' or 'fast'.

The date disc itself, **figure 20**,



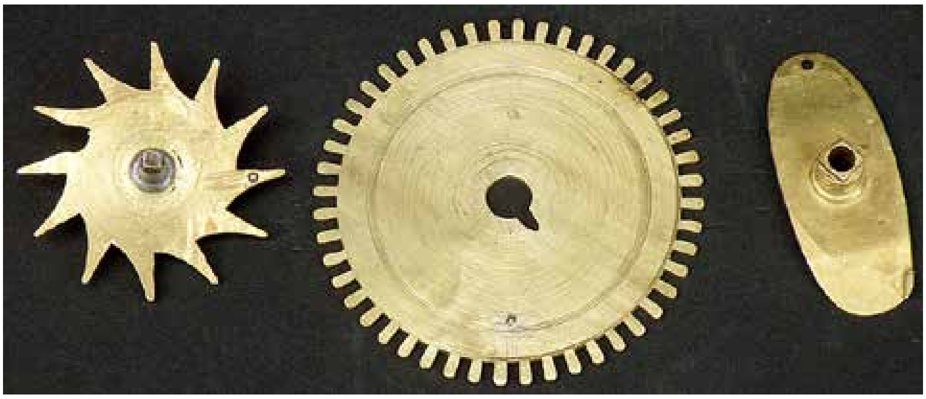



*Figure 20 (above left). The calendar disc with unexplained holes round the edge.*

*Figure 21 (above). The skeletonised movement from the front.*

*Figure 23 (left). The motionwork with the alarm let-off on the right.*

is rather odd. The date is numbered at every fifth day 5-25 then at 31. Each day is marked with a line while the numbered days and also the unnumbered 30 are indicated by a large dot. So far quite normal, but in addition there are five holes through the disc at about a quarter of a day past 0 and 16 and about the same amount before 8, 9, and 24.

There does not appear to be any logical purpose for these holes. They may have been for use with a pointer for resetting the date at the end of the short months. Apart from the one near 8 the others form the corners of a square. Perhaps the odd one was misplaced, but if they are only to assist in moving the disc, just three holes would have been sufficient. Alternative suggestions will be gratefully received.

The clockmaker's name is engraved on a silvered oval boss identical to that on Clock 1, while there is an additional straight hand, which is not for indicating the minutes. Both the name and the hands are considered later.

The movement is very similar, although not identical, to that of Clock 1. The going train has the same wheel counts, but on the striking train the warn wheel is 50 and the countwheel is 36, driven by a pinion of 6. Locking of the strike is with a hoop wheel rather than with a pin, hence the slots in the countwheel do not need to be curved. The pendulum backcock has a slightly different shape and there are no humps on the right-hand front movement bar to take the strikework arbors.

There is the same skeletonised construction, **figures 21** and **22**, and all three movement bars are held in place at the top with pins, just as on two of the bars of Clock 1. The bell is, as before, riveted to its bellstand, a feature I have not seen on other English clocks of the period. However, the bell, hammer and hammer spring are on the opposite side of the movement. There are clear signs that these were originally on the left-hand side before being moved to their present positions.

The original holes for the bellstand and hammer spring are still there, while the decoration filed on the hammer spring (identical to that on Clock 1) now faces inwards and is not readily visible. With the hammer now on the right the whole arbor had to be turned round so the hammer pins could lift the hammer tail instead of pushing it down. To do this an extra piece was brazed on to the arbor for the spring to push against. In addition the hammer head was turned so that it still faced the same way as before.

The hammer strikes towards the left as previously, but it now contacts the outside of the bell, rather than the inside as is usual for a posted-frame movement. The hammer shaft now stops against the outer edge of the top plate and a small piece of iron has been let in to prevent wear to the soft brass. The bell would

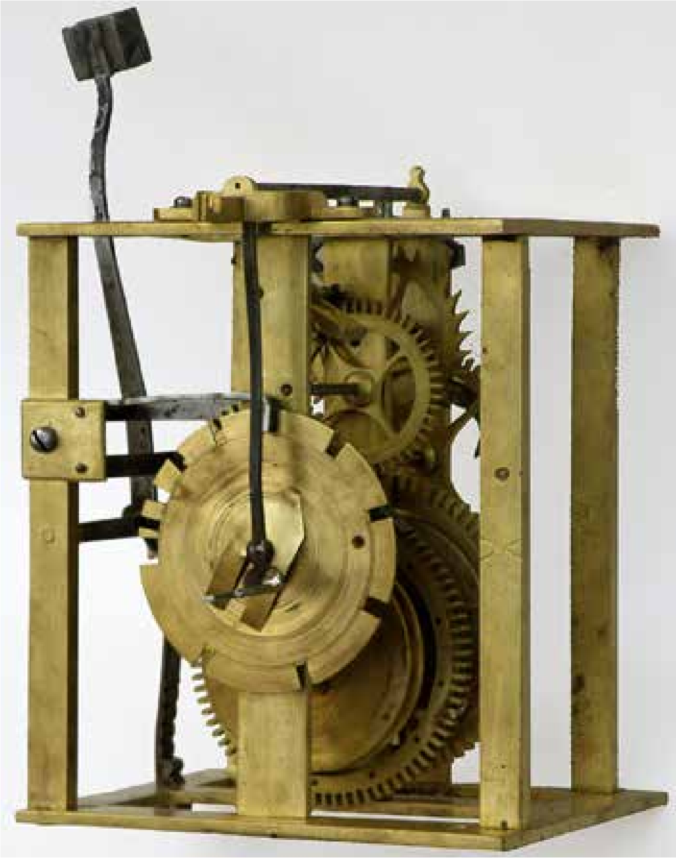


Figure 22 (above). Rear view of the movement with the bell and bellstand removed.

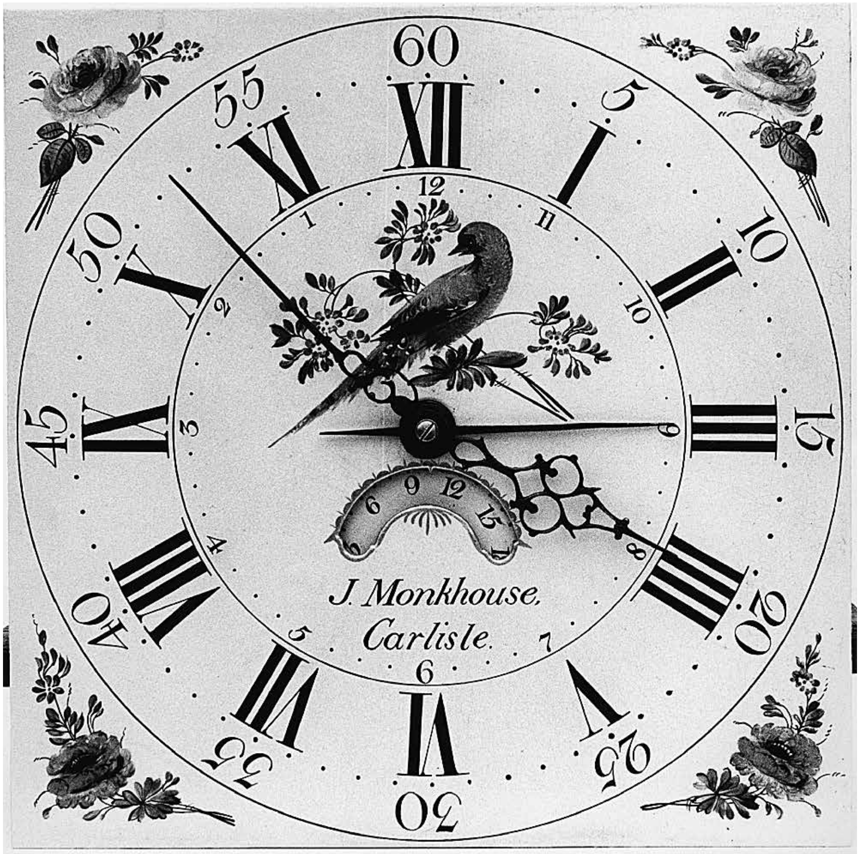



Figure 24 (above right). Dial of a 30-hour clock by James Monkhouse of Carlisle, about 1785 with an alarm hand set against the number just inside the chapter ring.


Figure 25. Joseph Donisthorpe's initials and date engraved on the top plate. Note the iron insert where the hammer shaft stops.

have been too far from the hammer if it remained on the left-hand side, but now it was too far to the right. The solution was to fit a smaller and very shallow bell. This is polished and does not have a casting mark.

There are the same type of pivot blocks as used on Clock 1, but that for the hammer arbor was transferred from left to right. Now it was fitted on the inside of the front right-hand pillar instead of the outside of the rear pillar. The rear pivot sits in a brass boss riveted into the rear pillar. This is because not only is the left-hand front pillar offset (as with Clock 1); the rear one is further forward so the hammer arbor is shorter than the other two strikework arbors.

One difference between the frames of the two movements is that whereas the right-hand pillars of Clock 1 are in line and the arbors of the strikework pivot in 'humps', on Clock 2 the pillars are offset and no humps are necessary.

It is when we look at the motionwork that the reason for these changes to the position of the hammer, its spring and the bell, become clear. The motionwork for Clock 1 is the typical arrangement for a single-handed clock. The starwheel to let off the strike is riveted to an iron arbor with the hand held on a square on the front end. The hour wheel (also called the dial wheel) slips over the arbor and a flat brass spring fits into small slots cut into the arbor close to the wheel. This spring holds the starwheel in frictional contact with the wheel. Hence as the wheel rotates it carries the starwheel and the hand with it to indicate the time and let the bell strike on the hour. The spring acts as a clutch to allow the hand to be reset and preserve the let-off of the strike exactly at the hour.

The ends of the other thin spring (really just a spacer) rest lightly on the back of the dial to prevent the whole arbor moving forward and the wheel disengaging from its driving pinion. Often the calendar flag on the arbor performs the same purpose, in which case there is no need for such a spring, but as Clock 1 does not have a calendar it is necessary to have a spacer.

The motionwork for Clock 2 shows quite a different arrangement, **figure 23**. The starwheel is riveted to the arbor and the hand is squared on the end, as before, but now an oval brass spring on a pipe slips over the arbor and pressure from the back of the hand boss pushes the spring against the wheel to provide the friction clutch for hand setting. What we have here is a typical alarm-setting mechanism. An alarm-setting disc would be squared on to the front of the brass pipe and a pin or tab on the spring would let off the alarm at the desired time.

Just one small detail shows that this was not the arrangement originally intended. The small slot near the centre of the hour wheel was to allow the

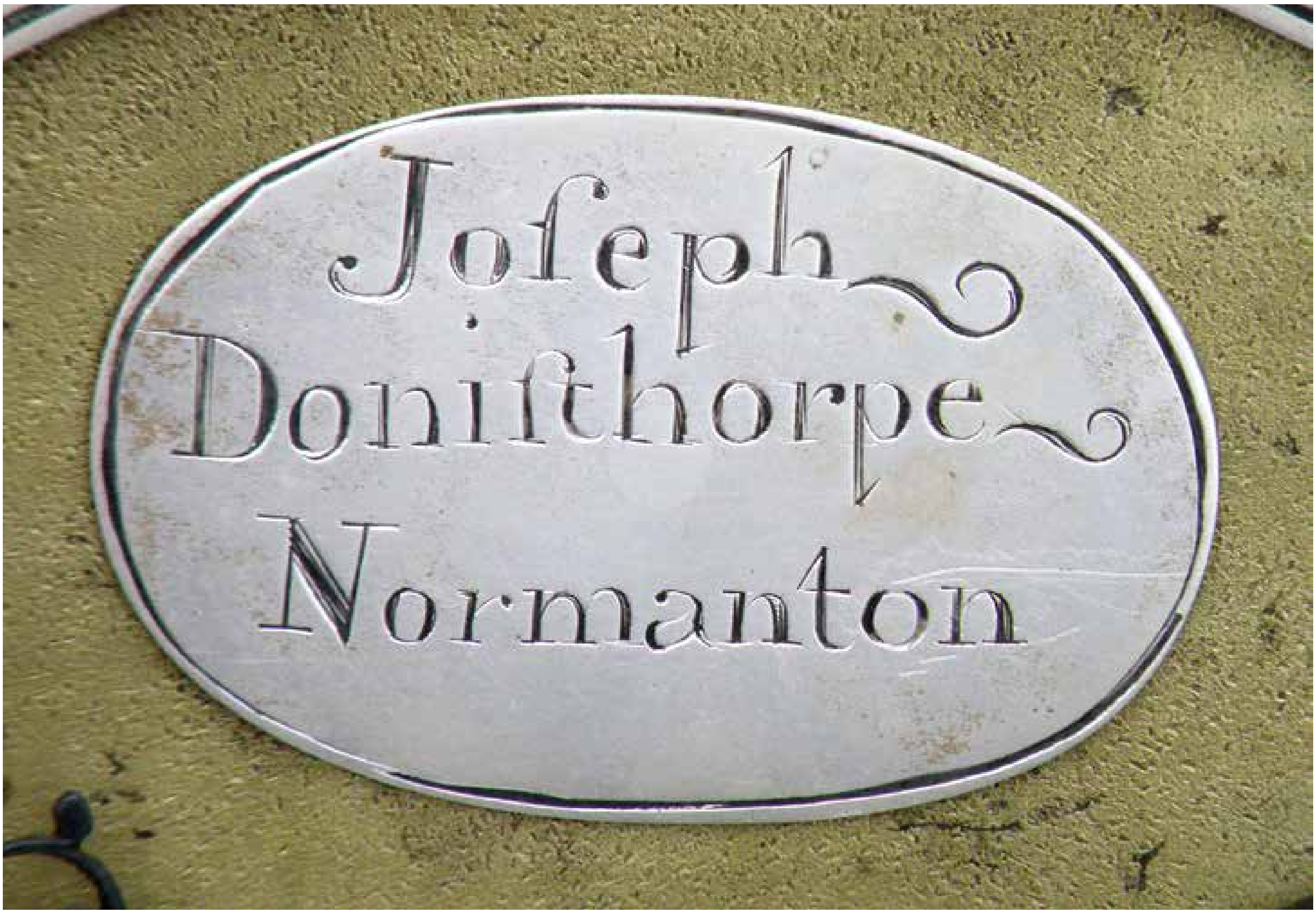



*Figure 26. The name plaque on Clock 2.*

wheel to slip over the calendar flag. But a decision was made (by whom we do not know, possibly by the customer just as the movement was being completed) to fit an alarm. The calendar flag was sawn off and the arbor turned down (removing any trace of the slots for the original clutch spring) to take the present alarm spring and pipe. There was now nothing to move the calendar, so a flag for this purpose was added to the front end of the pipe. Now the calendar's twice-a-day advance occurs at times dependent more on the setting of the alarm than at the normal 6am and 6pm.

Where was the actual alarm mechanism—the crownwheel, verge and hammer—to go? Somewhere towards the rear of the movement on the left-hand side seems the best place. Indeed, if you look carefully at the dial, **figure 19**, a hole near IX was the intended position of the front pivot of the lever for letting off the alarm. It lines up nicely with a pivot hole in the rear movement pillar. But the hammer was in the way, so all the parts associated with it had to be moved from the left to the right, neatly explaining the changes described earlier.

It was at this stage that serious concerns must have occurred—you could say that alarm bells rang, but that would be a terrible punning phrase, so I will resist the temptation. How could the usual type of alarm disc be fitted with a calendar in the way? This raises the observation that clocks with alarm-setting discs never normally have this type of calendar. How had this oversight occurred? Perhaps it was a lack of familiarity with alarms in this part of England. They are, for some inexplicable reason, a feature that appears more often on southern clocks than those from the Midlands and northern England.

A way had to be found out of the dilemma. The dial could be replaced by one without a calendar, but this must have been disregarded as too expensive an option. So, a pointer hand was fitted instead of an alarm disc. Such an alarm-setting disc is numbered I-XII and the time the alarm is intended to sound is set against the tail of the hour hand. But setting an alarm with a hand is rather different. The alarm goes off when the alarm hand reaches XII and since it moves with the hour hand it has to be set to the number of hours *before* it sounds, anti-clockwise from XII. So, as a simple example, if it was midnight and you wanted to be woken at 7 o'clock, the hand would be set at V, *ie* seven hours anti-clockwise from XII. If you retired at 10pm and wanted waking at 6am, *ie* after eight hours of sleep, the hand needed to be set to IV.

Clocks that are designed to have an alarm hand have an extra ring of numbers to show how many hours before the alarm goes off. This is very uncommon, but is known on a painted-dial longcase clock**, figure 24**. This has a calendar, which is presumably why this type of alarm setting was used.

But without a separate set of numbers on the dial, setting the alarm on Donisthorpe's clock was clearly too complicated a procedure, and the project was abandoned. There is no evidence that the rest of the alarm mechanism was ever fitted. When received there was only the alarm hand and a thick brass boss to enable the alarm spring to be tensioned. There had been some, not very successful, attempts to link the starwheel, hour wheel and alarm spring so that the alarm hand could indicate the time. To return the clock to something similar to how it had been made, a period hour hand of almost the identical design to that on Clock 1 was fitted to replace the brass bush. Now the hour hand tells the time and the redundant alarm hand goes round with it to act as a reminder of a thwarted project.

But who made these modifications? We really do not know and there is no

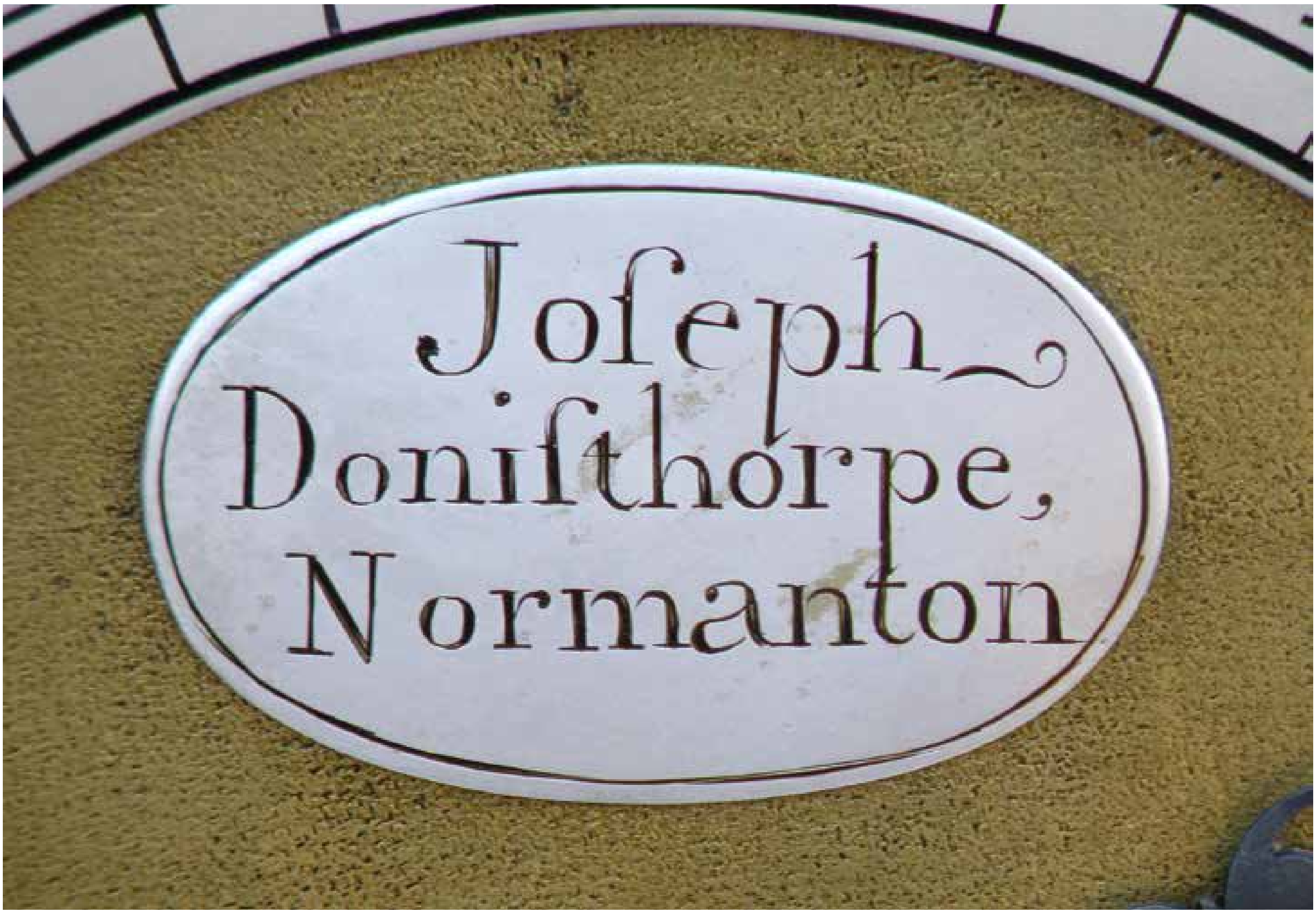



*Figure 27. The name plaque on Clock 1.*

means of telling, but I suspect that it was Joseph Donisthorpe himself. The quality of the work is up to the standards of the rest of the movement and the alarm hand is nicely and elegantly shaped and profiled.

One of the most important features of this clock has been left to the last—Joseph Donisthorpe's initials and date, **figure 25**. Along the right-hand side of the top plate is engraved '*I:D*. May y$^{e}$ 16. 1746', which is six years earlier than any other known Donisthorpe clock. A clockmaker is unlikely to send a movement plate like this to a specialist engraver to just add initials and a date, so we can be reasonably confident that this was Donisthorpe's own work. If he could do work like this then he would have been capable of engraving the name plaque on the dial, which is competently, but not expertly, done.

Since a later clock (Part 3, **figures 33-35**) has the date stamped on the front plate, rather than engraved, Brian Loomes has argued in *Brass Dial Clocks* (1998, page 184) that Donisthorpe could not engrave. While I usually take the view that most clockmakers used specialist engravers, in this instance I am confident that the name plaques on both Clock 1 and Clock 2 are Donisthorpe's own work. The name on his later clock is much more expertly executed, so maybe by then he decided to concentrate on making movements and leave engraving to someone who was more skilled at this work.

Also, why is the date so precise, even to the day, and what is its significance? And why is this clock dated, but not Clock 1? It might represent the completion date, but engraving the top plate of a finished clock would be very awkward. While this might not present any great problems to an experienced engraver it would have been more of a challenge to someone who did this only occasionally. So does it represent the start of making this movement? If so this implies that it was a special clock that needed commemorating. Was he recording for all the world (or at least for future owners and clockmakers who serviced it) to see that it was the very first clock that he had made? We will probably never know for certain, but this is a distinct possibility, for as we will see in Part 3, this was an important period of change in his life.

One piece of evidence that might support this idea is to see if one of these two clocks is earlier than the other. On the movements the hoop wheel on Clock 2 could be regarded as earlier than the pin locking on Clock 1. The only other significant difference is the pivoting of the strikework in humps on the front right-hand pillar of Clock 1 and in a straight pillar on Clock 2. This could be argued either way: humps earlier with a straight pillar being later to avoid a separate casting pattern. Alternatively the pillar with the humps allows a more symmetrical arrangement with equal offsets on the left-hand and right-hand pillars.

Regarding the dials there is little to claim priority of one over the other. Likewise the two name plaques, **figures 26** and **27**, are very similar, but the letters on Clock 2 are slightly more uneven than Clock 1, indicating that he had had more practice by the time he came to engrave Clock 1. On balance it seems to me that Clock 2 is slightly earlier than Clock 1 and does not rule out this being Joseph Donisthorpe's first clock. The jury is still out on this.

In the final part of this article Joseph Donisthorpe's interesting and varied career as a blacksmith, self-taught clockmaker and fervent Baptist preacher will be considered. In addition a couple of his later 30-hour clocks with plated-frame movements will be discussed and illustrated.