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Course Review

Repair, Restoration and Conservation of Antique Clocks
Course at Upton Hall, 6–10 June, 2022

Robert Ovens MBHI



By working on their own clocks with expert guidance, this course provides excellent tuition for those with some familiarity of workshop equipment who want to learn a range of skills involved in the repair, restoration and conservation of antique clocks.

Our tutor was John Reynolds FBHI, and my fellow students were Ian Harris, Steven Keeble, Kevan Lomas, Steve Robinson, Barrie Fitton and the Reverend Christopher Kevill-Davies. It was a full course, with students' clockmaking experience ranging from basic to fully qualified. However, all were to learn a great deal, both from the tutor and from each other. This popular course has been run for quite a few years, and for some it was not the first time they had attended.

Everyone brought several clocks to work on and these included longcase, Comtoise, English regulator, bracket, Vienna, carriage and mantel clocks, as well as a Franklin dial. After an initial assessment, an overall course of action was agreed with each student for the clocks they had brought. Most movements needed cleaning, and some required fundamental repairs. A lot of work was in prospect, but all had achieved their main objectives by the end of the week.

Christopher brought in a two-train domestic regulator clock with rack striking, deadbeat escapement and maintaining power. After the movement had been cleaned, it was evident there was considerable wear on the rear pivot of the centre arbor. This was probably due to it having been run on excessively heavy weights. A new pivot was fitted, although the arbor was extremely hard and difficult to drill, despite several rounds of tempering. After a few other minor repairs, the movement was re-assembled, and the action of the deadbeat escapement and the striking train checked. Christopher will now run the clock on much lighter weights.

Another problem was that the heavy lead-filled pendulum bob has been dropped at some time, resulting in damage to the lower part of the shells which had been forced apart. Gentle hammer work, **Figure 1**, sorted this and the shells were held together with small steel rivets.

Ian brought in a rare 30-hour Comtoise clock movement of *circa* 1815 vintage, in which the pulleys were badly worn. After cleaning the movement, he made new pulleys, cut a new ratchet wheel on the wheel-cutting engine, and repaired the click spring, **Figure 2**.

Between episodes of *Horological Journal* proof reading duty, Barrie spent most of his time working on two repeat striking carriage clocks (fortified by copious supplies of coffee, he says). Fortunately, most of the work was quite straight forward, but setting up the strike correctly required a great deal of patience to avoid the gong hammer from coming to rest on a pinwheel pin while 'on the rise'.

Kevan worked on a recently acquired weight-driven clock movement which was something of a mystery, **Figure 3**. It has



Figure 1. John Reynolds and Christopher Kevill-Davies repair a pendulum bob.

tapered plates, a false plate for a metal dial and a rear take-off from the motion work to run a secondary dial. Perhaps it was originally a station or pavilion clock?

An intermediate wheel and pinion between the great wheel and the centre arbor pinion ensure a shorter weight drop, most likely for a wall mounted case, and a train count revealed that the clock was designed for a seconds pendulum. Apart from the obvious need for cleaning, several teeth were missing from the hour wheel, the third wheel had broken crossings and had been badly repaired, and the end of the pendulum crutch was missing. He decided to cut a new hour wheel, but the rim of the third wheel was rescued and attached to a new crossed-out centre.

Steve was an intriguing student as he had lost his right arm following a motorcycle accident many years ago. However, despite this, and with only a modicum of help willingly supplied by other course members, he dismantled, cleaned, re-bushed and re-assembled the two-train spring Vienna regulator movement and the three-train bracket clock with geared winding that he'd brought to the course. He was particularly impressed with the clamp-on movement legs that he had borrowed, and resolved to make some.

Steven brought four Smith's mantel clocks to the course. One was a single-train clock in a Bakelite case, one was single-train clock with a floating balance, and the others were two- and three-train Empire clocks. All had been dismantled, cleaned, repaired and re-assembled by the end of the course.



Figure 2. Ian Harris's restored 30-hour Comtoise movement.

I worked on a single-handed 30-hour movement by William Aris of Haringworth, Northamptonshire, which I had recently acquired via eBay. William served his apprenticeship with Richard Hackett of Haringworth from 1750 to 1757 and continued working with his master until 1782 when he, his wife and five children moved the short distance to Uppingham in Rutland. He continued as a clockmaker here until his death in 1798.

The posted frame movement, **Figure 4**, had probably been recycled from a lantern clock, as evidenced by the holes for gallery frets in the top plate and pivot holes for side doors in both top and bottom plates. It was in reasonable condition, but needed cleaning and quite a lot of bushing. A new bell hammer was made to replace the poorly repaired original, and as the weight chain was missing, new sprocket centres were fitted between the pulley shrouds for a new chain. A train count established that a 22 in ($\frac{3}{4}$ second) pendulum was required, and testing revealed that the clock would now run quite reliably on a 4lb weight.

Finally, the 10in brass dial responded well to cleaning and re-silvering. The hand and date pointer were blued using the excellent bluing box presented to the clock workshop at Upton Hall by the Manchester Branch (see 'A Kind of Blue', *HJ* April 2022, p139). Set at 300°C, it produced perfect results,

To achieve one revolution in four hours, I also fitted a 250rpm Rotalink synchronous electric motor with a 60,000:1 gearbox to an 18in wooden Franklin clock dial I had previously made. My dial is a copy of the original 24in dial on the Franklin clock by Jeffery Gilbert of Northiam, East Sussex, now in Northiam Church. I intend to make and fit a mechanical movement to my dial eventually.



Figure 3. Kevan Lomas's movement before cleaning.



Figure 4. The author's restored movement by William Aris.

Despite the attendant humour and banter that prevailed throughout, this was an interesting and enlightening course in which a great deal was achieved. John was kept busy helping, advising and demonstrating, and everyone was pleased with the way the week went. Regardless of clockmaking experience, it is a course anyone can benefit from, including Distance Learning Course students who are undertaking a portfolio of work.

'Students who attended short courses relevant to the exam unit, in general, gained higher marks than those who did not.' (Alan Burtoft, BHI Education Officer). Courses cover a range of topics and where possible we can provide training on any horological subject if there is enough interest. A full course list is available on the BHI website.