An Old Clock or Butterley's Legacy *by Michael Rant*

There it was on the "Show and Tell" table at the August meeting of the San Diego Chapter 59 of the NAWCC—an English "lantern" clock! The price looked reasonable—but was it really what it appeared to be? I indicated my keen interest to the owner and we exchanged telephone numbers, but I had to mention that the last antique clock I bought resulted from a two-year adventure in travel and research. I was going to have to do my homework before I made an offer for the old clock.

The first step was a call to the NAWCC library. Could they tell me anything about "John Butterley Horsham" whose name appeared on the dial. I also requested the two books "English Lantern Clocks" by Hana and the same title by George White. Very promptly they sent me the book by Hana and also a reference to John Butterley of Horsham who is noted for a long case clock (ca. 1700). I was also given the address of the Horsham Museum in England. A letter to the curator resulted in an amazingly swift response. Yes, John Butterley had lived in Horsham from about 1700 to 1729. A long case clock he had made is described, with illustrations, in the "Clockmakers of Sussex" by E. J. Tyler. Photocopies of these illustrations were enclosed!

Meanwhile, the research also involved analyzing four pages of illustrations and notes describing English lantern clocks and their selling prices found in the "Lyle Identification and Price Guide for Clocks and Watches". This established fairly closely what a valuable English lantern clock should look like and might cost, albeit in pounds sterling a few years ago.

Now I was feeling confident enough to invite the owner to come over to our home to talk clocks over coffee and let me have a closer look at his "lantern". But that evening brought a disappointment. This clock did not look like a real early English "lantern". The dial was too large and the chapter ring too wide. The traditional frets around the upper deck had been replaced by triangular decorative castings which fitted the circumference of the dial. This clock is regulated by a long pendulum, and two additional pulleys had been attached beneath the clock to work with an endless cord and two weights to power the time and strike trains. There was no sign of any alarm mechanism. Indeed the primary sign of real antiquity was the extremely worn condition of the leaf pinions of the drive and strike trains. Sadly, I had to decline to make an offer on such a dark horse.

However, the owner of the old clock was a wise salesman. "Would I like to borrow it for a while?", he asked. Indeed I had already discovered that it "tick-tocked" away calmly and looked handsome on the wall of our home. I happily accepted this generous offer, and the opportunity for more study.

Having got my hands on this interesting artifact I called a friend *[Joe Kunkler]*, a noted teacher of horology. With the clock in a box , my wife and I visited our friend's workshop. I had two questions. Was this a really old clock? And was it catastrophically worn? We were given reassurance that indeed it was most probably old and it might run for many years as it was presently running before repairs were needed. The worn leaf pinions could be turned off and new pinions fitted, or the complete arbor and pinion could be reproduced—as any competent clock maker would have done in the centuries of this clock's probable life.

With this reassurance, and after some slight haggling, the Butterley clock was purchased. But this was not the end of my study. An empty screw hole in the top deck worried me. What was it used for? And why did the pivot of the escapement wheel arbor rest in a small "U" shaped bracket fixed to the plate in which this arbor should logically have been pivoted? The answer was at hand in illustrations of early wheel-type regulators of 17th century lantern clocks in the books by Hana and White. The missing screw would have secured the upper pivot bracket, or "cock", of the regulating wheel's vertical spindle. The "U" shaped bracket, or "bridge", provided clearance for the spindle to reach its lower support, the bottom "cock". Clearly an anchor escapement and wheel had been installed in connection with the long pendulum to replace the original pallets and crown wheel. Instead of being regulated by a rather inaccurate oscillating wheel, the movement had been updated to use a meter-long, one second pendulum. I learned that this system had been developed by the Dutch astronomer, Christian Huygens in 1656 and was brought to England two years later by Fromanteel. So this technology was being widely used to upgrade older clocks when Butterley upgraded and modernized this clock early in the 18th century.

But Huygens also developed the two-weight, endless cord, driving system found with this clock. This system allowed clock makers to convert old twelve hour, twice-a-day winding clocks to a once-a-day, thirty hour winding system, a considerable convenience! However, this conversion frequently required a reversal of direction of either the going or strike trains. Indeed inspection of this clock showed the addition of a small idling pinion between the going train drive shaft and the hour hand wheel. In addition, both its trains retain the click work needed when they were driven by separate sets of weights.

So Butterley probably upgraded the old clock to the new more accurate system of pendulum timekeeping and also converted it to require winding only once a day. But what of the oversize dial and the decorative plates surrounding the upper deck? As I examined the illustration of John Butterley's single handed long case clock, it came to me! My old clock had been fitted with the dial and single hand of an early 18th century long case clock. The triangular plates surrounding the upper deck are the spandrel castings that would have been fitted into the corners surrounding the dial of such an antique long case clock. But why should the original dial and hand be replaced? Of course they might have been damaged when the family clock fell off the wall—a real domestic disaster when the principal source of timekeeping for the household was badly damaged! Its five-inch bell still dominates a house from one end to the other. When that voice was silenced, family activities would have lost their rhythm. But whatever the reason for fitting a new dial, in our household we have found that this clock requires an eight-foot ceiling height to achieve its thirty hour running time. At that height in a large dimly lit room, the larger dial is easier to read. Obviously John Butterley, a noted maker of long case clocks, was just the clock maker to have the larger dial and spandrel parts at hand.

John Butterley has left us a legacy that required the up-to-date technical skills that he demonstrated when he was commissioned to upgrade this family clock. I am sure that he, and his affluent customer, were proud of the result. And so, nearly three hundred years later, are my wife and I.