

HALL BARN CLOCK EYNSHAM



A labour of love, recounted by Ken Sheffield and proudly displayed at Eynsham Open Gardens weekend in June 2007.

01 ST LEONARD'S CLOCK

During the summer of 1977 we visited St Leonard's church to view the Flower Show associated with the Carnival. At that time the movement from the original church clock was standing, rather neglected and delapidated, in the Children's Corner. Clearly it was not wanted.

02 AND ITS FATE

The church was appealing for donations to improve the fabric of the building - more here - and a project to rebuild the clock and install it, with a new smaller face, in the garage we were building seemed like a good idea. An offer was made for the movement ... which was turned down. It was subsequently given to the Combe Steam Museum, where it occasionally runs, without hands, not performing the task for which it was intended.

03 THE ALTERNATIVE ...

Some time later, after our garage had been completed, I attended a dinner in Witney and was seated next to the maintenance engineer from Smiths Industries, a friend of some 25 years standing. The conversation got round to clocks and it transpired that he had 'rescued' three turret clocks from old buildings which were being demolished! The Hall Barn clock was purchased from him, for the scrap value of the bell, and installation was completed about three years ago.

04 HOW IT WORKS

- The clock was made by JW Benson in 1885 and is fitted with a Graham dead beat escapement. In the original installation there were 2 faces and a remote mechanism providing the 12:1 reduction gearing for the hands. The faces are made from slate and the hands are made of copper.
- Originally the driving weights needed a drop of over 20 feet for the clock to run for 8 days so automatic winding gear was necessary. The present winding system is based on Christian Huygens mid 17th century endless rope device, chains having been substituted for the ropes. The winding motors are winch assemblies, as used on the front of a Land Rover or similar vehicle.
- The winding sprockets are rotated by these motors via the integral worm and wheel gearing. As these drives are 'overhauled' ratchets are not needed. This system automatically provides 'maintaining power' as the drive weights are always acting on the gear trains, even when the mechanisms are being wound.
- A limit switch is operated when the small weight reaches the top of its travel and starts the winding motor. As the drive weight reaches the top of its travel a second switch stops the motor.

05 THE MOVEMENT

The movement is now positioned much closer to the face than in the original installation and this made the drive to the hands quite a problem. The final drive rises vertically from near the centre of the movement and this was coupled to the reduction gearing by a fairly long shaft with a universal joint at each end. This arrangement was not possible here and a second set of bevel gears was arranged to turn the drive through 90 degrees on to a horizontal shaft and then to the reduction gears. A Vernier adjustment at one end of this shaft allows the hands to be accurately lined up with the strike mechanism.

06 WE THOUGHT OF EVERYTHING!

A geared motor, similar to a windscreen wiper motor, is used to lift the hammer off the bell during the night by depressing the strike lever at the rear of the movement. This motor is controlled by a switch operated by a cam attached to the 24 hour wheel which was added in place of the maintaining power device. The addition of this wheel made necessary the only modification to the movement, namely the drilling of a small hole in the frame to secure the 24 hour wheel support casting.

07 PERFECT TIME-KEEPING

All the motors are powered by a 12 volt lead acid battery which is charged by the domestic electricity supply. The charging system together with the magnetic overload switches, motor contactors, relays and the voltmeter is housed in an ex-Harwell Electronics chassis fitted under the bell. In the event of a mains failure the winding gear will operate for several days. The clock is regulated to an accuracy of one second per day by the coins on top of the pendulum bob. Removal of a coin will slow down the clock and vice-versa. The usual adjustments are less than 6 seconds per week.