NOTES ON THE ANCIENT CLOCKS AT WELLS, RYE AND DOVER.[1]

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Wells or Glastonbury Clock (1853).

In the Cathedral at Wells is what remains of the ancient clock which once belonged to Glastonbury Abbey. This very curious timepiece is said to have been originally executed by Peter Lightfoot, a monk of the abbey, but at the cost of Adam de Sodbury, who was promoted to the abbacy in 1322. It appears to have been originally placed in the south transept of Glastonbury Abbey Church, where it continued till the dissolution, when, tradition says, it was carried to Wells and placed in the north transept of the cathedral with all its belongings, viz., the the figure which strikes the quarters with his heels on two little bells within the church, and the two *Knights* which perform the same service with their battle-axes on the outside. The inside figure strikes the hour on a bell before him with a battle-axe in his hands. The face of the dial is six feet in diameter contained in a square frame, the spandrels of which are filled with angels holding in their hands the head of a man; the outer circle is painted blue with gilt stars scattered over it, and is divided into twenty-four parts, corresponding with the twenty-four hours; the horary numbers are in black letter characters on circular tablets and mark the hours from twelve at noon to midnight, and from thence to midnight again (noon and midnight being marked by a cross instead of a numeral). The hour index, a large gilt star or sun, is attached to the machinery behind a second circle which conceals all except the index. On the second circle are marked the minutes, indicated by a smaller star; a third and lesser circle contains the numbers of the days of the month, which is marked by a point attached to a small circular opening in the plate, through which the phases of the moon are shown. On the opposite side is a female figure with the motto "Semper peragrat Phœbe:" an arched pediment surmounts the whole, with an octagonal projection from its base like a gallery, capped with a row of battlements, forming a cornice to the face of the clock. A panelled and battlemented turret is fixed in the centre, round which four figures mounted on horses revolve in opposite directions, as if charging in a tournament, when set in motion by a communication with the clock work, to be made at pleasure; these are commonly called *Knights*, but their costume is only that of ordinary persons. The movement is at a distance from the dial, and connected with it by a long horizontal rod; the dial work was close at the back of

[1] The drawings which accompanied these notes were exhibited at the meeting of the Institute, July 5, 1883. They were not calculated for publication.

the dial. The revolving figures on horseback are moved by a separate weight, and are set in motion by the freeing of a detent. The old boarding at the back is painted black, with a diaper scroll of foliage with red and white roses. The female figure on the dial representing the moon is always kept upright by a balance weight; the quarter-boys inside, who strike the quarters, are much later, having *knee breeches*. The outside dial has now two hands; it was once like a star with only one hand. The bells outside are struck by two figures in armour, temp. Henry VIII, probably put up when it was removed from Glastonbury. The clock seems to have remained without alteration after it was then put up, till the present modern movement, made by Thwaites and Reed of Clerkenwell, was, in the time, of Dean Goodenough, substituted for it; and the old original movement was taken and deposited in the crypt under the Chapter House, where it remained uncared for for many years, during which time, 1853, I visited and examined it, made notes of it, and took drawings of it. The great wheel had ninety teeth, and the pinion, a lantern pinion, had nine leaves or rather bars; the second wheel had sixty teeth; the remainder of the works were all disjointed and bent, and remained unheeded, though on two occasions I pointed out the great curiosity and interest of the ancient machinery, but with no effect. Its curiosity and interest has at length been appreciated, and it has been fitted together and brought up to London. It is now in going condition in the Mechanical Museum at South Kensington.

If the fabric rolls of the cathedral were examined with reference to it, it is probable that much curious and interesting matter relating to its history might be found.

The Clock at Rye.

In the tower of the old church at Rye, which I visited in 1853, is a very fine and perfect example of the early iron clocks, which still keeps time for the inhabitants of that ancient town. It is perhaps the oldest clock which is still going with its original works. It is not, however, quite in its original condition, as its crown wheel with its vertical verge and horizontal balance have been removed, and a pendulum with the necessary additional wheels substituted for it. The clock is entirely of iron, except the new parts, and the part of the clock which shews the most wear is the new portion immediately connected with the pendulum and swing wheel. The pendulum is, however, rather peculiar, by reason of its great length. It hangs down below the ceiling of the church, and its vibrations are seen, and it makes twenty-five beats in a minute.

The clock is of large size, the iron frame forming a cube of four feet. The uprights at the corners are in the form of Gothic buttresses, with regular sets off and mouldings, and are capped with square topped pinnacles, or rather turrets, which terminate in four battlements, whilst the tops of the uprights of the middle of the frame are also embattled and have a band of a particular crossed or reticulated ornament. The resemblance in size, form, plan, construction, and arrangement to the clock at Wells is so remarkable that I cannot help considering these works to be contemporaneous, and could almost suppose them to be the work of the same artist, or from the same factory. It was originally of the same simple construction as the Dover clock. The going part consists only of the great wheel and the crown wheel with its pinion—but in this

clock the pinions are all of the lantern form, that is, consisting of two plates of iron connected by short bars of iron, forming a cage. The going part is still wound up by means of the four arms, there is, however, a light hoop which connects their extremities. The dial is in the upper part of the tower, and in order to connect it with the movement, a contrate wheel is fixed on the arbor of the great wheel, and this drives a large horizontal lantern wheel or pinion, the arbor of which is a long upright rod, which thus makes the connexion with the upper part of the tower. The great wheel of 2 ft. 3 in. in diameter has 120 teeth, and revolves once in two hours. The whole movement is very strongly made, especially the striking part. The barrel is wound up by means of a toothed wheel fixed on its extremity and a lantern pinion to which the winch is applied. The form of these wheels, and also their size and arrangement, are exactly similar to the Wells clock, and the fly wheel, with its fans, springs, click and ratchet, is precisely the same as is now used.

The quarter part is attached to one side of the clock, and was added about 150 years ago. It is much smaller than the other parts of the clock, but it is very well and neatly made, preserving all the characters and ornaments of the older parts. The quarters are struck by two gilded figures of boys, which stand on each side of the clock face on the exterior of the tower, which, though originally Norman, is now Early English, with later additions and patching. The current history of this clock is that it was found on board one of the ships of the Armada, and on being taken was given by Queen Elizabeth to this church. There is, however, no authority but tradition for this story, and the entries in the churchwardens' accounts give us the date of its completion and the cost of it; and from its close resemblance in details to the Wells clock, it may be considered to be of English workmanship.

We fortunately have an authentic record of the date and cost of this clock, for the churchwardens' accounts for the year 1515 furnish the following items:

"For working upon the frame of the clock and dial in the steeple, 2*s.*"

"The man who made the clockwork and dial, £2 6*s.* 8*d.*"

1516. "The man of Winchelsea, that made the clock, in full payment of his bargain, 6*s.* 8*d.*"

It is surprising how such a work could be made for so small a cost. I have heard that Rye Church is undergoing the process of "restoration." I trust this most curious example of clockwork may be preserved as it was when I saw it in 1853, the most ancient piece of horological machinery existing in going order in this country, for the Wells clock has been renewed, though I think there is still a small portion of the moving machinery existing at this time in connexion with the revolving figures. As the church is being "restored," I may mention that there was an extremely beautiful communion table of finely carved *mahogany*, which has a history. I venture to hope that may be preserved—though I think it is not so old as the history makes it out to be.

Notes respecting the Dover Clock.

In the armoury, within the keep of Dover Castle, was preserved a very interesting specimen of the ancient iron clocks. It has, however, since I saw it there, been removed to London, and is now carefully preserved in

the Museum of Mechanical Machines and Inventions at South Kensington, where it may be examined. It is an object of considerable interest, because it is still in its primitive condition, having its original crown wheel and verge, with horizontal balances, unaltered and unmutilated; it is the only instance that I know of, and is probably unique. It formerly stood, neglected and unobserved, in a corner of the ancient staircase, and excited no interest in the crowds that continually passed by, when the public were allowed to go over the castle. We are indebted to Admiral W. H. Smyth, the Director of the Society of Antiquarians, for its preservation: for having heard of it, he, in company with Mr. B. L. Vulliamy, the Clockmaker to the Crown, visited Dover, and on his pointing out to the storekeeper its peculiarity and interest, it was immediately removed to a more favourable position, and was shewn as one of the most interesting and curious articles in the castle. Its history is not known, but it was supposed to have been the ancient clock of the castle; but as it was a loose piece of furniture, and there was no fitting place for it in the castle, and no bell, or place where it could have been placed so that the face might have been seen, it is more likely to have been placed in the tower of the ancient church, and on that becoming ruined, it is likely enough that it was taken down and brought into the castle for future use; but it was never put up, and thus escaped the mutilation consequent on its adaptation to a pendulum, which so many of its cotemporaries underwent, and I trust will now be carefully preserved as the only remaining instance of the earliest construction of clocks.

It is not of great size, and consists only of a going and a striking part. The mechanism of the latter is similar to that in use at the present day, but that of the going part is remarkably simple, consisting only of two wheels, viz., the great wheel and the crown wheel. On the arbor of the great wheel is the barrel for the cord. It is of wood, four inches in diameter, and turns freely in one direction, but in the other it is detained by a spring, which acts against the spokes of the great wheel. On the end of the barrel are fixed four cross arms, by which it is turned to wind up the cord. The great wheel revolves once every hour, as shewn by the pin to set free the striking part. It is sixteen inches in diameter, has ninety teeth, and drives the pinion of the crown wheel, which has thirty-three teeth. These teeth play in the pallets of the verge, which is suspended by a cord from the cock; this consists of a short horizontal arm, provided with notches for the adjustment of the verge. To the verge are fixed the cross arms of the balance, which are also provided with notches for the adjustment of the weights by which the extent and velocity of the oscillations of the balance are regulated. The length of the cross arms of the balance is twenty-eight inches; the striking part, in consequence of the weight being heavier, is wound up by an additional wheel and pinion. There are no lantern pinions in the construction of this clock, which, coupled with the absence of all Gothic ornament, inclines me to doubt its very great antiquity. The hand or index is nineteen inches long, and as its axis is nearly in the centre, the diameter of the clock face could not have been very large.

Admiral Smythe thought he had discovered on a part of the frame a date in Arabic numerals, 1348, as also a monogram, which he has given in his paper in the *Archæologia*, vol. xxxiii, wherein he mentions this clock. I certainly was shewn some rough indentations in the iron work

near the top of the inside of one of the standards, but I could not decipher any figures or letters; indeed, they seemed to me more like accidental roughnesses and depressions in the iron, proceeding from the forging and subsequent corrosion, than intentional marks; and the fact that Arabic numerals were not in common use at that early period is conclusive against it. The late Mr. Albert Way, in company with Mr. Franks, examined the clocks in 1851, and both were of the same opinion, and from the absence of all Gothic ornamentation in the finishing, did not think it earlier than 1450 to 1500, and it may possibly be after that date.