

DAFYDD AP GWILYM'S 'THE CLOCK' AND THE TURRET CLOCK AT LLANTHONY PRIORY

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Abstract

The article re-examines a *cywydd* by the fourteenth-century poet Dafydd ap Gwilym, which describes a mechanical clock. Using the evidence of archaeology, the article suggests that the description referred to a real clock, the one installed at Llanthony Priory, an Augustinian priory near Brecon and Abergavenny, around the middle of the fourteenth century. This makes it the first known mechanical clock in Wales.

In the words of R. Geraint Gruffydd, Dafydd ap Gwilym was 'yn ddiamau yn un o feirdd mawr Ewrop yn yr Oesoedd Canol diweddar ac un o feirdd mwyaf Cymru mewn unrhyw oes – efallai y mwyaf oll' ('undoubtedly one of the great European poets of the late Middle Ages and one of the greatest poets of Wales in any era – perhaps the greatest of all').¹ Dafydd was a contemporary of Geoffrey Chaucer but much less is known about his life than that of the author of *The Canterbury Tales*. More than 170 poems attributed to Dafydd ap Gwilym are extant but it was not until Sir Thomas Parry edited his works in 1952 and Professor Griffith John Williams removed the forgeries by Iolo Morganwg from the poet's corpus that a proper study of his works was possible. Even now, it is very difficult to assemble a chronology of his works and they are usually grouped according to subject matter.

Dafydd wrote around forty of his extant poems to a woman called Morfudd and, since these progress steadily through her life from being a young girl to her marrying someone else, to her being pregnant, and eventually to her being an old woman and dying, it is reasonably safe to assume these poems were written in chronological order. But since Dafydd was generally a poet of love and nature, there is very little in his poems to tell us much that is certain about his life and travels. Occasionally, there is something in his poems that is of more general interest, as is the case with his poem entitled 'Y Cloc', 'The Clock', which contains a description of a fourteenth-century Welsh monastery clock.² This poem is of historical importance too.

The Welsh word *cloc*, like 'clock' in English, is derived independently from the medieval Latin *clocca*, meaning a bell. Dafydd's use of the word to mean an instrument that measures time is seemingly the earliest example of this usage in

¹ R. Geraint Gruffydd, *Dafydd ap Gwilym* (Caernarfon: Gwasg Pantycelyn, 1987), p. 51.

² Readers can find a great deal of information about Dafydd ap Gwilym and his poetry, along with an edition and translation of all his poetry, including 'Y Cloc', on the website *Dafyddapgwilym.net*.

Welsh or, indeed, in English.³ It is clear the clock to which Dafydd refers had a bell, since Dafydd notes it has a hammer: '*a'i fwrthwl*' ('and its hammer', line 26). To this day, a clock, by definition, has to have a bell; if there is no bell then it is more correctly termed a 'timepiece'.

Dafydd ap Gwilym's poem 'Y Cloc' – the title is supplied by modern editors – is in a neat ternary form. It starts with the poet going to sleep and having a dream about a golden-haired girl he has known in the past who lives in or near Brecon. He is aroused from his sleep by the clanking noise of a monastery clock which he curses for waking him up. He then falls asleep again and returns to his dream. The poet is not impressed by this new-fangled, noisy, mechanical device for telling the time.⁴ (Earlier sundials were silent and water-driven clocks made only a gentle sound.) The middle section of the poem (lines 21–38) is especially interesting since it is one of the earliest descriptions of a mechanical clock. As this paper will argue, the lines are even more interesting since they very likely describe a specific clock – the turret clock at Llanthony Priory, which was probably concurrent with the first known clock in England, at St Alban's Abbey, and older than the three still extant mechanical clocks at Salisbury, Wells, and Exeter Cathedrals.

If we knew when Dafydd visited Brecon and Llanthony, we could perhaps date the poem and, thus, the clock, which must have been new when he saw it. It is likely that Dafydd visited Llanthony Priory while he was staying with his patron Ifor ap Llywelyn (Ifor Hael) in Gwent.⁵ Dafydd was, as Sir Thomas Parry wrote, 'a true son of the Catholic Church, well acquainted with all its religious usages', and thus it would not be surprising for him to stay in a monastery such as Llanthony.⁶ From his poetry we can deduce that Dafydd, although a good Catholic, wished, like St Augustine, to be granted chastity and continence, 'but not yet'.

Questions have been raised about the authorship of 'Y Cloc', largely on the grounds that the frequency of the forms of *cynghanedd* in it are not wholly consistent with Dafydd's 'norm'.⁷ The evidence is not strong enough to place the poem definitively outside Dafydd's corpus, merely to place a question mark over its authorship. This means, of course, that dating the clock by the poem, or vice versa, is by no means as certain as one might hope. However, most of the earliest manuscript sources attribute the poem to Dafydd ap Gwilym.

³ The earliest English citation in the *Oxford English Dictionary* is 1371. Dafydd's poem is the earliest Welsh citation in *Geiriadur Prifysgol Cymru*.

⁴ Mechanical clocks began to appear in Europe from the beginning of the fourteenth century, and were very common in towns and monasteries from about 1360.

⁵ Ifor ap Llywelyn was the owner of Gwernyclepa, an estate in the parish of Basaleg in the lordship of Newport. See C. W. Lewis, 'The Literary Tradition of Morgannwg down to the Middle of the Sixteenth Century', in *Glamorgan County History, vol. 3: The Middle Ages*, ed. by T. B. Pugh (Cardiff: University of Wales Press, 1971), pp. 449–54 (pp. 490–93).

⁶ Thomas Parry, *A History of Welsh Literature*, trans. by Idris Bell (Oxford: Clarendon Press, 1955), p. 106.

⁷ Thomas Parry, 'Dafydd ap Gwilym a'r Cyfrifiadur', *Ysgrifau Beirniadol*, 13 (1985), 114–22.

The description of the clock occurs in the middle section of the poem and runs as follows:

Och i'r cloc yn ochr y clawdd	
Du ei ffrîw a'm deffroawdd.	22
Difwyn fo'r ben a'i dafod	
A'i ddwy raff iddo a'i rod,	24
A'i bwysau, pelennau pŵl,	
A'i fuarthau a'i fwrthwl,	26
A'i hwyaid yn tybiaid dydd,	
A'i felinau aflonydd.	28
Cloc anfwyn mal clec ynfyd	
Cobler brwysg, cabler ei bryd.	30
Coluddyn ffals celwyddawg,	
Cenau ci y cnöi cawg.	32
Mynychglap, mewn mynachglos,	
Melin ŵyll yn malu nos.	34
A fu sadler crwper crach	
Nei deiler anwadalach?	36
Oer ddilen ar ei ddolef	
Am fy nwyn yma o nef. ⁸	38

Woe to the black-faced clock beside the dyke	
Which woke me up.	22
A curse be on its foliot and on its hour hand,	
And on its two ropes and its crown wheel,	24
And on its weights, heavy balls,	
And on its cogs and its hammer,	26
And on its gears which think it is daytime,	
And on its ceaselessly grinding wheels.	28
'Tis a harsh clock with a mad clack	
like a clumsy cobbler, may its time be cursed.	30

⁸ *Gwaith Dafydd ap Gwilym*, ed. by Thomas Parry, 2nd edn (Caerdydd: Gwasg Prifysgol Cymru, 1963), no. 66, lines 21–38, my translation. For other translations, see *Dafyddapgwilym.net*, no. 64; and *Dafydd ap Gwilym: His Poems*, trans. by Gwyn Thomas (Cardiff: University of Wales Press, 2001), no. 66. It is important to note Parry's editorial method. Instead of choosing the best source as his copy text and listing the variants found in other sources in the notes, Parry chose from all the sources the lines that he considered most characteristic of Dafydd's style and then listed the variants to it. Thus, the text he provides for each poem does not, in fact, exist in any single medieval source. See Helen Fulton, 'Editorial Method: Thomas Parry and *Gwaith Dafydd ap Gwilym*', *Proceedings of the Harvard Celtic Colloquium*, 15 (1995), 14–21. The same approach of providing a composite text has been followed in *Cerddi Dafydd ap Gwilym*, ed. by Dafydd Johnston et al. (Caerdydd: Gwasg Prifysgol Cymru, 2010), and on the *Dafyddapgwilym.net* website.

It sounds like a dodgy intestine,	
A dog banging its bowl.	32
Frequent clacking in the cloister,	
A phantom mill grinding through the night.	34
Was there ever a scabby-arsed saddler	
Or a roofer who was more unreliable?	36
A curse on its clamour,	
For stealing me from my heavenly dream!	38

A major problem in understanding and translating works written in the Middle Ages is the technical terms the author uses. This is compounded if the author is describing something that is not recounted elsewhere by himself or others. If his use of a word with its specific technical meaning is otherwise undocumented, it is practically impossible to know what it signified to the author at the time. One also has to remember that in *cynganedd* – the Welsh metrical scheme of internal rhyme and alliteration – the sound of a word may be as important as, or, on occasion, even more important than its meaning. These are two of the chief problems encountered when trying to understand Dafydd's description of the Llanthony Priory turret clock. Nevertheless, it is almost certain that the poet had seen the clock for himself and his account of it is an accurate description of what he saw and heard, rather than based on some other account he has heard or read about. Dafydd may well be the first European poet to describe a mechanical clock, since his poem most probably pre-dates Jean Froissart's poetic description of a clock in 'Li Orloge amoureux' ('The Clock of Love'), written in about 1368.⁹

Commenting on 'Y Cloc', Gareth Evans concluded that the poem was composed later than Dafydd's lifetime, on the grounds that no such clock as is described in the poem existed in Wales during the poet's lifetime.¹⁰ Similarly, when Rachel Bromwich stated in her 1982 commentary on the poem that 'there is no record of any clock in Wales in the fourteenth century', unbeknownst to her there was already evidence to the contrary.¹¹ Both Evans and Bromwich were seemingly unaware of the excavations that had taken place by archaeologists at Llanthony Priory in the late 1970s which proved that such a clock did indeed exist in Wales in Dafydd's lifetime. What the archaeologists discovered were parts of a fourteenth-century turret clock at Llanthony Priory that had been at the top of the crossing tower of the priory church.¹² The south and west sides of the tower still survive but the turret in

⁹ Froissart was not the first poet to mention *orloge*, a clock – the word occurs in Jean de Meun's continuation of *Le Roman de la Rose* from the late thirteenth century and probably refers to a hydraulic clock – but he was the first French poet to provide a detailed description of a mechanical clock in verse. See Peter F. Dembowski, "'Li Orloge amoureux" de Froissart', *L'Esprit Créateur*, 18 (1978), 19–31 (pp. 22–4).

¹⁰ Gareth Evans 'Cywydd y Cloc', *Y Traethodydd*, 138 (1982), 7–16. Dafydd Johnston follows Evans in this conclusion. See *Cerddi Dafydd ap Gwilym*, p. 658.

¹¹ *Dafydd ap Gwilym: Poems*, ed. and trans. by Rachel Bromwich (Llandysul: Gomer Press, 1982), p. 123.

which the clock was housed collapsed into the nave of the church, probably in the seventeenth century and certainly before the middle of the eighteenth century.¹³ Most of the clock's parts were, doubtless, salvaged and melted down after the dissolution of the monasteries, but luckily the foliot balance arm – the beam that lies at the heart of the mechanism of a medieval turret clock – and two stone weights were left to be discovered by the archaeologists in the late 1970s. These finds prove that there was a clock at Llanthony Priory in the fourteenth century, that it was in a turret on top of the crossing tower of the church, and that the clock had a verge-and-foliot mechanism driven by weights. Since it is the only known turret clock in Wales in the fourteenth century, it is almost certainly the clock seen and described in Dafydd's poem.

The archaeological digs, directed by Dr David H. Evans, were undertaken at Llanthony Priory in 1978 and 1979. Four clock-related items were discovered. When joined together, two of the items make a complete foliot balance arm 90cm in length with a 13mm central square pivot hole into which the verge rod fitted.¹⁴ The length of the foliot indicates that the clock mechanism was approximately one cubic metre in size. Given the slender form of the foliot and the lightness of the weights it is possible that the Llanthony clock was only of modest size. The foliot had seventeen notches on each side of the pivot on which small weights could be hung to adjust the timing of the clock.¹⁵

Also discovered by the archaeologists in the ground below the tower where the clock had originally been housed were the two stone weights which powered the clock. This links closely with the poet's description of the clock as having more than one weight: 'a'i bwysau' ('and its weights', line 25). The weights were made of local Old Red Sandstone with iron suspension rings leaded into their tops, one weighing 3.8 kg and the other 7.7 kg. The fact that the stone was quarried locally suggests that the clock itself was made in the region, perhaps by one or more of the Llanthony community with the assistance of a specialist craftsman.

¹² D. H. Evans et al., 'Excavations at Llanthony Priory, Gwent', *Monmouthshire Antiquary*, 4 (1980), 5–43; and D. H. Evans et al., 'Further Excavations and Field Work at Llanthony Priory, Gwent', *Monmouthshire Antiquary*, 5 (1984), 1–61.

¹³ Henry Penruddocke Wyndham, who toured Wales in June and July 1774, visited Llanthony Priory and saw part of the upper section of the crossing tower before it fell down, which it had done before George Roberts published his account of the Priory in *Archaeologia Cambrensis*, 1.3 (1846), 201–45. However, at the time of Wyndham's visit, the clock and its turret were long gone and the ruin not greatly different from how it is today. Wyndham wrote that 'two sides of the high tower are still extant, which rise from nearly the centre of the church', just as they still do. See H. P. Wyndham, *A Gentleman's Tour through Monmouthshire and Wales* (London: T. Evans, 1775), p. 211.

¹⁴ Tribute here must be paid to the late Dr John Owen of the Ceredigion Museum, who identified the finds as being from a medieval turret clock and thus opened up the whole line of research which was pursued by William Linnard in his paper, 'The Llanthony Foliot: Our Oldest Turret Clock?', *Horological Journal*, 147.1 (January 2005), 25–7. For a description of the verge-and-foliot mechanism, see Carlo M. Cipolla, *Clocks and Culture, 1300–1700* (London: Collins, 1967), pp. 39–40, 111–12.

¹⁵ These finds are now held at the Newport Museum and Art Gallery.

Mechanical clocks were a new invention in the fourteenth century, so Llanthony's clock must have been one of the first, and certainly the first in Wales. Clocks of this period are called turret clocks because they were placed in turrets. They used a system based on a foliot: a beam with two small weights on either end which swings backwards and forwards once a second and sits on top of a vertical rod called a verge. These clocks are sometimes called balance beam clocks. The drive mechanism is a heavy weight on the end of a rope wrapped around a barrel which gradually descends, powering the clock mechanism. Exactly the same system continued to be used until the nineteenth century in longcase clocks. The rate at which the heavier weight descends is governed by two pallets attached to the verge, a central rod, which allow the notched crown wheel to move slowly forwards once a second (see Fig. 1 below). The smaller weight may have acted as a balance weight on the other end of the rope, or it may have been attached to a second rope which drove the striking mechanism.¹⁶

Regulation of the clock was provided by two small weights on either end of the foliot. By moving these weights along the beam, one could adjust the speed at which the foliot and verge rotate and so speed up or slow down the clock. This was, of course, a fairly crude system and medieval clocks were rarely accurate to more than half-an-hour in each twenty-four hours. Dafydd was clearly aware of this since he mentions it in his poem: 'A fu sadler crwper crach nei deiler anwadalach?' ('Was there ever a scabby-arsed saddler or a roofer who was more unreliable?', line 35). In spite of this, the verge-and-foliot system lasted for over three hundred years until, in 1656, Christiaan Huygens (1629–1695), the Dutch mathematician, physicist, and astronomer, invented a clock regulated by the swing of a pendulum. Accommodating the pendulum led to the design of the longcase clock familiar in private homes from the seventeenth century onwards. Later technologies that changed clock and watch design were the spring, the quartz chip, and radio control.

Little is known of the makers of the early turret clocks, but the Salisbury clock of 1386 was made by a monk, and it is likely that the Llanthony clock was too. In the fourteenth century, Llanthony was a wealthy priory with many monks and lay brothers, at least one of whom must have had the necessary blacksmithing and engineering skills to make the clock. He must also have obtained knowledge of the verge-and-foliot escapement mechanism from someone or somewhere. It is worth noting in this context that there are contemporary references in the Ruthin court rolls to a certain 'Thomas le Orloger' ('Thomas the Clockmaker') who is mentioned several times between 1342 and 1347, although no examples of his work are known.¹⁷ It is even possible the Llanthony clock was designed, if not made, by him on his way north to Ruthin. If Dafydd died around 1350 then the dates of the Llanthony clock would coincide with Thomas's known presence in Wales.

¹⁶ The early German foliot clock that is displayed on YouTube is very similar in design to the Llanthony Priory turret clock and gives a good idea, if on a small scale, of what Dafydd saw and described in his poem. See <<https://www.youtube.com/watch?v=uG1T5tBlfU>> [accessed 1 September 2020].

¹⁷ The National Archives, PRO SC2/217/7m.4 – SC2/217/12m.6.

The quality of the blacksmith's work on the Llanthony clock is noteworthy. The foliot is beautifully made, with even some small decorative features in the metalwork. The stone weights were created by leading the hooks into the stones rather than by making crude cages into which the stones were placed, as with several other early clocks. Again, this is an indication of the quality of the Llanthony clock.

Clocks were needed in monasteries so that the monks could keep to their daily schedule of services of the Divine Office on each of the nine canonical hours, from Vigil at 2:00am to Compline at 7:00pm. It is not, therefore, surprising to find the earliest mechanical clocks in monastic buildings.¹⁸ The earliest extant examples in England are at Salisbury (1386), Wells (c. 1390), and Exeter (1484). Claims for many earlier clocks have been made, but none have been accepted as mechanical clocks – they are either sundials or water-driven clocks. There was at least one mechanical clock made in the middle of the fourteenth century, at St Alban's, which has not survived. Richard of Wallingford (1292–1336) described an astronomical clock he had designed in *Tractatus horologii astronomici* (1327).¹⁹ This is the earliest description of a mechanical clock in Britain. Richard was an English mathematician, astronomer, and monk who became Abbot of St Alban's Abbey in 1327. He had previously studied at the University of Oxford for a total of fifteen years both before and after becoming a monk. It is also significant that Richard's father was a blacksmith, since mechanical clocks down the ages have usually been made by blacksmiths who have the skills to make, assemble, and adjust the parts. The clock Richard designed was completed at St Alban's Abbey about twenty years after his death in 1336, but was destroyed at the dissolution of the abbey in 1539. If one accepts that 'Y Cloc' was written by Dafydd ap Gwilym, then the Llanthony clock must have been made sometime between 1327, when Richard of Wallingford published his treatise, and c. 1350, the date now generally accepted for Dafydd's death.²⁰

It must, however, be admitted that it is possible Dafydd lived on until 1360 or a little later. If Dafydd died c. 1350 as a result of the Black Death, as R. Geraint Gruffydd suggested and Dafydd Johnson concurs, then the Llanthony Priory clock must have been made around 1345, assuming Dafydd wrote the poem attributed to him. If he died around 1360 then the clock could date from around 1355, but certainly no later. In either case, although contemporary with the St Alban's clock, the clock at Llanthony Priory is certainly earlier than the extant clocks at Salisbury, Wells, and Exeter. There is no mention by Dafydd of the Llanthony clock being an astronomical clock, like those at St Alban's and Wells, and it certainly had a face, unlike the clock at Salisbury: 'Och i'r cloc yn ochr y clawdd / Du ei ffriw a'm

¹⁸ The other important location for mechanical clocks was in towns and cities. See Jacques le Goff, 'Merchant's Time and Church's Time in the Middle Ages', in *Time, Work and Culture in the Middle Ages*, trans. by Arnold Goldhammer (Chicago: University of Chicago Press, 1980), pp. 29–42.

¹⁹ *Richard of Wallingford: An Edition of his Writings. Vol 1: Texts and Translations*, ed. by J. D. North (Oxford: Clarendon Press, 1976).

²⁰ Since Dafydd makes no mention of the plague that killed at least a quarter of the population of Wales between 1349 and 1350, it is thought that he may have died in it himself.

deffroawdd' ('Woe to the black-faced clock beside the dyke which woke me up', lines 21–2). It also had a single hand, and this too is suggested in Dafydd's poem: 'a'i dafod' ('and its tongue', line 23).²¹ Since Dafydd also mentions that the Llanthony clock had a hammer, it is clear that it struck the hours on a bell, as well as showing the time on its face.

Whether it was the noise the clock made or whether it was its striking the hours on the bell which awoke Dafydd, we do not know. Dafydd gives a range of imaginative similes to describe the noise of the clock:

Coluddyn ffals celwyddawg,	
Cenau ci y cnöi cawg.	32
Mynychglap, mewn mynachglos,	
Melin wÿll yn malu nos.	34
It sounds like a dodgy intestine,	
A dog banging its bowl.	32
Frequent clacking in the cloister,	
A phantom mill grinding through the night.	34

A number of manuscript sources give *cnocian*, *cnocio*, *cnecian*, rather than *cnöi* in line 32. The majority give the line as 'cnecian ci yn cnocian cawg' ('clattering of a dog striking a bowl'), suggesting that the dog was clattering or banging his bowl, a more likely simile that I have adopted.²² Dafydd's list of objectionable noises thus comprises 'dodgy intestines', a dog banging its bowl, clattering noises of, perhaps, a monk's sandals on the flagstones of the cloister, and the grinding of a phantom mill. In line 34, some manuscript sources give *[g]wÿllt*, meaning 'wild', rather than *wÿll*, meaning 'phantom', conveying the image of a 'wild mill' that is out of control grinding through the night. Since the omission of the accent in a manuscript is more likely than its inclusion, the latter meaning 'phantom' is the more likely original reading of the text.

The reference to *clawdd* ('ditch' or 'dyke', line 21), places the clock as being in a building close to Offa's Dyke, which, of course, passes not much more than a kilometre to the east of Llanthony Priory along the ridge of the hill above the monastery.²³ The clock is certainly in a monastery since Dafydd refers to the noise in a cloister: 'mynychglap, mewn mynachglos' ('frequent clacking in the cloister', line 33). Earlier in the poem Dafydd notes that the girl about whom he is dreaming comes from or near Brecon: 'I'r dref wiw ger Rhiw Rheon, / Ar gwr y graig, a'r gaer gron' ('to the fair town by Rheon's hill, on the edge of a crag, with the rounded

²¹ Evans's suggestion that the clock is like the Salisbury clock ('Cywydd y Cloc', pp. 7–16) is thus not as helpful as he may have thought.

²² It should be noted that this reading of the line is likely to be later than the fourteenth century: it occurs only in relatively late manuscripts, and this line, found in the copy of the poem in National Library of Wales MS Mostyn 146 (16th or 17th century) is the earliest citation of *cnecian* in *GPC*.

²³ *Clawdd Offa* is the fifth-century earthwork which roughly follows the current boundary between England and Wales and originally separated the kingdom of Mercia from the kingdom of Powys.

fort', lines 3–4), which is not too far away from Llanthony, although she is just a girl in a dream. Sir Thomas Parry believed that Rheon was Brecon since the names Blaenrheon and Aberrheon occur about five kilometres to the west of Brecon.²⁴ There is also a small stream called Nant Rheon which is a local tributary of the Usk. Moreover, if one looks at Brecon castle from the bridge over the river Usk there is a rounded tower on the south-east corner which faces the river Honddu which may well be Dafydd's 'gaer gron' ('round tower', line 4).

The following lines list words referring to the various parts of the clock. The meaning of some of them is clear, but others are not. These are the literal translations of the key words:

A curse be on its head (<i>pen</i>) and its tongue (<i>tafod</i>),	
And on its two ropes (<i>rhaff</i>) and its wheel (<i>rhod</i>),	24
And on its weights (<i>pwysau</i>) heavy balls (<i>pelellau</i>),	
And on its yards (<i>buarthau</i> , 'enclosures') and its	
hammer (<i>mwrthwl</i>),	26
And on its ducks (<i>hwyaid</i>) which think it is day,	
And on its ceaseless mills (<i>melinau</i>).	28

To deal with the straightforward terms first: the two ropes (*rhaff*, plu. *rhaffau*) are those which connect the drive weights (*pwysau*) to the barrel of the clock as described above. Its wheel (*rhod*) is probably the crown wheel. The balls (*pelellau*) may describe the driving weights (*pwysau*) of the clock or perhaps refer to the two adjustable weights which hang from the beam or foliot and govern or regulate the clock. The hammer (*mwrthwl*) strikes the bell which sounds the hours. So far, the description of the clock seems quite accurate. The other terms, however, are more problematic. As was noted above, the biggest problem in understanding and translating the poetry and prose of the Middle Ages is always the technical terms. The author knows what they mean but unless one finds a definition somewhere, or the words are used frequently by the same author or one of his contemporaries, one is often left to little more than guesswork. As far as I am aware, there are no descriptions of clocks in Welsh between Dafydd's poem and Wiliam Llŷn's description of John Trefor's clock around 1575, a gap of nearly 230 years.²⁵ Clocks are mentioned by several other Welsh authors but are not described in any detail.

Wiliam Llŷn mentions John Trefor's clock's chords, weights, spindles, and catches (*kyrt*, *pwysau*, *troellau trallawn*, *clickiedau*) but these do not help us with the problem words in Dafydd's poem. The meaning of technical terms is lost over the centuries, especially in an age when dictionaries were unknown. The first

²⁴ Parry (ed.), *Gwaith Dafydd ap Gwilym*, p. 498.

²⁵ Aberystwyth, National Library of Wales MS 5272C, fol. 163b, 'i glock Mr John Trefor yn rhefalu' ('to the clock of Mr John Trevor of Trevalun'), quoted in Iorwerth Peate, *Clock and Watch Makers in Wales* (Cardiff: National Museum of Wales, 1975), p. 16. John Trefor, who fought in France for Henry VIII, built Trevalun (Denbighshire) as the family home. He died in London in 1589. See *Dictionary of Welsh Biography* <<https://biography.wales/article/s-TREV-TRE-1500>> [accessed 1 September 2020].

published Welsh-English dictionary dates from 1547 and was by William Salesbury – the translator of the *Book of Common Prayer* into Welsh – but again there is nothing in his dictionary to help us. The historical *Geiriadur Prifysgol Cymru (GPC)* is a great help in finding references to individual words, but not with their technical horological meaning as used by Dafydd in his poem because of the lack of sources.

The Welsh words that are problematic in Dafydd's poem are *pen*, *tafod*, *buarthau*, *hwyaid*, and *melinau*. Given the context it is possible *melinau*, 'mills', refers to the main wheels of the clock, suggesting a translation of 'on its ceaseless grinding wheels', since mills grind flour. *Hwyaid*, 'ducks', seems to make little sense at all in the context. Whichever part of the clock the word refers to, there is clearly more than one of them and they make a constant noise since Dafydd complains that 'they think it's still daytime' ('yn tybiaid dydd'). Leaving aside the parts of the clock that have already been identified, perhaps the word refers to the two pallets, the small parts that are welded onto the verge which control the speed of the tick – these might have reminded the poet of the beak of a duck. Andrew Breeze has suggested that *hwyaid* may refer to the foliot with its two ends reminding the poet of the beak of a duck,²⁶ and it has already been noted that the ends of the foliot excavated at Llanthony were beautifully made with even some small decorative features in the metalwork. Evans suggested that the image is literal, with the noise of the clock reminding the poet of the sound ducks make in the early morning, but it is clear from the context the poet is referring to parts of the clock, perhaps the gear wheels.²⁷

Pen, meaning 'head' or 'top', may well refer to the top of the clock, that is, to the foliot beam which is at the top of the clock's mechanism. *Tafod*, 'tongue', is most certainly a reference to the single hand of the Llanthony clock. We know that the clock had a face from Dafydd's reference to its 'black face' ('du ei ffiw') and so it would certainly have had a single hour hand. Most puzzling of all is the word *buarthau*, 'yards'. In the context of the poem, it does not signify the usual meanings of a courtyard, sheep-fold, farm-yard, or an enclosure where cows are milked. Being in the plural, the word must refer to a part of the clock of which there is more than one in the mechanism, and, given the parts that have not yet been described by Dafydd, one can only surmise that in the context and at that time *buarthau* may have meant 'cogs'. Lewis Glyn Cothi, in his elegy for his young son, 'Marwnad Siôn y Glyn', refers to 'fy muarth baban' ('my baby ring', line 31), explained in *GPC* as a blazing stick waved around in a circle to distract a baby, though another likely translation is a baby's playpen.²⁸ *Buarth* implies something circular and so, perhaps, Dafydd's meaning of *buarthau* is the cogs in the clock. Without further information there is really no way of knowing what he meant.

²⁶ Andrew Breeze, 'Dafydd ap Gwilym's "The Clock" and Foliot "Decoy Bird" in *The Owl and the Nightingale*', *Notes and Queries*, 238 (1993), 439–40.

²⁷ Evans, 'Cywydd y Cloc', p. 13.

²⁸ *Barddoniaeth yr Uchelwyr*, ed. by D. J. Bowen (Caerdydd: Gwasg Prifysgol Cymru, 1957), p. 49. See also *Gwaith Lewys Glyn Cothi*, ed. by Dafydd Johnston (Caerdydd: Gwasg Prifysgol Cymru, 1995), no. 237. Joseph P. Clancy translates the phrase as 'twirling taper', a reference to the lively little boy, as the phrase occurs in a list of images describing the boy. See Clancy (trans.), *Medieval Welsh Poems* (Dublin: Four Courts Press, 2003), p. 301.

In conclusion, one has to admit it is not possible to say anything definitive about the poem or the clock it describes. In the first place, there are questions about the poem's authenticity, and secondly, the archaeological finds cannot be dated with any accuracy. However, it is clear that there was a clock in the tower at Llanthony Priory in the fourteenth century which was certainly the first turret clock in Wales.

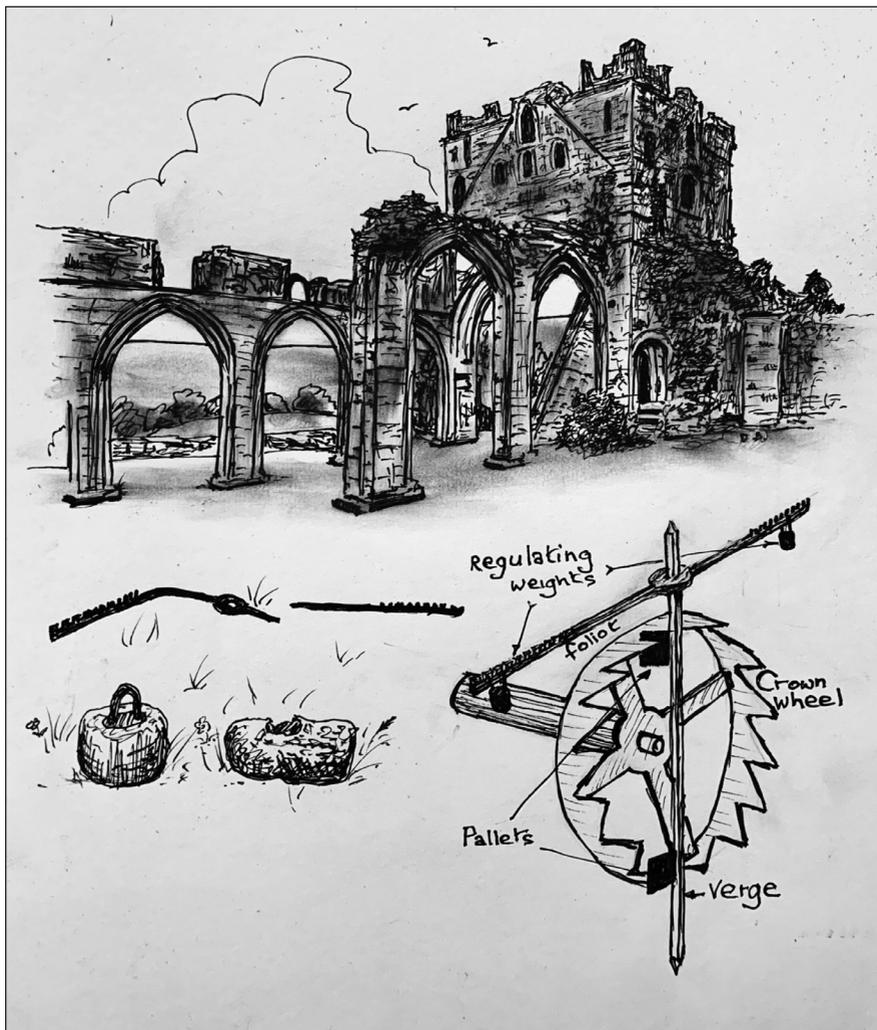


Fig. 1: From top to bottom, clockwise: the ruined tower of Llanthony Priory with Offa's Dyke in the background; an illustration of the foliot clock mechanism; drawings of the clock parts found by archaeologists in 1978 to 1979. [Illustration by David Arnold, reproduced with permission.]

It is also clear that Dafydd ap Gwilym spent some time near, if not at Llanthony Priory in the 1340s, when the clock could well have been the wealthy priory's most recent acquisition. Whoever wrote the poem, if not Dafydd himself, was describing a real clock and almost certainly the one at Llanthony since there were no other mechanical clocks in Wales at that time. If the poem is not by Dafydd ap Gwilym, then the fourteenth-century author must have had a close connection with the area around Brecon and Llanthony.

If nothing else, one can say for certain that there was a very early verge-and-foliot clock in the tower at Llanthony Priory in the fourteenth century – the first in Wales – and that the poem 'Y Cloc', whether by Dafydd ap Gwilym or not, gives a contemporary, first-hand description of it. The poem is thus not only of interest to lovers of Welsh medieval poetry, but of historical importance too, since, until the nineteenth century, the most advanced mechanical devices of the day were church organs and clocks.