

Tudor time machines: Clocks and watches in English portraits c.1530–c.1630

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INTRODUCTION

Hans Eworth's magnificent portrait of Lady Mary Dacre in the National Gallery of Canada, Ottawa, Fig. 1, shows the crusading noblewoman at her desk, pen poised above copybook, looking into the distance as though considering the phrasing of her next sentence. Beside the book is an ink well and a golden table clock. Against the tapestry behind her hangs a copy of Hans Holbein's 1540 portrait of her husband, Thomas Fiennes, suspended in time at the age of twenty-four, before his execution in 1541 for his part in a brawl in which a gamekeeper died. This portrait has been interpreted as a depiction of marriage after the death of the 'senior partner', the clock an oblique reference to Eworth's playful interweaving of different historical moments.¹ Yet the clock arguably plays a more significant role. Eworth's portrait is dated to c.1558, around the time of Elizabeth I's accession, when the Dacre lands were restored to Fiennes' surviving son and daughter. The portrait could have been painted just before, or just after, the long years of Lady Dacre's campaigning on her children's behalf came to a successful conclusion. As well as referring to her marriage, the clock arguably alludes to the widow's patience in adversity, an extension of the 'truth unveiled by time' commonplace popular in early modern emblem books.

Clocks and watches appear with surprising frequency in British portraits c.1530–c.1630. There are over twenty surviving examples, yet no studies have been devoted to their symbolism. Occasional references in footnotes and exhibition catalogues apply a blanket interpretation to all examples, without much reference to context or sitters' biographies, and different writers

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¹ Elizabeth Honig, 'In Memory: Lady Dacre and pairing by Hans Eworth', in Lucy Gent and Nigel Llewellyn (eds.), *Renaissance Bodies* (London: Reaktion Books, 1990), 60–85.

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Fig. 1 Hans Eworth, Portrait of Lady Dacre (c.1558), oil on wood, 74 × 58 cm, National Gallery of Canada, Ottawa

disagree among themselves.² This article sets out the many resonances that timepieces could have for men and women in Tudor and Jacobean England,

² Tarnya Cooper, *Citizen Portrait* (London: Yale University Press, 2012), 11 sees clocks as *memento mori* symbols; cf. Robert Tittler, *The Face of the City* (Manchester: Manchester University Press, 2007), 127. Lynn White Jr suggests that clocks symbolise temperance; 'The Iconography of *Temperantia* and the Virtuousness of Technology' in T. K. Rabb and J. E. Seigel (eds.), *Action and Conviction in Early Modern Europe: Essays in Memory of E. H. Harbison* (Princeton: Princeton University Press, 1969), 197–219.

many of which have not been previously discussed. More broadly, this article is a case study for a holistic approach to signification in early modern culture. It explores the clock's ubiquitous presence in early modern intellectual, devotional and imaginative lives, and attempts to explain the popularity of the 'clock portrait' in the century preceding the foundation of the Worshipful Company of Clockmakers in London in 1631. As the portraits demonstrate, despite the lack of organised, indigenous clock-making in Tudor and early Stuart England, clocks and watches were familiar and important objects, particularly for members of what is popularly termed the 'middling sort'.³

Early timepieces were not straightforwardly utilitarian objects. Before the pendulum clock was invented in the mid-seventeenth century, clocks were accurate to around fifteen minutes per day at best, and sundials remained the most popular time-telling device even after the clock's accuracy improved.⁴ Despite its flaws, the mechanical clock became increasingly popular for symbolic as well as practical reasons, particularly as a statement of wealth. The range of metaphors deploying clockwork in contemporary literature further indicates its hold on the sixteenth- and early seventeenth-century imagination. The fact that so many men and women chose to be portrayed with timepieces indicates that patrons were aware of its symbolic dimensions, revealing a great deal about their statuses, beliefs and aspirations.

The extent of actual clock ownership in the period is difficult to gauge. Monarchs from Henry VIII to Charles I owned a variety of timepieces, as did their well-off subjects,⁵ but these were probably imported or made by immigrant craftsmen. There is little evidence of domestic clock-making until the late sixteenth century, and then the craft developed slowly.⁶ This is generally attributed to the differences in techniques required for constructing tower versus chamber clocks. Unlike tower clocks, linked to blacksmithing and for which there is English evidence, smaller weight- and spring-driven clocks were associated with lock- and gold-smithing, professions less advanced in sixteenth-century England than on the continent.⁷ Yet the need to import clocks increased their desirability. Linda Levy Peck has shown that luxury consumption emerged in the Tudor and Jacobean periods; clocks are just one example of the goods imported for the developing consumer market.⁸ According to Peck, luxury was morally ambivalent in this period, with its associations of

³ For this term's origins in commercial (not sociological) contexts, see Keith Wrightson, "Sorts of People" in Tudor and Stuart England', in Jonathan Barry and Christopher Brooks (eds.), *The Middling Sort of People: Culture, Society and Politics in England, 1550–1800* (Basingstoke: Macmillan, 1994), 28–51.

⁴ Silvio A. Bedini, 'The Mechanical Clock and the Scientific Revolution', in Klaus Maurice and Otto Mayr, *The Clockwork Universe: German Clocks and Automata, 1550–1650*, exh. cat. (Washington, DC: Smithsonian Institution, 1980), 21–2.

⁵ See Edward J. Wood, *Curiosities of Clocks and Watches* (1866, repr. London: EP Publishing, 1973).

⁶ Percy G. Dawson, C. B. Drover and Daniel W. Parkes, *Early English Clocks: A Discussion of Domestic Clocks up to the Beginning of the Eighteenth Century* (Woodbridge: Antique Collectors' Club, 1982), 18.

⁷ *Ibid.*; R. W. Symonds, *A Book of English Clocks* (London: Penguin, 1947), 26.

⁸ Linda Levy Peck, *Consuming Splendor: Society and Culture in Seventeenth-Century England* (Cambridge: Cambridge University Press, 2005).

excess, effeminacy, Catholicism and the evils of social mobility.⁹ However, in contrast to other imported items, clocks had an enormous variety of additional associations, allowing them to be interpreted in terms other than decadent and trivial. It is these meanings – and their implications for sitters' wealth and status – which explain their presence in portraits c.1530–c.1630.

In sixteenth- and seventeenth-century England, patrons, not artists, were usually responsible for the mode, dress and iconography of portraits.¹⁰ The craftsman might have studio props from which the sitter could choose, but ultimately the picture's contents were probably dictated by the person who paid. There are some instances of imitation and transference of the clock symbol between images: for example, the remarkably similar portraits of John Whitgift and his friend Thomas Neville depict the same objects (table clock, ink horn and desk tidy) on the tables at the sitters' elbows, suggesting Neville was imitating his patron Whitgift.¹¹ However, other surviving clock portraits are not similar or numerous enough to suggest that the motif ever became standard or formulaic. As a result, where we know that the portrait was commissioned by a patron, we can infer that the clothing and objects depicted probably held some significance for them. This is why the profusion of clocks and watches in portraits c.1530–c.1630 is such an interesting topic for study. When sitters requested to be painted with a clock or a watch, they intended it to convey one, or several, meanings; this article explores the possible motives behind such requests.

Although clocks have received little scholarly attention in the field of visual art, they have featured in analysis of the literary works of Shakespeare and his contemporaries. Several authors have discussed the clock's potential influence on Shakespeare's own use of time and the development of early modern individuality more generally;¹² Adam Max Cohen in particular has discussed Shakespeare's use of human-clock metaphors, touching on issues of self-control, individualism and authoritarianism.¹³ While these topics chime with several aspects of the clock's appearance in visual art, as is explored below, such analyses are largely limited to the special conditions of theatrical narrative.

This article builds on such literary analyses by turning to period texts – not just the most famous, but also sermons, trade treatises and conduct manuals – for what they say about the importance and symbolism of the timepiece. The

⁹ *Ibid.*, 3–9.

¹⁰ See Cooper, *Citizen Portrait*, esp. Ch. 2.

¹¹ Neville was one of Whitgift's executors and seems to have received several preferments through Whitgift's influence. J. B. Mullinger, 'Neville, Thomas (c.1548–1615)', rev. Stanford Lehmberg, *DNB* (2004, repr. online edn. Jan 2008): www.oxforddnb.com/view/article/19965 (accessed April 2015). Whitgift's portrait hangs in the Old Schools, Cambridge, Neville's at Trinity College, Cambridge.

¹² Tiffany Stern, 'Time for Shakespeare: Hourglasses, Sundials, Clocks, and Early Modern Theatre', *Journal of the British Academy*, 3 (2015), 1–33; Arthur Kinney, *Shakespeare's Webs* (London: Routledge, 2004), 69–100. For Shakespeare's novel use of narrative time, John Spencer Hill, *Infinity, Faith, and Time: Christian Humanism and Renaissance Literature* (Montreal: McGill-Queen's UP, 1997), 104–26; Jeremy Lopez, 'Time and Talk in "Richard III I.iv"', *Studies in English Literature, 1500–1900*, 45 (2005) 299–314.

¹³ Adam Max Cohen, *Technology and the Early Modern Self* (New York: Palgrave, 2009), 23–50; Adam Max Cohen, *Shakespeare and Technology* (New York: Palgrave, 2006) 127–49.

first part of this article presents the results of a systematic analysis of more than 2,200 English texts containing the words 'clock', 'dial', and/or 'horologe' from the Early English Books Online (EEBO) database. The aspects of the mechanical clock which interested writers when constructing metaphors are identified and examined. The EEBO database is not complete; vernacular texts were read alongside Latin and continental authors in England. Nevertheless the material is comprehensive enough to reveal general trends, allowing for the combination of detailed and systematic 'microhistory' with 'macrohistorical' analysis. Mining the texts of the period for references to clocks and dials puts these objects into the broadest possible context, as a preliminary to an exploration of the motif in the visual arts. The results supply a rich textual foundation on which to reconstruct the period's 'clockwork imaginary'¹⁴ shared by the 'patron classes' – those who bought, read and exchanged books and timepieces, and who also commissioned the portraits under examination here.

The second section discusses the most common interpretation of clocks in portraiture to date – *memento mori* symbolism. While *vanitas* was undoubtedly one connotation of timepieces, the depiction of a clock rather than the more terminal hourglass suggests additional meanings. The third section explores the worldly associations of the timepiece in depictions of successful city men, and discusses clockwork metaphors as applied to commerce. In the final section I turn to the clock's religious connotations, analysing its relationship to both Catholic and Protestant teaching, and its particular suitability for illustrating the Calvinist doctrine of Double Predestination, as well as more general concerns about temperance, patience and 'knowing thyself'.

SIGNS OF THE TIMES

In English vernacular literature *c.*1530–*c.*1630, 'clock', 'dial' and 'horologe' were separate but overlapping terms. The results of EEBO searches for these words indicate that 'clock' was the most popular word for mechanical timepieces, followed by 'dial' and then 'horologe' ('orloge' in late fifteenth-century texts).¹⁵ 'Horologe' is interchangeable with 'clock' and 'dial' and used infrequently. 'Dial' is the most problematic term, meaning: the visual time-telling part of the clock; the mechanical clock in its entirety, or, most frequently, sundials; context does not always clarify. The word has multiple

¹⁴ I use 'imaginary' in the sociological sense – the symbols, values and thought-world common to a social group; e.g. Charles Taylor, *Modern Social Imaginaries* (London: Duke University Press, 2004), esp. Ch. 2. The term is favoured in history and philosophy of science for its associations with visibility ('imaging') and imagination; e.g. Pamela H. Smith *et al.*, 'Historians in the Laboratory: Reconstruction of Renaissance Art and Technology in the Making and Knowing Project', *Art History*, 39 (2016), 210–33 esp. 221.

¹⁵ This remains true even when time references ('of the clock') are excluded. References to minutes in time statements are more frequent from the 1580s onwards, when Jost Bürgi invented the cross-beat escapement: a regulator that increased the clock's accuracy, making minute-hands worthwhile for the first time. Henry C. King, *Geared to the Stars: The Evolution of Planetariums, Orreries and Astronomical Clocks* (Bristol: University of Toronto Press, 1978), 80.

possible origins, deriving from Middle French *dyal*, a wheel in a timepiece rotating once every twenty-four hours, or post-classical Latin *diale*, meaning the dial of a clock, from Latin *dialis* ('daily').¹⁶ 'Dial' was associated with the highly sophisticated mathematical craft of 'dialling', or sundial-making,¹⁷ but also had ancient resonances, for example referring to the Biblical 'dial of Ahaz' in 2 Kings 20, when the shadow on a sundial miraculously regressed to show that the Prophet Isaiah had added fifteen years to King Hezekiah's life.¹⁸ The word is frequently mentioned in references to mortality and measuring time, and has the extended meaning of something which teaches the onlooker to spend time well. Nevertheless, in early modern texts the word 'dial' is not applied to the same rich range of metaphor as the word 'clock'.¹⁹

In searching period literature for uses of the word 'clock', this section follows in the footsteps of Jonathan Sawday's *Engines of the Imagination*, which explores the imaginative aspects of machinery and mechanisms in the European Renaissance, and Otto Mayr's survey of clock metaphors in early modern European literature.²⁰ Introducing *Authority, Liberty and Automatic Machinery in Early Modern Europe*, Mayr argues that the 'feedback mechanism' (a machine which adjusts its behaviour based on signals from its output) was first re-popularised, in modern times, in eighteenth-century Britain, where political liberality was gaining momentum. He posits a connection between the 'democratic' feedback mechanism and the early development of modern democracy, suggested by the many political metaphors based on the 'feedback loop', and contrasts this with the clock, a symbol of authoritarian, unidirectional power-structures.²¹ Looking at the clock's appearance in earlier literature, Mayr concludes that the clock mechanism was highly praised in most of Europe but not in Britain, where, he argues, writers deploy the clock metaphor with unusual negativity. He suggests that conditions in Britain had always been favourable to the development of political liberty, and concludes that this explains the country's suspicion of the authoritarian clock as far back as the sixteenth century.²²

Mayr, assuming that Britons were predisposed towards an anti-authoritarian political system, looked for evidence of negativity towards clocks in English literature. Yet a systematic search shows Mayr's conclusions are not supported

¹⁶ 'dial, n.1', *OED Online* (Oxford University Press: June 2017) accessed 19 October 2017.

¹⁷ E.g. John Dee, 'The Mathematicall Preface' to Euclid, *The Elements of Geometrie* (1570), f.d.ii(r). See Cohen, *Shakespeare and Technology*, 129ff.

¹⁸ 2 Kings 20: 1–11. E.g. Thomas Paynell, *The piththy [sic] and moost notable sayings of al scripture* (1550), f. xxxv(r); Jean Calvin, *Sermons of Iohn Caluin, vpon the songe that Ezechias made* (1560), 75–6.

¹⁹ E.g. Antonion de Guevara, *The dial of princes* ((1557) 1568), esp. 'The generall Prologue', f.*i. ff.

²⁰ Jonathan Sawday, *Engines of the Imagination: Renaissance culture and the rise of the machine* (London: Routledge, 2007); Otto Mayr, *Authority, Liberty and Automatic Machinery in Early Modern Europe* (Baltimore and London: John Hopkins University Press, 1986). Although Sawday addresses clocks, his references to the period c.1530–c.1630 largely deal with their implications for time-consciousness, 76–8.

²¹ Mayr, *Authority, Liberty and Automatic Machinery*, xv–xviii; Ch. 5.

²² *Ibid.* Ch. 6.

by the texts, at least in the period c.1530–c.1630. Admittedly the English can be unenthusiastic about clocks: clocks are ‘cold’²³ and ‘restlesse’,²⁴ and besides time may count ‘miserie’²⁵ or ‘care’.²⁶ However, as even Mayr admits, the English are not always negative about clocks: clocks also count ‘praises’,²⁷ and are used as exemplars of reliability²⁸ and patience.²⁹ They are favourably deployed as metaphors to illustrate the greatest of God’s creations: humanity, the heavens,³⁰ and the well-ordered society.³¹

In fact, writers praise hierarchical societies and monarchical rule through metaphors based on the clock’s one-way system of command. In the period c.1530–c.1630, it is precisely the clock’s authoritarian qualities that appeal. Roger Hacket makes a strong case for clock-like authoritarian government:

For as in a clocke or watch, all the wheeles shoulde goe, when the Maister wheele doth mooue, and if any stay, the same putteth all out of frame, and must bee mended: even soe in publike states and civill governementes, If the prince doe mooue as the cheefe commaunder and master wheele, the people shoulde followe, and if any stay and trouble the whole, the same is to bee mended, and forced to his due and timely order.

(Hacket, *A sermon needfull for theese [sic] times* (1591), f.B7v.)

Similarly, John Norden praises society’s hierarchical structure through a clock metaphor:

²³ E.g. Robert Greene, *Mamillia A mirrour or looking-glasse for the ladies of Englande* (1583), f.E4r: ‘their talke burnes as hotte as the mount Aetna, when as their affectio[n] is as cold as a clock’; Thomas Lodge, *Euphues shadow* (1592), f.G2r: ‘a little kindnes maks him who was as hote as a tost as coole as a clock’; see also Brian Melbancke, *Philotimus* (1583), 62; Joseph Swetnam, *The schoole of the noble and worthy science of defence* (1617), 6. The simile perhaps stems from the metal clock’s literal ‘coldness’, or its coldly unresponsive measuring of passing time.

²⁴ E.g. Robert Greene, *Perimedes the blacke-smith a golden methode* (1588) f.G2v: Melissa’s ‘ditty’ includes the line ‘Rest[l]esse the clocke that chimes hir fast a sleepe’.

²⁵ Philip Sidney, *The Countesse of Pembrokes Arcadia* (1593), f.209v.

²⁶ Robert Parry, *Sinetes passions vppon his fortunes* (1597), Passion XII.

²⁷ Philip Sidney, *The Countesse of Pembroke’s Arcadia* (1590), f.226r.

²⁸ E.g. Mateo Aleman, *The rogue: or The life of Guzman de Alfarache. VVritten in Spanish by Matheo Aleman* (1623), 240: ‘And in particular, my word, in all my dealings, was like a clocke, it strucke alwayes true, and neuer went false’; see also Thomas Nash, *Christs teares ouer Ierusalem* (1613), 94. In Thomas Dekker, *The vvhore of Babylon* (1607), the counsellor Satyran is the emperor’s ‘trew set clocke / By which we goe’, f.E4r.

²⁹ Michael Drayton, *Endimion and Phoebe* (1595): ‘Goe, play the wanton, I will tend thy flock, / And wait the howres as dully as a clock’, f.Cr.

³⁰ See e.g. Robert Burton, *The Anatomy of Melancholy* (1621), 48: ‘For our Body is like a Clocke, if one wheele be amisse, all the rest are disordered, the whole Fabricke suffers: with such admirable Art and Harmony is a man composed, such excellent proportion’; Philippe de Mornay, *A vvoorke concerning the trewnesse of the Christian religion* (London, 1587), 100: ‘the same workmayster which hath set vp the Clock of thy hart for halfe a score yeares, hath also set vp this huge engine of the Skyes for certeyne thousands of yeares’.

³¹ E.g. Robert Fletcher, *Certaine very proper, and most profitable similies...* (1595), 55; Robert Burton, *The Anatomy of Melancholy* (1621), 5; John Davies, *A discouerie of the true causes why Ireland was neuer entirely subdued...* (1612), 284.

This mouing world, may well resembled be,
 T'a Jacke,³² or Watch, or Clock, or to all three:
 For, as they moue, by weights, or springs, and wheeles,
 And euery mouer, others mouer feeles,
 So doe the states, of men of all degrees,
 Moue from the lowest to the highest sees.

(Norden, *The Labyrinth of Mans Life* (1614), f.D2vff)

Compared with smaller wheels, he says, the greater wheels 'moue with farre more constancie', and 'if there mouings lowest wheeles neglect, / The greatest mouer doth them all correct'. If all levels of society were equal, anarchy would prevail: 'For, if the wheeles, had equall force to moue, / The lowest would checke, the leading wheele aboue. / So, if there were, no difference in estates, / All would be lawlesse...'. However, he concedes that those in power must prove themselves worthy leaders, concluding that 'a meane preserues the whole in peace'.³³ The clock is associated with authoritarian, unidirectional command structures, but in the period c.1530–c.1630 when monarchy was, on the whole, still the only conceivable form of government, there is little to indicate the germination of attitudes which would lead to regicide and revolution later in the seventeenth century.

Although Adam Max Cohen attributes the clock's authoritarian reputation to its relentless measurement of time, in fact – as Mayr points out – it is the clock-work system's causal chain (the weight or spring moves a wheel, which moves another wheel, etc) which forms the basis for these clock-based metaphors.³⁴ This causal system is shared by clocks of all kinds, from watches to domestic and even tower clocks, and makes the clock metaphor applicable to a diverse range of subjects, including Norden and Hackett's arguments above, which see noble rule as the driving force ordering the rest of society. The metaphor could be taken further, and deployed in support of older arguments for the existence of an ultimate 'prime mover', God, whose first action is the root cause of everything that happens in the universe.³⁵

Yet there is another aspect of the mechanical clock which attracts writers: the idea that what occurs inside the clock is made visible on the outside, through the movement of the hands and the sound of the bell. John Heywood writes about a lover's countenance: 'yet shall his semblaunce as a dyale declare / Howe

³² A 'Jacke' was a mechanical figure that struck the hours on a bell. 'Jack, n.1', *OED Online* (Oxford University Press: June 2017) accessed 19 October 2017.

³³ John Norden, *The Labyrinth of Mans Life* (1614), f.D2vff.

³⁴ Cohen, *Shakespeare and Technology*, e.g. 143: the clock's reliability is a precondition for its authoritarianism.

³⁵ The related but distinct conception of God as a clockmaker – an example of the 'argument from design' apparently first invoked by Nicholas Orseme, c.1377 (Mayr, *Authority, Liberty and Automatic Machinery*, 38–40) was also popular with preachers, e.g. John Boys, *An exposition of the dominical epistles and gospels used in our English liturgie* (1610), 150; Robert Parsons, *A Christian Directorie* (1585), 37.

the clocke goeth'.³⁶ As will be explored below, this idea is used to suggest how the heart or mind of a man may be judged from outside appearances. It relates to Protestant, particularly Calvinist concerns to 'know thyself', and anxieties about how one may judge who is a member of the saved Elect.³⁷

These two points of comparison – the causal chain, and the ability to represent the interior on its exterior – form the foundations of most clock metaphors in the period. To these can be added a third interest: in the clock's ability to portray the passage of time. This is particularly popular in *memento mori* literature and constitutes an explicit motivation for the clock's inclusion in painted portraits. The ability to measure the passing hours was not new with the clock, however: sundials had existed for centuries. They feature in some of the most iconic paintings of the age, such as Holbein's *The Ambassadors*, and continued to dictate the setting of their less-reliable mechanical counterparts – sometimes with interesting consequences for the clock metaphor.³⁸ Yet compared to the clock, the sundial was mechanically (though not mathematically) low-tech. Although the clock could not rival the sundial's accuracy or affordability, its new technology (the 'moving parts') explains its use in a variety of exciting comparisons – to the body, the heavens, families, commerce, and government.

The novelty of the clock mechanism, not its primary function of time-telling, attracted interest in the technology, and explains its popularity in literature and the visual arts. The variety of uses to which contemporary writers put these mechanical timepieces proves that there is more to clocks than just *memento mori* messages. The clock seeped into the early modern imagination, becoming a symbol through which the world could be organised and understood.

TIME'S UP

In early modern literature, clocks are often associated with mortality. As the minutes pass, human life trickles away; clocks exposed the headlong rush towards death and, hopefully, everlasting life. For Olivia in *Twelfth Night*, 'The clock upbraids me with the waste of time'.³⁹ In *Richard II* the king's moving soliloquy, shortly before his murder, links clocks, mortality and the

³⁶ Heywood, *A Play of Love* (1534) f.B1v.

³⁷ E.g. George Benson, *A sermon preached at Paules Crosse the seauenth of May* (1609), 42; Thomas Adams, *The sacrifice of thankfulness* (1616), 39; George Hakewill, *King Davids vow for reformation* (1621), 191–2. For 'know thyself' and early modern approaches to studying mind and body, see Deborah Harkness, 'Nosce Teipsum: Curiosity, the humoural body and the culture of therapeutics in late sixteenth- and early seventeenth-century England' in R. J. W. Evans and Alexander Marr (eds.) *Curiosity and Wonder from the Renaissance to the Enlightenment* (Aldershot: Ashgate, 2006), 171–92.

³⁸ Thomas Scot's anti-Catholic satire 'Solarium' describes a disagreement between a church clock and a sundial. The sundial represents the truth of Scripture, punning on the 'Sonne [/sun] of Righteousness', and the clock stands for the Church, which has fallen out of step with the dial over the centuries. The triple-crowned weathercock, representing the Pope, tries to intervene in the clock's favour, but the sexton resets the clock, and 'humbles' the weathercock by removing its crown. Thomas Scot, *Philomythie* (1622).

³⁹ William Shakespeare, *Twelfth Night*, iii.1.110, ed. Jonathan Bate and Eric Rasmussen, *The RSC Shakespeare Complete Works* (Basingstoke: Macmillan, 2007).

overwhelming sense of time passing beyond his control: 'I wasted time, and now doth time waste me; / For now hath time made me his numbering clock'.⁴⁰ For Thomas Churchyard (1578): 'the course of mortall life, is like a running Glasse / That neuer rests, but still holds on, his houres as clock and chime / Whose minets tele us pilgrimes all, we waste and weare with tyme'.⁴¹

Watches could be made in novelty shapes, including skulls,⁴² and even on plainer clocks *memento mori* imagery and inscriptions sometimes feature in engraved decoration.⁴³ If real clocks could remind beholders of mortality, so could their painted equivalents. *Memento mori* symbolism is ubiquitous in the visual arts c.1530–c.1630, particularly in late sixteenth-century portraits. As Tarnya Cooper shows, likenesses themselves demonstrated the passage of time by fixing the sitter's appearance at a particular moment.⁴⁴ Such portraits were often further adorned with reminders that life is short: skulls, hourglasses, corpses, snuffed candles and inscriptions instruct the viewer that 'all is vanity', and clocks contribute to these themes. Like the hourglass, the clock makes the usually-imperceptible passage of time visible, counting the hours until death, when Christians would be expected to render to God an account of how they had spent the time He gave them.

In portraits from the mid-sixteenth century onwards clocks often appear with skulls, evoking *vanitas* themes. Father and son Jacques (1574) and Jacob Wittewronghele (c.1590–1600), Figs. 2 and 3; John Isham (c.1567), Fig. 4, and William Ffytch (c.1550), Fig. 5, are shown resting their hands on skulls and standing near wall or table clocks. In Ffytch and Jacques Wittewronghele's portraits, the hour hands approach twelve: the day is almost over, but the sitters engage the viewer differently. Wittewronghele's direct stare challenges us to consider the passage of time (Ut Hora Sic Fugit Vita appears on his clock: 'as the hour, thus life flies')⁴⁵ while William Ffytch is apparently lost in contemplation of the approaching hour, looking to one side in a pose typical of alleged artist John Bettes the Elder, and reminiscent of earlier portraits by Hans Holbein the Younger, for example of Nicholas Kratzer.⁴⁶ This can be compared with the portraits of Joyce Frankland, née Trappes (1586) at

⁴⁰ Shakespeare, *Richard II*, v.5.49–50, *ibid.*

⁴¹ Thomas Churchyard, *A prayse, and reporte of Maister Martyne Forboishers voyage to Meta Incognita* (1578), 'The partying of frendes'.

⁴² Examples survive from c.1660.

⁴³ E.g. gilt-brass verge watch, engraved with winged cherub with skull. BM 1856,0429.1; for public clocks see Alfred Ungerer, *Les horloges astronomiques et monumentales les plus remarquables* (Strasbourg: L'auteur, 1931), 44, 142, 197–8, 227, 242, 400.

⁴⁴ Cooper, *Citizen Portrait*, 11.

⁴⁵ Cooper, *Elizabeth I and Her People*, exh. cat. (London: National Portrait Gallery, 2013) gives 'ut' as 'by', 142.

⁴⁶ See e.g. John Bettes, Unknown Man in a Black Cap, 1545, Tate Britain N01496. Bettes perhaps studied under Holbein, Karen Hearn, 'John Bettes, "A Man in a Black Cap", 1545', catalogue entry, Tate Britain: www.tate.org.uk/art/artworks/bettes-a-man-in-a-black-cap-n01496/text-catalogue-entry (accessed April 2015). Kratzer is making a sundial, referring to his profession and mathematical knowledge, not mortality.



Fig. 2 Cornelis Visscher the Elder, Jacques Wittewronghele (1574), oil on panel, 94 × 69 cm, Rothamstead Research, Harpenden



Fig. 3 Unknown Anglo-Netherlandish Artist, Jacob Wittewronghele (c.1590–1600), oil on panel, 107 × 84 cm, Rothamstead Research, Harpenden

Gonville and Caius College, Cambridge, and Brasenose and Lincoln Colleges, Oxford. Frankland, who outlived two husbands and her only son, seems hardly to hold her watch at all, as if to suggest the impossibility of grasping time. Here there is no skull, but the hour hand again points at twelve.



Fig. 4 Unknown English artist, John Isham, c.1567, oil on panel, 108 × 82 cm, reproduced with permission from the Lamport Hall Trustees

Clocks could evoke themes of mortality in more unusual ways. Another example of the clock-skull combination is found in the *Triptych Portrait of Henry and Dorothy Holme* (1628), V&A, London.⁴⁷ The couple and their two children are shown on the inner panels with the traditional skull, but a clock

⁴⁷ Victoria and Albert Museum W.5-1951.



Fig. 5 John Bettes the Elder (attrib.), William Ffytch with his Hand on a Skull, aged 51 (1550), oil on panel, 94 × 68 cm, Anglesey Abbey (© National Trust)

appears when the triptych is closed, part of a visual pun (or 'rebus') on the right exterior panel: following the inscription 'We Must', the dial supplies the macabre punch-line, visually representing the words 'die all'. As Cooper

suggests, clocks and other *memento mori* symbols could denote virtue, and defend against possible charges of vanity in having their portrait painted at all.⁴⁸

With or without skulls, in literature and the visual arts clocks could remind the viewer of their approaching death and the importance of having a healthy soul. Of course, the religious dimensions of death and the afterlife are intimately connected with *memento mori* themes, and the religious aspects of the clock symbol will be explored below. A key point, however, is that these *vanitas* associations do not exclude other meanings, and many sitters' biographies and professions demand a more complex approach to a machine that could stand equally for human life, as well as death.

TIME IS MONEY

In his treatises on finance and trade, Gerard Malynes compares commerce to a clock:

So is exchange ioyned to monyes, and monyes to commodities, by their proper qualities and effects. And euer as in a Clocke, where there be many wheeles, the first wheele being stirred, driueth the next, and that the third, and so forth, till the last that moueth the instrument that strikes the clocke: euen so is it in the course of Traffique: for since money was inuented [it] became the first wheele which stirreth the wheele of *Commodities* and inforceth the *Action*. (Gerard Malynes, *The maintenance of free trade* (London, 1622), 5–6)⁴⁹

The metaphor extends to businessmen themselves, whose dealings – if trustworthy – should be as regular as clockwork.⁵⁰ Several sitters portrayed with clocks were successful early capitalists and merchant adventurers – John Isham, Fig. 4, Jacques and Jacob Wittewronghele, Figs. 2 and 3, and William Chester, Fig. 6 – and it is tempting to speculate that in these portraits a business-related comparison is being drawn between the orderliness of a clock and the entrepreneur himself. This is particularly so in the case of John Isham, a substantial man, both financially and physically. In the small area of the portrait not filled by his impressive form, a clock is mounted above two still-extant and clearly recognisable account books, implying regularity in his business dealings.⁵¹

⁴⁸ Cooper, *Citizen Portrait*, 202.

⁴⁹ See also Malynes, *Consuetudo, vel lex mercatoria* (1622), 337; Malynes, *A treatise of the canker of Englands common wealth* (1601), 95. Roger Fenton, *A treatise of usurie* (1611), 2, complains that usury 'is so wouen and twisted into euery trade and commerce, one mouing another, by this engine, like wheeles in a clocke, that it seemeth the very frame and course of traffick must needes be altered before this can be reformed'.

⁵⁰ See n.28 above.

⁵¹ Cooper, *Citizen Portrait*, 73; G. D. Ramsay (ed.), *John Isham Mercer and Merchant Adventurer* (Northampton: Northamptonshire Record Society, 1962).



Fig. 6 Unknown English Artist, William Chester (c.1560), oil on panel, 665 x 535mm, Drapers' Company, London

It is difficult to know whether sitters owned the clocks in their portraits if their inventories have not survived. The religious allegory of William Chester's clock, Fig. 6, or its floating otherworldly counterpart over Jacques Wittewronghele's shoulder, Fig. 2, suggest symbolic rather than literal meanings, although these are not mutually exclusive. It is also possible that the clocks were selected from a range of props belonging to the artist, or invented

without a physical prototype. Yet, real or not, timepieces in portraits enhance the sitter's status by alluding to wealth: a meaning as ubiquitous as *memento mori* themes, if less obvious in today's world of mass-production.

For members of recently-gentrified families, such as the Joneses (see the portrait called Anne Fettiplace, the first Mrs Henry Jones (1614), Fig. 7), a watch or clock advertised the sitter's worldly status. This is especially true of watches, which were more expensive and less accurate than larger clocks. See for example the Unknown Woman aged 41 (1629), at Erdigg, Wrexham (National Trust), whose watch hangs from her waist, or the elaborate octagonal watch in the portrait of a girl of the Morgan family (1620), Fig. 8. The latter is comparable to the exactly contemporary octagonal gilt-brass and silver cased verge watch made by Edmund Bull of Fleet Street, now in the British Museum, Fig. 9. Although clearly indicative of its owner's wealth, it also refers to religious themes, as it is engraved on both sides with scenes of Christ washing Peter's Feet and the Last Supper, and has panels depicting the Evangelists and personifications of the virtues. Such imagery could advertise the owner's piety, and encourage moral behaviour by portraying exemplary figures both historical and allegorical.⁵²

Watches in particular overlapped with jewellery as miniaturised, often elaborately decorated objects which could be worn on the person, sometimes encompassing functions normally reserved for other jewels, for example pomanders; the Nuremberg watchmaker Andreas Henlein is credited with the invention of timepieces set in musk-balls.⁵³ An extraordinary pocket watch set inside a large hexagonal emerald was found in the Cheapside Hoard, suggesting that such objects would have been regularly stocked by London jewellers in the early seventeenth century.⁵⁴

As David Thompson writes: 'clocks [and watches] from the sixteenth and seventeenth centuries reflect an age when they were as much items of status and demonstrations of wealth as they were machines used to measure time and regulate everyday life'.⁵⁵ However, such objects could provoke jealousy, even animosity from others. Robert Dallington's travel account describes a Frenchman ('an endles & needles prater, a fastidious & irkesome companion') who made great show of producing his watch, 'not so much to shew how the time passeth, (whereof he takes little care) as the curiousnesse of the worke, and the beautie of the case, whereof hee is not a little brag & enamoured'.⁵⁶ Clocks in portraits, intending to show the sitter's awareness of *vanitas*, could perhaps also provoke accusations of vanity from unkind onlookers.

⁵² On religious imagery in post-Reformation domestic settings see Tara Hamling, *Decorating the Godly Household: Religious Art in Post-Reformation Britain* (New Haven: Yale University Press, 2010).

⁵³ Thompson, *Watches*, 10.

⁵⁴ c.1600–1610, Museum of London, A14162. Hazel Forsyth, *London's lost jewels: the Cheapside hoard* (London: Philip Wilson Publishers, 2013), 136–7.

⁵⁵ Thompson, *Clocks*, 13.

⁵⁶ Robert Dallington, *The View of Fraunce* (1604) f.X4r.



Fig. 7 Unknown English artist, Portrait of a Lady presumed to be Anne Fettiplace, Mrs Henry Jones I (1614), oil on panel, 95 × 75 cm, Chastleton House, Oxfordshire. (© National Trust)

ALL IN GOOD TIME

Although the clock is associated with the ‘countdown’ to death, early modern writers show little interest in its more mundane function of dividing time into



Fig. 8 Unknown English artist, Portrait of a Girl of the Morgan Family, Aged 17 (1620), oil on panel, 101 × 78 cm, Tredegar House, (© National Trust)

measured spans. The part of the clock responsible for regulation was called the 'escapement'; its increasing sophistication was, technologically-speaking, one reason why clocks became more widespread. Scholars such as Gerhard



Fig. 9 Edmund Bull in Fleetstreet, Octagonal gilt-brass and silver cased verge watch with date indicator (c.1615–20), 52 x 37 mm, British Museum, 1992,0514.1

Dohrn-Van Rossum and David Landes have explored the effects of the adoption of equal hours and accurate timekeeping on commerce and society.⁵⁷ Yet the clock's measuring function is not a major focus in texts of the period.

⁵⁷ Gerhard Dohrn-Van Rossum, *History of the Hour*, trans. Thomas Dunlap, (1992, repr. London: University of Chicago Press, 1996); David Landes, *Revolution in Time: Clocks and the Making of the Modern World* (1983, repr. London: Belknap Press of Harvard University Press, 2000).

This may have been due to its relative inaccuracy: minute hands (accurate or otherwise) were mostly absent until at least the 1580s, and sundials and hour-glasses continued in use throughout the sixteenth century.⁵⁸

Nevertheless, the clock's ability to self-regulate did form the basis for some clock metaphors in the period. According to Adam Max Cohen Shakespeare uses the clock as a symbol of 'temperance, moderation and self-control'.⁵⁹ In *All's Well that Ends Well*, for example, the King of France describes Bertram's father's character – neither 'contempt nor bitterness / Were in his pride or sharpness; if they were / His equal had awaked them, and his honour – / Clock to itself – knew the true minute when / Exception bid him speak' (i.2.41–46),⁶⁰ 'clock' here used synecdochically to refer to the escapement, or regulating part of the mechanism, rather than the clock as a whole.

Self-regulation also grounds one of the clock's major iconographic uses in the Middle Ages, and perhaps continued to inform its deployment in visual art c.1530–c.1630. Lynn White Jr traced the medieval European development of the iconography of Temperance, usually personified as a woman, from the traditional water jug she uses to dilute wine from at least the eleventh century, to the bizarre collection of modern inventions she carried for a time from c.1450, along the way picking up associations with divine wisdom.⁶¹ In Bodleian MS Laud 570, c.1450, Fig. 10, Temperance stands on a windmill. She has rowel spurs on her heels, carries eyeglasses in her hand, wears a bit and bridle in her mouth and a clock on her head, like a hat. White notes that these were very recent inventions, except the bit, known from at least 2000 BC, and that the key to these accessories is found in a poem in a French manuscript of c.1470:

He who is mindful of the clock
Is punctual in all his acts.
He who bridles his tongue
Says naught that touches scandal.
He who puts glasses to his eyes
Sees better what's around him.
Spurs show that fear
Make [sic] the young man mature.
The mill which sustains our bodies
Never is immoderate.

(BNF MS fr.9186;⁶² translation from White 'The Iconography of *Temperantia*', 214).

⁵⁸ Thompson, *Clocks*, 13; King, *Geared to the Stars*, 80; Silvio A. Bedini, 'The Mechanical Clock and the Scientific Revolution' in Maurice and Mayr, *The Clockwork Universe*, 21–2.

⁵⁹ Cohen, *Shakespeare and Technology*, 141.

⁶⁰ Bate and Rasmussen, eds. (2007).

⁶¹ Lynn White Jr, 'The Iconography of *Temperantia* and the Virtuousness of Technology', 197–219.

⁶² Émile Mâle, *L'art religieux de la fin du moyen âge en France*, 4th edn. (Paris: Librairie Armand Colin, 1931), 311–16.

Here the clock represents regularity and punctuality as aspects of self-control. According to White, by the sixteenth century the allegorical figure of Temperance was rarely portrayed with all these attributes, but generally retains the clock until mid-century. White extends this to sixteenth-century portraits, arguing that clocks symbolise the sitter's temperate nature, citing Holbein's portrait of Thomas More and his family (1527): 'a clock is placed almost directly over Sir Thomas's head, as though *Temperantia* were wearing her horological hat'.⁶³ In late-sixteenth century England Temperance is often shown with her traditional vessels – for example, on the column in the portrait of Elizabeth I with the Cardinal and Theological Virtues (1596), Dover Museum, and on Robert Cecil's memorial tomb in the chapel at Hatfield House, by Maximilian Colt (c.1612) – yet there are instances of Temperance's horological iconography even in the later sixteenth century. The figure of Temperance carries a clock in Richard Day's extremely popular *A Booke of Christian Prayers* (1578, republished several times in the late sixteenth and early seventeenth centuries), in which she tramples a vomiting man representing intemperance. As Tara Hamling has shown, this woodcut inspired a (sanitised) plasterwork overmantel at Postlip Hall in Gloucestershire, demonstrating the survival of this iconography in other media.⁶⁴ That Temperance's attributes lingered longer in image-memory than texts is also suggested by the later portrait of Dame Pigot (c.1621–1640) at Mompesson House (National Trust) where the clock sits on the table alongside another of Temperance's old attributes – a pair of spectacles.

White links Temperance's technologically up-to-date iconography with the emergence of what he sees as 'bourgeois' virtues, especially self-regulation, and indicates that this pre-dates the arrival of Calvinism, which has been seen as the originator of similar capitalist values. The latter view was popularised by Max Weber's *The Protestant Work Ethic and the Spirit of Capitalism*; although much-debated, his conception of punctuality and self-discipline as peculiarly Calvinist virtues lives on in analyses of early modern religious and social life. Max Engammare's study of Calvin's Geneva 1550–1560 and English seventeenth-century Puritanism argues that Protestants 'internalized a different way of relating to time and developed a new approach to their daily schedule'.⁶⁵ David Landes puts an earlier date on the development of 'time thrift', but agrees that the watch was particularly important to Protestants, describing Calvinist Europe's uniquely 'chronometric' character.⁶⁶ Given such a long tradition of associating attention to time and, by extension, timepieces with

⁶³ White 'The Iconography of Temperantia', 217. The clock may also allude to More's well-ordered household, where his authority as head of the family causes it to run like clockwork: a metaphor explicit in later literature, cf. St. B's *Counsel to the husband: to the wife instruction* (1608), 40–1.

⁶⁴ Hamling, *Decorating the Godly Household*, 113, 116.

⁶⁵ Max Engammare, *On Time, Punctuality and Discipline in Early Modern Calvinism*, trans. Karin Maag (Cambridge: Cambridge University Press, 2010), 2.

⁶⁶ Landes, *Revolution in Time*, 90–2.



Fig. 10 'Temperance', Bodleian MS Laud 570, fol. 16r (detail)

Protestant, especially Calvinist, theology, it is important to ask whether the clock is a symbol with particularly Protestant resonances.

At least when it comes to the clock-making profession, the demographics favour Protestantism. Of 189 clockmakers recorded in Augsburg in the period 1550–1560 whose religion is known, 87.3% of clockmakers were Protestant (165 individuals) and only 12.69% were Catholic (24 individuals).⁶⁷ According to Landes, in Geneva watches filled a professional gap; when Calvin frowned on the frivolous jewellery trade, jewellers could save their businesses by converting to the production of useful timepieces.⁶⁸ David Thompson states that the spread of watch-making to London during the last quarter of the sixteenth century was at least partly a result of religious persecution abroad, as Dutch Protestant watchmakers fled from their Catholic Spanish occupiers.⁶⁹ Similarly the Genevan watch-making community received an influx of skilled craftsmen from eastern France, fleeing Catholic persecution at the start of the Thirty Years' War.⁷⁰ Watchmakers, then, were more likely to be Protestant, although this is true of craftsmen in general, particularly in fine metal work.⁷¹ When it comes to users of timepieces things are less clear-cut.

Clocks feature in Catholic and Protestant texts alike. Writers of both faiths suggest that the sound of the clock striking should remind the hearer to pray. Protestants Thomas Bentley (1582) and Francis Trigge (1602) set out prayers for readers to say when they 'heare the clocke strike',⁷² while John Wilson, a Catholic, listed 'Indulgences To be gayned euery houre, at the striking of the Clocke'.⁷³ Both denominations use the clock as a metaphor for the soul, which must be metaphorically 'wound up' with devotions at least twice each day:

as they that haue the charge and keeping of a Clocke, are wont euerye day twice to winde vp the plummets, for they of their owne proper motion doe by little and little descende, and drawe towardes the ground: so they that desire to keep their soules vpright, and well ordered, ought at the least twice a day to erect and lift vp her weightes: seeing that our wretched nature is so inclynable to thinges below, that it alwayes endeuoureth to sinke downwards.

(Luis de Granada, *Granados deuotion* (1598), 102–3)⁷⁴

⁶⁷ Eva Groiss, 'The Augsburg Clockmaker's Craft', in Maurice and Mayr, *The Clockwork Universe*, 65, table 2. The religion of an additional 95 clockmakers is unknown.

⁶⁸ Landes, *Revolution in Time*, 92. Plain English 'Puritan watches' survive from after 1630, e.g. Gold puritan-style verge watch by Robert Grinkin the younger, allegedly worn by Oliver Cromwell, c.1630–40, British Museum 1786,0928.1.

⁶⁹ Thompson, *Watches*, 10.

⁷⁰ *Ibid.*

⁷¹ See Alexander Marr, 'Treasured Possessions in Tudor and Stuart England', in Victoria Avery, Melissa Calaresu and Mary Laven (eds.), *Treasured possessions: from the Renaissance to the Enlightenment*, exh. cat. (London: Philip Wilson, 2015), 66.

⁷² Thomas Bentley, *The monument of matrones* (1582), 365, 998; Jean Taffin, *The amendment of life* (1595), 531.

⁷³ John Wilson, *The treasury of deuotion* (1622), 552.

⁷⁴ See also Francis de Sales, *An Introduction to a deuoute life* (1613), 88. Granada was Catholic, but the metaphor also appealed to Protestants, and is quoted in Francis Meres' anthology *Palladis Tamia, Wits Treasury* (1598), 49.

This diversity is mirrored in clock portraits, in which Protestant and Catholic sitters are shown with timepieces.

Clocks appear in many Protestant portraits; the Wittewrongheles, Figs. 2 and 3, who fled to England from the Netherlands to avoid religious persecution by the Spanish in 1564, are shown with a table and wall-clock respectively.⁷⁵ Anne Fettiplace, Fig. 7, who married Henry Jones, a member of an Anglican family, has a watch and winding key at her waist.⁷⁶ At the University of Cambridge, the portraits of John Whitgift, Archbishop of Canterbury under Elizabeth I, and his friend Thomas Nevile, chaplain to Elizabeth I, portray their sitters with table clocks, religious books and tools of scholarly activity. Finally in the portrait of Alice, Lady Lucy, a Puritan gentlewoman (c.1622), a clock with its winding key on a piece of blue ribbon emerges from the shadows at her right elbow.⁷⁷ The inclusion of winding keys in several of these portraits perhaps alludes to the frequently-given advice to 'wind up' the soul with spiritual exercises.

Clocks also feature in pictures of Catholics. A full length portrait of Margaret Douglas, Countess of Lennox, whose house became the centre for Roman Catholics in England during Edward VI's reign, includes an exquisite filigree table clock.⁷⁸ Dr David Kinloch (1608) at the Tayside Medical History Museum Art Collection, University of Dundee⁷⁹ reads in his open book a variation on the Hippocratic aphorism 'vita brevis ars longa', next to which sits a reminder of that 'brevity' in the form of a cylindrical table clock. To these can be added sitters without a strong confessional identity, such as successful merchant adventurer John Isham, Fig. 4, whose modern biographer concludes that, 'ill-educated and almost illiterate,' he was probably 'an untroubled conformist' when it came to questions of religious practice.⁸⁰ Clocks could hold religious significance, but to be painted with one did not in itself indicate any particular religious preference.

Although clocks crossed the religious divide, they arguably had distinct resonances for each denomination. For Margaret Douglas, the clock may suggest the theme of patience in adversity, and her hope that her Roman Catholic faith would be vindicated in time. For Protestants, especially Calvinists, the clock's ability to represent interior events on its exterior made it a particularly appropriate metaphor, as they wondered whether they were among the 'elect' – those predestined for heaven. In texts a person's tongue or actions were

⁷⁵ Cooper, *Elizabeth I and Her People*, 142.

⁷⁶ M. Hodgetts, 'Elizabethan Priest-Holes: Harvington', *Recusant History*, 14 (1978), 117.

⁷⁷ Charlecote Park, Warwickshire (National Trust). See Richard Cust, 'Lucy, Alice, Lady Lucy (c.1594–1648)', *DNB* (2004, repr. online Jan 2008: www.oxforddnb.com/view/article/66713 (accessed April 2015)).

⁷⁸ Royal Collection 401183. Rosalind K. Marshall, 'Douglas, Lady Margaret, countess of Lennox (1515–1578)', *DNB* (2004, repr. online, May 2006): www.oxforddnb.com/view/article/7911 (accessed April 2015).

⁷⁹ Kinloch's faith was flexible, but he apparently converted to Catholicism in France; Adam Yagüi-Beltrán and Laura Adam, 'The Imprisonment of David Kinloch, 1588-1594...', *The Innes Review*, 53 (2002), 1–39.

⁸⁰ Ramsay, *John Isham*, xci.

sometimes compared to the bell or dial of the clock, revealing the inner state of their soul. The Calvinist episcopalian clergyman Thomas Adams makes an explicit link between the interior/exterior conception of the clock and the idea of salvation in his sermons:

Faith doth iustifie, and workes do testifie that we are iustified. In a clocke, the finger of the dyall makes not the clocke to goe, but the clocke it: yet the finger without shewes how the clocke goes within. Our external obedience is caused by our inward faith; but that doth manifest how truly the clocke of our faith goes.

(Adams, *A divine herball together with a Forrest of thornes* (1616), 39)⁸¹

Of course, Catholics were also concerned about their spiritual health, and the clock metaphor is used by Spanish Catholic Diego de Estella in his *A methode unto mortification*, translated into English in 1586 and republished 1608: 'If the clocke haue his wheele distempered within, the bell without will sound false; but if they goe true within, then will the bell without strike truly, and tell the right houre of the day, by thy disordinate words thy disordered conscience doth appeare'.⁸² The idea that words or actions demonstrate the soul's health is not unique to either denomination. Yet, the clock's unidirectional system made it especially suitable as a metaphor for Protestants who believed in salvation by faith alone. Although Catholic Estella plays on the universal Christian idea that good words indicate a healthy conscience, he omits any reference to a one-way direction of influence. For Protestants like Adams, good works 'testifie that we are iustified', but do not affect the health of the soul: 'the finger of the dyall makes not the clocke to goe, but the clocke it'.⁸³ This one-way traffic, from faith to justification to action, better fits the clock metaphor than the Catholic belief that good works contribute to salvation.

The difficulty of showing good works or a true tongue (and thus, one's status as elect) in portraits encouraged artists and patrons to find metaphorical ways of demonstrating the godly quality of their souls. The clock's associations in literature seem to have recommended it for this role. The portrait of William Chester, Fig. 6, painted around the time he became Lord Mayor of London (c.1560), is a prime example. Chester was a powerful supporter of London's Protestants, famous for his sympathy towards the Marian martyrs, and in his household anti-Catholic texts were openly circulated.⁸⁴ Chester is shown standing in front of a weight-driven wall clock. On the lower weight perches a skeleton, looking towards the viewer. The phrase 'deathe at hande'

⁸¹ Cf. Benson, *A sermon preached at Paules Crosse*, 42; Hakewill, *King Davids vow*, 191–2.

⁸² Diego de Estella, *A methode vnto mortification*, (1608), 416.

⁸³ Adams, *A divine herball*, 39.

⁸⁴ His loyalty to the crown during Wyatt's rebellion probably explains his knighthood under Mary in 1557. J. D. Alsop, 'Chester, Sir William (c.1509–1595?)', *DNB* (2004, repr. online edn, Jan 2008): www.oxforddnb.com/view/article/5240 (accessed April 2015).

is inscribed twice: on the weight itself and above the skeleton. From the higher weight the figure of the Risen Christ waves to us, holding the white flag of Resurrection, his inscription 'hope to live' also shown twice.⁸⁵ Cooper points out that Chester died intestate sometime after the 1570s, so we may wonder whether the portrait really kept death in the alderman's mind; nevertheless, his portrait clearly alludes to themes of mortality and concern for his soul. This is not simply *vanitas*. The figures of Christ and Death on the clock effectively turn a domestic object into a *psychomachia*. Sitting on the upper weight, Christ appears in the ascendant, and in contrast to other portraits where the clock reads 12, the hour hand on Chester's clock points optimistically at 1. This portrait demonstrates Chester's piety, making visible the otherwise-invisible good health of his soul.

Clocks appealed to Protestants and Catholics alike, representing themes universal to Christian salvation. In the English context, however, the nuances of clocks' meanings were varied. For Catholics, patience and hope for an eventual return to the true faith could be symbolised by a clock on a table or a watch in the hand; for Protestants, the clockwork mechanism could suggest the fundamental character of their justifying faith. In both cases, clocks in portraits expressed hope and the soul's health in ways that would have been immediately intelligible to fellow readers of devotional texts and sermons.

CLOSING TIME

The period *c.*1530–*c.*1630 was one of expanding horizons. Interactions between adherents of different faiths produced conflict, but also forced writers to clarify their own beliefs. As the sixteenth century progressed, more lands and more 'heathens' were discovered to the west, in the Americas; here, civilisations untouched by 'modernity' and Christianity furnished awestruck accounts of the 'newfound world'. Nicholas Monardes contrasts 'Indian' culture with European resources and technologies:

Iron & Steele do serue to make clockes, which is a thing of greate art, & very necessary to liue wt rule & order: for by them shall be knowe[n] the works that are to be made, & the time that shal be spent in them, they serue for all states of people, whereby they may liue wisely & discretely: & where is no clocke they liue like beasts

(Monardes, *Ioyfull newes out of the newfound world* (1580), f.148)

⁸⁵ The white paper in his hand once had a six-line text, now illegible. Cooper, *Citizen Portrait*, 98.

This is one of the grandest claims that we have encountered for the clock's importance. Not only 'a thing of great art', 'very necessary' for a life of 'rule and order,' according to Monardes, clocks also defined advanced civilisation.

This article has shown that the clock was not primarily a utilitarian object in the period c.1530–c.1630. Though idiosyncratic and inaccurate, its mechanical system won it an unrivalled place in the early modern imagination. In texts, clocks were used as analogies for the body, the soul, family, society, commerce, the heavens, and even as proof of the divine clockmaker's existence. The most technologically-advanced machine of its age (and for centuries afterwards), it became a lens through which early modern writers and thinkers viewed their world. By drawing together textual references and contextual information, this article has set out the profound importance of the mechanical timepiece in England, and explained possible reasons why fashionable, pious, wealthy and metaphysically-anxious men and women had themselves portrayed with clocks and watches.

As a case-study for a systematised, holistic approach to the interpretation of early modern cultural products, this essay has combined primary written and visual sources to reveal the multiplicity of meanings that clocks could hold in Tudor and Early Stuart England. Their metaphorical adaptability allowed them to play a key role in the self-presentation of early modern people, rendering in imagery the personal beliefs and interior lives which were otherwise nearly impossible to represent visually. Clocks were precious objects: they were also richly suggestive objects, with vast imaginative and religious dimensions, considered to be the defining achievement of humanity – for 'where is no clocke they liue like beasts'.⁸⁶

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⁸⁶ Monardes, *Joyfull newes* (1580), f.148.