

Cusanus' Clock. Time and Eternity in *De visione Dei*

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In the history of technology, few inventions rival the mechanical clock. From modest beginnings, this medieval discovery spread widely and quickly. As the historian Lynn White, Jr. writes,

»Suddenly, towards the middle of the fourteenth century, the mechanical clock seized the imagination of our ancestors. Something of the civic pride which earlier had expended itself in cathedral-building now was diverted to the construction of astronomical clocks of astounding intricacy and elaboration. No European community felt able to hold up its head unless in its midst the planets wheeled in cycles and epicycles, while angels trumpeted, cocks crew, and apostles, kings, and prophets counter-marched at the booming of the hours.«²

For example, Padua was an early center for clock making and display. In 1364 Giovanni de' Dondi completed the Astrarium, the most elaborate and best documented astronomical clock of the Middle Ages. A Visconti duke later acquired the Astrarium and displayed it in his library in Pavia. Giovanni's father, Jacopo de' Dondi had built a clock for the tower of the city's Palazzo Capitanato in 1344. Although destroyed in 1390, it was replaced in 1434 with the present clock featuring the sun, moon and zodiac.³

When Nicholas of Cusa arrived at the University of Padua in 1416, both the original tower clock and the Astrarium were long gone. Yet he surely heard the popular and academic discussions that led the city council to approve replacing Jacopo's tower clock in 1423, the year he received his law degree. He must also have seen and heard other clocks

1 I thank Elaine Beretz, Thomas Eser, John Heffner, Thomas Izbicki and Elly Truitt for their helpful comments, especially concerning early clocks.

2 LYNN WHITE, JR., *Medieval Technology and Social Change*, Oxford 1962, 124. The article, Turret Clock, in: Wikipedia (http://en.wikipedia.org/wiki/Turret_clock, accessed 9/30/2012) includes a table of public clocks installed in the 13th and 14th centuries, and notes that »In the fifteenth century turret clocks became so common throughout Europe that creating a list would be impractical.«

3 See SILVIO A. BEDINI and FRANCIS R. MADDISON, *Mechanical Universe. The Astrarium of Giovanni de' Dondi* (Transactions of the American Philosophical Society, NS, LVI; part 5), Philadelphia 1966; for Jacopo's tower clock, cf. 17–19.

during his years in Basel, Brixen and Rome, and in his travels throughout Germany on behalf of Pope Eugenius IV (1438–1447) and his later legation tour (1450–1452). Indeed, in Frankfurt a large astronomical clock – 10 meters high – stood in the north transept of the Kaiserdom St. Bartholomäus from the late fourteenth century.⁴ Nicholas visited Frankfurt often in support of Eugenius, and knew St. Bartholomäus as the city's major church and the site for imperial elections and political functions. The *Acta Cusana* informs us that he attended the Heilig-Geist-Messe in St. Bartholomäus that opened the Reichstag on 14 September 1446.⁵ Unfortunately, a major fire in 1867 devastated the church and destroyed the clock. As the fate of this clock illustrates, very few medieval clocks survive. But Orvieto – where Cusanus lived during the summer from 1461 to 1463⁶ – claims that the mechanized bell and bell ringer atop its clock tower date to the fourteenth century. Although we may question Orvieto's claim, we can be confident that Nicholas encountered one clock that still survives: the »Sebalder Schlaguhr« currently at the Germanisches Nationalmuseum in Nuremberg.⁷

4 Die Monumentaluhr im Frankfurter Dom, in: *Uhrzeiten. Die Geschichte der Uhr und ihres Gebrauchs*, hg. v. Ivor A. Jenzen, Frankfurt a.M./Marburg 1989, 37–49, 259.

5 AC I/2, n. 705 (1 Sept. – 16 October 1446). St. Bartholomäus also figures in Nicholas' correspondence during the legation; see especially AC I/3b, n. 2394 (19 March 1452).

6 See ERICH MEUTHEN, *Nicholas of Cusa. A Sketch for a Biography*, trans. David Crowner and Gerald Christianson, Washington, DC 2010, 136–138.

7 For details about this clock, see the Germanisches Nationalmuseum website, objekt-katalog.gnm.de/objekt/WI999 (accessed 22/1/2013). I thank Dr. Thomas Eser of the Germanisches Nationalmuseum (personal communications, September 2012) for clarifying many aspects of this clock, which seems to have been Nuremberg's principal timepiece. When St. Sebaldus' tower keeper struck the bell, ringers in three other towers – St. Lawrence church, the Weisser Turm, and the Laufer Schlagturm – followed. In KONRAD CELTIS' *Norinburgia* (1502), a woodcut shows a cityscape with bell ringers clinging to the four towers and swinging hammers.

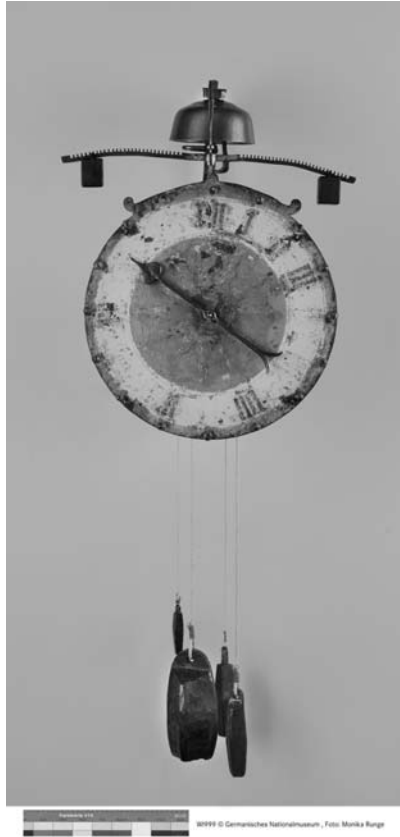


Figure 1: *Sebalder Schlaguhr*, Germanisches Nationalmuseum, Inv. N. WI 999;
Foto: Monika Runge. By permission of the Germanisches Nationalmuseum.

This modest clock told the time keeper in Nuremberg's St. Sebaldus church tower when to strike the bell that announced the hour to the city. When Nicholas processed to the church in January 1441 and preached there in April 1451,⁸ he probably did not climb the tower stairs to see this clock, but he certainly heard its effects as the bell rang the hours.

But before this paper turns into »Clocks Cusanus Might Have Seen or Heard«, let us turn to more stable ground in Nicholas' richest symbolic work, *De visione Dei*. He sent the treatise and a painting to the monks at

⁸ AC I/2, n. 453 (5 January 1441), and AC I/3a, n. 1189, n. 1190 (11 April 1451). The 1451 sermon is *Sermo LXXX*: h XVII.

Tegernsee abbey in 1453. The painting becomes the work's central image as an »icon of God«, a portrait whose eyes seem to focus on each of the brothers even when they move in opposite directions. This icon has received much attention – for example, at the Trier Symposium in 1986 and in its *MFCG* proceedings.⁹ Here I shall discuss one of the work's less familiar images: a clock that strikes the hours. Cusanus uses this image to clarify the relation between time and eternity. Specifically, he asks this question: since God conceives and speaks only once and eternally, »how is it [...] that all things do not exist simultaneously, but many come into being successively? How do so many diverse things exist out of a single concept?«¹⁰ In other words, how can we reconcile the eternity of God's creative »concept« with time's multiplicity and succession?

This question occurs within Nicholas' discussion of yet another image: the book of Genesis' wall of paradise, whose entrance is guarded by an angel with the flaming sword of reason. The enclosed garden and its surrounding wall suggest a three-part structure: the outside region of finitude and exile with its many distinctions and contrasts; the wall itself, where opposites coincide; and the paradise garden within, where the infinite God dwells beyond all opposites and their coincidence.¹¹ Placing himself at the threshold of the garden door, Cusanus analyzes the relation of time and eternity in terms of perspective: »Infinite duration, which is eternity itself, embraces all succession. Everything [...] that appears to us in succession in no way exists subsequent to (*post*) your [God's] concept, which is eternity.«¹² Hence, while we perceive events

9 *MFCG* 18 (1989): Das Sehen Gottes nach Nikolaus von Kues.

10 *De vis.* 10: h VI, n. 41, lin. 5–6; in: NICHOLAS OF CUSA, *Selected Spiritual Writings*, transl. and introd. by H. Lawrence Bond (Classics of Western Spirituality), New York 1997, 253.

11 See RUDOLF HAUBST, *Die erkenntnistheoretische und mystische Bedeutung der »Mauer der Koinzidenz«*, in: *MFCG* 18 (1989) 167–191; and DONALD F. DUCLOW, *Anselm's Proslogion and Nicholas of Cusa's Wall of Paradise*, in: IDEM, *Masters of Learned Ignorance. Eriugena, Eckhart, Cusanus* (Variorum Collected Studies Series 851), Aldershot 2006, 283–292.

12 *De vis.* 10: h VI, n. 41, lin. 9–10; trans. Bond (cf. note 10) 253; »Ambit igitur infinita duratio, quae est ipsa aeternitas, omnem successionem.« Throughout his works, Nicholas relates eternity and duration in very different ways. Here he defines eternity as »*infinita duratio*«. But elsewhere he speaks of eternity as the measure of duration (*De theol. compl.*: h X/2a, n. 8, lin. 20–21). And in *De ludo globi* he distinguishes between »*absoluta duratio*« and »*duratio successiva*« (*De ludo* II: h IX, n. 88, lin. 5–8). Cf. also

one after another, God's concept or Word grasps them differently. »For in eternity, where you [God] conceive, all temporal succession coincides in the same now (*nunc*) of eternity. Therefore, nothing is past or future where future and past coincide with the present.«¹³ Because God *creates* by conceiving and speaking, Nicholas' perspectival analysis takes on ontological weight. He writes, »that things in the world exist according to earlier and later stems from the fact that you did not conceive such things earlier so that they would exist. Had you conceived them earlier, they would have existed earlier. But one is not almighty in whose thought earlier and later occur, so that one first conceives one thing and afterward another.«¹⁴ Here Cusanus struggles with the limits of thought and language, which – since they are immersed in time – require distinctions of earlier and later, and can express time's relation to eternity only in a paradox of equivocation and negation. The paradox centers on the very terms that Aristotle had used to define time as »the measure of motion according to *earlier and later*«. ¹⁵ This distinction marks successive events *outside* the garden's wall, while God dwells »in Paradise *inside* its wall«, and the wall itself »is that *coincidence* where later coincides with earlier, where the end coincides with the beginning, and where alpha and omega are the same.«¹⁶

This pattern seems clear enough until Nicholas presses the point about *when* God speaks and creates. »Things exist always because you [God] tell them to exist, and they do not exist earlier because you do not earlier speak«. But if God conceives eternally without any succession, in what sense does God also speak earlier or later? Cusanus sharpens the paradox with an example. He writes, »When I read that Adam existed so many years ago and that one such as he was born today, it seems *impossible* that Adam existed then because you then willed it, and that nevertheless you did not earlier will Adam to exist than you willed the one born

De non aliud 16: h XIII, p. 40, lin. 32 – p. 41, lin. 11; commenting on this text, MAURICE DE GANDILLAC speaks of »l'équivoque même d'une *duratio* qui serait la forme idéal commune au temps et à l'éternité« in: *La Philosophie de Nicolas de Cues*, Paris 1941, 303.

13 *De vis.* 10: h VI, n. 41, lin. 19–22; trans. Bond (cf. note 10) 254.

14 *De vis.* 10: h VI, n. 42, lin. 1–6; trans. Bond (cf. note 10) 254.

15 Aristotle, *Physics* II, 11, 219b–220a.

16 *De vis.* 10: h VI, n. 42, lin. 7–9; trans. Bond (cf. note 10) 254, emphasis added.

today to exist». ¹⁷ Rather than evade this contradiction, Nicholas underlines it when he says,

»But that which seems impossible is necessity itself. For *now* and *then* exist after [*post*] your word. And, therefore, to one approaching you [God], *now* and *then* meet in coincidence within the wall that surrounds the place where you dwell. For *now* and *then* coincide in the circle of the wall of paradise. But it is beyond *now* and *then* that you, my God, who are absolute eternity, exist and speak.« ¹⁸

Cusanus thus invokes the wall of paradise to affirm the paradox as »necessity itself«: God speaks once and eternally, and Adam and the child born today come to be in time's *then* and *now*. But how are we to understand this?

At this point Nicholas introduces his clock metaphor, saying,

»You [God] have inspired a likeness pleasing to me about the unity of your mental word or concept and its variety, successively, in appearances. The *simple concept of a most perfect clock* directs me so that I might be more delightfully caught up to the vision of your concept and your word. For the simple concept of a clock enfolds all temporal succession. If, let us assume, the clock were a concept, then although we hear the sixth hour strike before the seventh, nevertheless, the seventh is heard only when the concept orders it. The sixth hour is not earlier in the concept than the seventh or eighth, but in the single concept of the clock, no hour is earlier or later than another, although the clock never strikes the hour except when the concept orders it. It is true to say upon hearing the sound of the sixth hour that the sixth strikes then because the concept of the master wills it so.« ¹⁹

Here Nicholas distinguishes between the clock and its concept. We hear the clock strike the hours one after the other – six, seven, etc. But as soon as we think of the clock itself, our concept includes all the hours it can strike. In Cusanus' terms, this concept »enfolds all temporal succession/*complicat omnem successionem temporalem*« within itself. In this

¹⁷ *De vis.* 10: h VI, n. 42, lin. 11–14; trans. Bond (cf. note 10) 254, emphasis added.

¹⁸ *De vis.* 10: h VI, n. 42, lin. 14–19; trans. Bond (cf. note 10) 254.

¹⁹ *De vis.* 11: h VI, n. 43, lin. 5–17; trans. Bond (cf. note 10) 254–255, emphasis added: »Inspirasti similitudinem mihi gratam circa unitatem verbi mentalis et seu conceptus tui et varietatem eiusdem in successive apparentibus. Nam simplex conceptus horologii perfectissimi me ducit, ut sapidius rapiar ad visionem conceptus et verbi tui. Conceptus enim simplex horologii complicat omnem successionem temporalem. Et esto, quod horologium sit conceptus. Tunc licet prius audiamus sonum sextae horae quam septimae, non tamen auditur septima, nisi quando iubet conceptus, neque sexta est prius in conceptu quam septima aut octava, sed in unico conceptu horologii nulla hora est prior aut posterior alia, quamvis horologium numquam horam sonet, nisi quando conceptus iubet, et verum est dicere, quando audimus sextam sonare, quod tunc sex sonat, quia conceptus magistri sic vult.«

sense it is timeless, since within it »no hour is earlier or later than another«. Yet this concept – the very idea of measuring time's passing mechanically – also governs the design and making of the clock. For not only do we conceive hours and times as a simple unity, but medieval clock makers made this concept more specific and operational. For they ingeniously thought out the clock's organizing principle, and devised the clock's drive and escapement mechanism to mark the hours in succession. Hence, a clock strikes, say, the seventh hour only when its concept or program »orders« or »wills« that it do so.

Cusanus then turns the clock and its concept into a metaphor to explain his larger speculative problem:

»Since in God's concept the clock is the concept, we perceive to some small extent how succession is in the clock without succession being in the word or concept; that in this most simple concept are *enfolded* all motions and sounds and whatever we experience in succession; that everything that occurs successively does not in any way evade the concept, but is the *unfolding* of the concept, so that the concept gives being to each; and that nothing existed before it occurred, since it was not conceived before it existed.«

If, therefore, the concept of the clock were as though eternity itself, in the clock the movement is succession. Eternity, therefore, *enfolds* and *unfolds* succession. For the concept of a clock, when the concept is eternity, equally *enfolds* and *unfolds* all things.²⁰

Nicholas' metaphor and commentary rely on the polarity of enfolding and unfolding, *complicatio* and *explicatio*. This polarity, which he adapts from Boethius and Thierry of Chartres, is central to Cusanus' entire speculative scheme.²¹ Here the concept of the clock »enfolds« or contains

20 *De vis.* 11: h VI, n. 44, lin. 1–12, trans. Bond (cf. note 10) 255, translation modified and emphasis added: »Et quia horologium in conceptu dei est conceptus, tunc aliquantulum videtur, quomodo successio in horologio est sine successione in verbo seu conceptu et quod in simplicissimo illo conceptu complicantur omnes motus et soni et quidquid in successione experimur, et quod omne illud, quod successive eveniet, non exit quo vis modo conceptum, sed est explicatio conceptus, ita quod conceptus dat esse cuilibet et quod propterea nihil prius fuit quam eveniat, quia prius non fuit conceptum ut esset. Sit igitur conceptus horologii quasi ipsa aeternitas; tunc motus in horologio est successio. Complicat igitur aeternitas successionem et explicat. Nam conceptus horologii, quae est aeternitas, complicat pariter et explicat omnia.« Similarly, cf. AUGUSTINE, *Confessiones* XI, viii, vii, 9–viii, 10: »Omne, quod esse incipit et esse desinit, tunc esse incipit et tunc desinit, quando debuisse incipere et desinere in aeterna ratione cognoscitur, ubi nec incipit aliquid nec desinit.«

21 Cf. MAURICE DE GANDILLAC, *Explicatio-Complicatio* chez Nicolas de Cues, in: *Concordia Discors*. Studi su Nicolò Cusano e l'umanesimo europeo offerti a Giovanni

all times within itself, whereas the clock »unfolds« this concept as it strikes the hours in succession. Similarly, God's concept »enfolds« all motions, sounds and times within a simple, eternal unity which »unfolds« in creation's multiplicity and time's successive hours. With this polarity of enfolding and unfolding, Nicholas places time and eternity in a reciprocal relation, where time's very succession unfolds or manifests God's own eternity.

This relation pivots on the present or »now«. Like Augustine and Boethius, Nicholas capitalizes on the present's ambiguity as the boundary of time and eternity. For »now and then« mark time's succession outside the wall of paradise, yet they coincide in the wall and the »now of eternity«. In *De docta ignorantia*, Nicholas explains this relation in terms of enfolding and unfolding, when he writes,

»the now, or the present, enfolds time. The past was the present, the future will be the present; nothing is found in time except the ordered present. Consequently, the past and the future are the *unfolding* of the present; the present is the *enfolding* of all present times, and present times are the *unfolding* of the present in a series, and only the present is found in present times. Therefore, there is one *enfolding* of all times – which is the present, and the present, indeed, is unity.«²²

Cusanus goes on to identify this unity with eternity. Similarly, in Sermon CCXVI, he asks, »What being appears in time except the present? [...] The now, therefore, from which and to which all time flows is the essence or being of time.«²³ Elizabeth Brient comments, »As the unfolding of eternity, each moment participates in the ›now of eternity‹ in a contracted and limited way. There are not many nows strung together composing time. There is only the now of eternity, which is the being of

Santinello, hg. v. Gregorio Piaia (Medioevo e umanesimo 84), Padua 1993, 77–106; THOMAS P. MCTIGHE, Eternity and Time in Boethius, in: History of Philosophy in the Making. A Symposium of Essays to Honor Professor James D. Collins on his 65th Birthday, hg. v. Linus J. Thro, Washington, DC 1982, 35–62; and JEAN-MARIE COUNET, Le temps comme explication de l'éternité chez Nicolas de Cues, in: Revue philosophique de Louvain 101 (2003) 319–339.

²² *De docta ign.* II, 3: h I, p. 9f. [n. 106]; trans. Bond (cf. note 10) 135, emphasis added.

²³ *Sermo* CCXVI: h XIX, n. 5, lin. 4–13; transl. by CLYDE LEE MILLER, Meister Eckhart in Nicholas of Cusa's 1456 Sermon, *Ubi est qui natus rex Iudeorum?* (Appendix), in: Nicholas of Cusa and His Age. Intellect and Spirituality. Essays Dedicated to the Memory of F. Edward Cranz, Thomas P. McTighe and Charles Trinkaus ed. by Thomas M. Izbicki/Christopher M. Bellitto, Leiden 2002, 116, »Nam quid esse in tempore nisi praesentia? [...] Nunc, igitur, a quo et ad quod fluit omne tempus, est essentia seu esse temporis«.

each finite moment, in that finite moment«. ²⁴ Hence, we may say that the temporal now embodies or incarnates the eternal present. Yet it does so neither fully nor exhaustively, but rather in the limited and contingent ways appropriate to time's succession of earlier and later. For example, precisely as hours, 6:00 yesterday and noon today mark distinct times, yet manifest a single eternal now within which they coincide.

Here Nicholas' image and commentary differ from typical metaphors of a clockwork universe. These describe the maker as designing a clock which moves on its own, without the maker's continuing intervention; on this model, God created the universe, which then moves perpetually with clockwork precision. Already in the fourteenth century, Nicole Oresme had suggested such a metaphor, when he compared the frictionless movement of the heavenly sphere to a mechanical clock, whose maker »lets it go and be moved by itself«. ²⁵ This metaphor has a long history, well known to students of Newton, deism, Paley's natural theology, Hume's critique, and the contemporary arguments – especially in the United States – over »intelligent design«. However, Nicholas' image works quite differently. Rather than focusing on the clock as an independent, perpetual motion machine, it emphasizes the interplay between the clock and its concept. The clock's concept plays a dual role: 1) it holds the clock and all times within its unified present; and 2) it itself remains *present* and *orders* the clock's striking of the successive hours. In this sense, the clock incarnates the clockmaker's unifying concept as it marks each moment and hour. Consequently, the image's theological message also differs. For it underlines the eternal God's intimate presence throughout time's unfolding succession, instead of a divine clock maker who observes the universe's movements from afar.

Nicholas emphasizes this intimacy in *De visione Dei* when he compares two ways of reading: his own and God's. He reads »successively, [...] one word after another« – as you are reading this essay. And when two people »read the same book, one more quickly and the other more

24 ELIZABETH BRIENT, Meister Eckhart and Nicholas of Cusa on the 'Where' of God, in: Nicholas of Cusa and His Age. Intellect and Spirituality. Essays Dedicated to the Memory of F. Edward Cranz, Thomas P. McTighe and Charles Trinkaus, ed. by Thomas M. Izbicki/Christopher M. Bellitto, Leiden 2002, 139.

25 NICOLE ORESME, *Livre du ciel*, cited in MARSHALL CLAGGETT, Introduction to: Nicole Oresme and the Medieval Geometry of Qualities and Motions, Madison 1968, 6–7.

slowly, you [God] *read with us both*, and you seem [*videris*] to read in time with those reading. And beyond time you see and read all things at once [*simul*].« Here God reads not only over our shoulders, but through our eyes and at our individual pace. Yet God also reads one and the same text eternally, and does both readings »in the same way [*eodem (...)* *modo*], because you [God] are not changeable but are fixed eternity.«²⁶ Underlying these comparative readings is Cusanus' view of time and eternity. For he affirms that »because eternity does not forsake [*deserit*] time, it seems to be moved with time, although in eternity motion is rest.«²⁷

As reading clarifies the relation between human and divine activity, Nicholas' clock metaphor highlights human knowing and creativity. In the dialogue, *Idiota de mente* (1450), he defines ›mind/*mens*‹ in terms of ›measure/*mensurare*‹, and describes the human mind in terms of a technical metaphor that reflects his mathematical interests: »[the] mind is a living measure that measures by means of itself (as if a *living pair of drawing-compasses* [*circinus*] were to measure by means of itself)«. The goal of this activity is self-knowledge, as the mind »achieves its own capacity by measuring other things«. ²⁸ In *De ludo globi* (1463), Nicholas similarly links measuring, technical creativity and self-knowledge. The Cardinal says that the soul »creates new instruments in order to discern and to know«, and cites the examples of Ptolemy's astrolabe and Orpheus' lyre. The mechanical clock fits neatly into this scheme, as does Cusanus' statement about the measures of time themselves. He asserts that the »*year, month, hours* are instruments of a temporal measure created by man. Thus, since time is the measure of motion, it is the instrument of the measuring soul.«²⁹ Here Nicholas invokes Aristotle to draw a novel conclusion. Where Aristotle gave priority to the physical motion and change which time measures, Nicholas privileges the human

26 *De vis.* 8: h VI, n. 29, lin. 9–20; trans. Bond (cf. note 10) 248–249, emphasis added. This comparison occurs in Nicholas' discussion of providence.

27 *De vis.* 8: h VI, n. 29, lin. 20–22; trans. Bond (cf. note 10) 249.

28 *De mente* 1, 9: h V, n. 57, lin. 5–6; n. 123, lin. 5 – n. 124, lin. 7; transl. by JASPER HOPKINS, *Complete Philosophical and Theological Treatises of Nicholas of Cusa*, Minneapolis 2001, vol. I, 535–536, 569, emphasis added. Nicholas wrote several works on the mathematical problem of squaring the circle; cf. NICOLAS DE CUES, *Les Écrits mathématiques*, ed. French trans. by Jean-Marie Nicolle, Paris 2007.

29 *De ludo* II: h IX, n. 94, lin. 5–7; trans. Hopkins (cf. note 28) vol. II, 1232, emphasis added.

activity of measuring. Echoing fourteenth-century Scholastic debates, he emphasizes time as *numerus numerans* over time as *numerus numeratus*. Consistent with this view, he then follows Augustine and claims that the soul does not depend upon time, but that time depends on the soul which measures it and which is itself »not subject to time; rather, it exists antecedently to time«. ³⁰ By measuring motion using time as its instrument, the human mind dwells at the threshold of time and eternity, in a kind of »eternal« or »timeless time«. ³¹ Indeed, only from this vantage point at the door in the wall surrounding paradise – where perspectives themselves coincide – can we create both the »concept of a most perfect clock« and clocks themselves.

Let us note that Nicholas' concern with time's measurement was not limited to his philosophy and theology. Already at the Council of Basel he proposed a major reform of the calendar in the *Reparatio kalendarii* (1436). ³² He was also a collector of scientific instruments and gadgets, including a wooden celestial globe, an astrolabe, and a torquetum or device »to measure the daily movement of the sun parallel to the celestial equator and thus establish coordinates of the sun and stars«. ³³ Unfortunately for my purposes, he does not seem to have owned a mechanical clock. Indeed, the only trace these clocks left in Cusanus's writings occurs in *De visione Dei*'s reflections on the clock metaphor, since the

³⁰ *De ludo* II, n. 94: h IX, n. 9f.; trans. Hopkins (cf. note 28) vol. II, 1232. Cf. ARISTOTLE, *Physics* II, 14, 223a; and AUGUSTINE, *Confessions* XI, xxvi, 33 – XI, xxviii, 37. Medieval natural philosophy struggled with this difference between Aristotle and Augustine; cf. ANNELIESE MAIER, Die Subjektivierung der Zeit in der scholastischen Philosophie, in: *Philosophia Naturalis* 1 (1950–52) 361–398.

³¹ Cusanus discusses the soul as »timeless time/*intempore tempus*« in *De aequal.*: h XI/1, n. 11–13, passim. Cf. NORBERT FISCHER, Die Zeitbetrachtung des Nikolaus von Kues in *De aequalitate*, in: *Trierer theologische Zeitschrift* 99 (1990) 170–192.

³² NIKOLAUS VON KUES, *Die Kalenderverbesserung. De correctione kalendarii*, hg. und übers. v. Viktor Stegemann/Bernhard Bischoff, Heidelberg 1955. Although the council did not act on Nicholas' recommendations, they were so far reaching that Arno Borst writes, »For the first time since Augustus, a new calendar marked the beginning of a new age«; ARNO BORST, *The Ordering of Time*, Chicago 1993, 100.

³³ KLAUS KREMER, Nicholas of Cusa (1401–1464), übers. v. Frankie Kann/Hans-Joachim Kann, Trier 2002, 42. These instruments remain at St. Nikolaus Hospital in Bernkastel-Kues. Nicholas bought them in Nuremberg in 1444, along with 16 books on astronomy; cf. ALOIS KRCHŇÁK, Die Herkunft der astronomischen Handschriften und Instrumente des Nikolaus von Kues, in: *MFCG* 3 (1963) 109–180, especially 110–114, 166–168 on the instruments.

term ›*horologium*‹ appears nowhere else in his works.³⁴ Nicholas's only other discussion of clocks occurs in the *Idiota* dialogue on experiments with weights, where the Layman describes using the clepsychra or water-clock for several purposes, including measuring time – both the day of the month throughout the year, and the hour of the day.³⁵

To conclude, in *De visione Dei* Nicholas introduces the concept of a perfect clock to clarify the difficult speculative question of time and eternity. He presents the metaphor quickly, and once it has done its work he abandons it just as quickly. Yet we have found that this metaphor suggests a great deal about Cusanus. For it illustrates his imaginative skill and ease in creating novel symbols to carry forward his thinking. And the clock metaphor not only clarifies Nicholas' views about time and eternity, but also reflects his fascination with the practical problems and instruments of measurement. Indeed, we may wonder why – at a time when cardinals were lavishly renovating their titular churches in Rome – Cusanus did not have a clock made for his church, San Pietro in Vincoli. If he had, the Eternal City would have entered the competitive ranks of late medieval and Renaissance cities – like Padua and Frankfurt – that boasted of their elaborate clocks. Or at least San Pietro in Vincoli would have measured up to Nuremberg's St. Sebaldus church with its tower clock and bell ringer. But as it happened, Nicholas seems to have been satisfied with his metaphorical play around the concept of a perfect clock, and left us no record of any mechanical clock of his own.

34 A search of the Cusanus-Portal yields no other occurrences of ›*horologium*‹ and its variants.

35 *De stat. exper.*: h²V, n. 184 – n. 185, p. 235, lin. 1–9.