Time and Timekeeping in Late Antiquity

King Theodoric to the Illustrious Patrician Boethius (ca.506) Cassiodorus, Variae, I.45. 1

This letter, and the one following, was written for the king by Cassiodorus Senator, who held a series of major offices during Theodoric's reign.

1. I should not reject requests made by neighboring kings to please their vanity, since a small expenditure can often purchase more than great riches. For sweetness and pleasure many times produce what weapons fail to do. May it then serve the state, even when I seem to play. For it is for this reason that I am looking for toys, to achieve a serious purpose by their means.

2. Now the lord of the Burgundians [Gundobad] has earnestly asked me to send him one time-piece which is regulated by a measured flow of water, and one whose nature it is to receive the light of the mighty Sun, together with those who can operate them. So, by obtaining and enjoying these pleasures, they will experience a wonder which to me is a common-place. It is very proper that they should long to see something which has astonished them through the reports of their ambassadors.

3. I have learnt that you, clothed in your great learning, are so knowledgeable in this that arts which men practice in customary ignorance, you have drunk from the very spring of science. For, at long distance, you so entered the schools of Athens, you so mingled in your toga among their cloaked assemblies, that you turned Greek theories into Roman teaching. For you have discovered with what deep thought speculative philosophy, in all its parts, is pondered, by what mental process practical reasoning, in all its divisions, is learnt, as you transmitted to Roman senators every wonder that the sons of Cecrops [Athenians] have given the world. 4. For it is in your translations that Pythagoras the musician and Ptolemy the astronomer are read as Italians; that Nicomachus on arithmetic and Euclid on geometry are heard as Ausonians [Italians]; that Plato debates on metaphysics and Aristotle on logic in the Roman tongue; you have even rendered Archimedes the engineer to his native Sicilians in Latin dress. And all the arts and sciences which Greek eloquence has set forth through separate men, Rome has received in her native speech by your sole authorship. Your verbal splendor has given them such brightness, the elegance of your language such distinction, that anyone acquainted with both works would prefer yours to the original.

You have entered a glorious art, marked out among the noble disciplines, through four gates of learning. . . .

Since you are adorned by your glorious acquaintance with such matters, send me, therefore, the time-pieces, at public expense, without cost to yourself. Let the first be one where a gnomon marks the day, and shows the hours by its meager shadow [a sun-dial]. In this way a small, unmoving circle represents the revolution of the Sun's amazing vastness, and equals the Sun's flight, although it knows no motion. 9. If the stars were aware of it, they would be envious, and perhaps turn their courses, not to be the butt of such a joke. What has become of the great wonder of hours produced by the light, if it is a mere shadow that indicates them? Where is the glory of that unwearied rotation, if even a piece of metal fixed in a constant place can accomplish it? O the inestimable quality of a

science which is mighty enough to disclose the secrets of nature, while it claims to be only playing!  
10. The second time-piece must be one by which the hours are known without the Sun's rays, and which divides the night into parts. Owing nothing to the stars, it instead turns the nature of the heavens into streams of water, and shows by their motions what revolves in the sky. With daring audacity, an invented art confers on the elements what their nature denies them.

All the disciplines, the whole endeavor of the wise, seek to know the power of nature so far as they can. Only engineering tries to imitate it by contraries, and, in some things, if it is proper to say so, even seeks to surpass it. For this art, we know, made Deandalus fly; it suspends the iron Cupid without support in the temple of Diana; it daily makes dumb objects sing, inanimate live, immobile move. 11. The engineer, if it is proper to say so, is almost a partner of nature, unlocking her secrets, changing what she reveals, playing with wonders, and making such exquisite counterfeits that we take for truth what is certainly artificial.

Since I know that you have diligently studied this art, you will be quick to send me the aforementioned time-pieces with all speed, that you may make your name known in a part of the world where otherwise you could not have come. 12. May the foreign tribes realize, thanks to you, that my noblemen are famous authorities. How often will they not believe their eyes? how often will they think this truth the delusion of a dream? And, when they have turned from their amazement, they will not dare to think themselves the equals of us, among whom, as they know, sages have thought up such devices.

King Theoderic to Gundobad, King of The Burgunidans (ca. 506). Cassiodorus, Variae, I.46.

1. We should welcome those gifts which are evidently in great demand, since things which can gratify our desire are not to be despised. For the whole purpose of some precious objects is to gratify a want.

Therefore, I greet you with my usual friendship, and have decided to send by you, by X and Y, the bearers of this letter, the time-pieces with their operators, to give pleasure to your intelligence. One is the type which seems to epitomize human ingenuity, since, as we know, it traverses the space of the entire heaven; in the other, the Sun's course is know without the Sun, and the length of the hours is marked off by trickling water. 2. Possess in your native country what you once saw in the city of Rome. It is proper that your friendship should enjoy my gifts, since it is also joined to me by ties of kinship.

Under your rule, let Burgundy learn to scrutinize devices of the highest ingenuity, and to praise the inventions of the ancients. Through you, it lays aside its tribal way of life, and, in its regard for the wisdom of its king, it properly covets the achievements of the sages. Let it distinguish the parts of the day by their inventions; let it fix the hours with precision. 3. The order of life becomes confused if this separation is not truly known. Indeed, it is the habit of beasts to feel the hours by their bellies' hunger, and to be unsure of something obviously granted for human purposes.

(16) THE SEVENTH wonder [of the world] is truly how the Moon either grows to fullness or diminishes to insignificance in fifteen days. And it is wonderful that the stars rise in the east and set in the west. And some of these appear in the middle of heaven, some close to the south; they do not make a straight path but are turned in a circuit, and some are seen all year round, while some have definite months in which they appear. Of this course, God willing, I will either explain from some experiences or give an account for the ignorant. But I will set aside those names which Virgil or the other poets have imposed on them, calling them instead by the names used by our country folk, or which express the shape of the signs themselves, such as the cross, the sickle, or the other signs, since I do not teach mathesis [i.e., astrology] here nor do I propose to predict the future, but I exhort in what manner the course may be reasonably filled with the praises of God, or at which hours one seeks to turn to this office or should rise in the night to praise the Lord.

(17) OF THE SUN, this is a reckoning of how many hours it shines in each month; and how, if each day is considered as having twelve hours they would not be equal measures; if the measures have equal value, there would be, as we said, fifteen hours in the long days.

It shines in the month of:

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<th>January</th>
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(18) OF THE MOON, HOWEVER, THIS IS THE RECKONING. It shines [this many hours] each day:

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² Gregory of Tours, *De cursu stellarum ratio*, transl. S. C. McCluskey.
It should be noted, however, that in summer when the nights are shorter, the Moon follows the path which the Sun takes in winter; in the longer nights in winter, it follows the rule *(ordo)* which the Sun pursues in summer. . . .

(22) THESE STARS we call Omega, since they depict it and they follow the previous ones, they truly precede the Greater Cross.

(23) THESE STARS [form] the Greater Cross, which appears on its side in the East, because it was dormant in the beginnings of the world, that is it rested during the pronouncements of the prophets and the patriarchs. In the West, however, it appears upright, since at the exaltation of the Lord in the twilight of the world would be the time when it should be raised.

(24) THESE STARS, some call the Lesser Cross, others however name them Alpha, in that they are to the left of the Greater Cross, and because of the two smaller ones, which appear below them and which the Three *(trion)* precedes. . . .

(33) OF THESE STARS, which rustics call the Wain, what are we to say, since they do not rise or set as do the other stars? But however, we consider that we should not keep silence about these. They are called by the wise the Seven because of their number, and from that region in which they are found they would be called by some by their name; we actually call them Northern. These stars, therefore, are always seen in the northern regions. In summer, when the nights are shorter, they are lower at dawn and the tongue of the wain faces to the west; when, progressing towards autumn, the nights begin to grow longer and these hold together higher in the sky, and thus until the nights begin to decrease again. It should be noted that when dawn approaches in the winter, the tongue is turned towards the east; this should also be noted, that they rise the same way every year.

(34) THIS STAR is called a comet by most experts. It does not appear at all times, but especially at the death of a king or the downfall of a region. This, therefore, is the how it should be understood. When the head appears with fiery hair, it announces the death of a king; if however it carries a fiery sword with its hair patched with black, it shows the downfall of the country. It appeared thus before the pestilence in the region of Auvergne, hanging for an entire year over that region. That this truly brings forth sorrows, Prudentius, when he skillfully discusses the star at the Nativity of the Lord, says this in the hymn for the Feast of the Epiphany:

> The melancholy comet perishes,  
> And as the star itself  
> offers vapors now to God  
> it falls from the faintly glimmering region  

And when King Sigibert died, a comet appeared with much hair.

(35) We have written about a few signs of the rising or setting of the stars, or of their paths, which we have judged sufficient for the deans; now we develop them [showing] how human piety can rise with them to the observance of the Divine Office. And should anyone wonder, why the day we shall have chosen for the beginning [of this discussion] is not in the month of March or at the very Nativity of the Lord; this was changed because the star that is observed in the month of March, [first] rises in a different month.

(36) SEPTEMBER. In the month of September a brilliant star rises, which we have called Robeola above, having another lesser one nearby preceding it. Therefore, if the sign for matins were
made when it rises in September, five psalms could be sung antiphonally in praise of God. I say now, if the force of a celestial sign is required to indicate the middle of the night, watch the Sickle, and when it comes to the fifth hour of the day, get up. Surely if you will want to celebrate a continual vigil [through the night], if you get up when the stars appear, which we named above the Grape Cluster (butrio, i.e., the Pleiades), and complete nocturns at cockcrow, you will complete eighty psalms antiphonally before you begin matins. . . .

(39) DECEMBER. In the month of December the Sickle rises in the fourth hour of the night. If you get up at that hour, you will chant the said nocturnal hymns, or cry of the cock twice, that is sixty in the second course of the psalms. Since before the birth of the Lord you ought to rise earlier, then you will chant the rest of the psalter antiphonally. If you make the sign for matins when Rubeola rises, then thirty psalms can be chanted readily. After this rises the stars which we call Sigma, that is the Couch (stephadium). In this month then rises those stars which precede the Greater Cross (crux major), which we have named Omega, in which there is one [star] brighter and steadier than the others, which you could observe more readily.

(40) JANUARY. In the month of January, after nocturns are said, those stars [Omega] rise among which, as we have said above, is one which is observed to be brighter; if you begin matins when it reaches the third hour of the day, fifteen psalms could be sung.

(41) FEBRUARY. In the month of February, when that star rises which we called the brighter among the stars described above, you would know that it is the middle of the night. When the star reaches the fourth hour of the day, if the sign for matins is made, you could complete twelve psalms.

(42) MARCH. In the month of March, when Lent comes and you should get up earlier, if you rise when the star is in the second hour of the day, you say nocturns and the crow of the cock, almost twice as we have said above, that is, sixty psalms without refrains. These having been finished you sing twenty psalms with antiphons, and that star reaches the fifth hour of the day. If you begin matins then, thirty psalms can be chanted with antiphons, and it becomes light.

(43) APRIL. In the month of April however, if it is still Lent, you will observe as before. If you wish to get up later, you will observe the brighter star among those that we called the Sign of Christ. If the sign for matins is given when that one has risen, you will be able to relate eight psalms with antiphons.