One World under the Sun
Cosmography and Cartography in the *Liber Floridus*

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To a modern cartographer a map should represent geographic reality by means of coordinates such as latitude and longitude. Not one of the cartographic images in the *Liber Floridus* corresponds to this definition, yet not a single work on historical cartography omits the early-twelfth-century encyclopaedia. Together with the portolans (thirteenth-century Mediterranean sea charts) and itineraria (Romanesque road maps) the medieval *mappae mundi* or ‘maps of the world’ represent the very beginnings of cartography. Until the sixteenth century, in the work of Gerard Mercator, for example, the holistic approach of the medieval *mappae mundi* remained the starting point for compiling maps and especially atlases.

Unlike modern maps of the world, the medieval *mappae mundi* show place and time in the same image. They are four-dimensional, as it were. Simultaneously world map and timeline, they chart the course of history along a path from east to west. On Lambert of Saint-Omer’s maps the creation of the world is situated in the east. Paradise lies beyond India. And beyond that again is Europe, the Occident, where the perils of the apocalyptic End Time await. Between these two extremes, salvation history takes its course. Armenia, where Noah landed; Chaldea, the homeland of Abraham; the oracular Tree of the Sun and Moon that foretold the death of Alexander the Great; the land of Ophir whence Solomon received his gold; Judea, where the New Testament is enacted; Gog and Magog, who at the End Time will burst forth from the gates of the Caucasus where Alexander penned them up... All this is depicted on Lambert’s *mappa mundi*, which sadly we know only from the copies of the *Liber Floridus* as the map in the original manuscript has not survived.

The *mappa mundi* shows the importance that twelfth-century scholars placed on underpinning biblical exegesis by physical reality. We can find a reason for that in Paul’s letter to the Romans, for example. Ever since the creation of the world, wrote Paul, God’s eternal power and divine nature, invisible though they are, could be understood through the sensory observation of the things he has made. The passage from Paul was much quoted; it occurs in the work of Lambert’s predecessors (Augustine, Bede, Pseudo-Dionysius the Areopagite, Johannes Scottus Eriugena) and his contemporaries (Anselm of Canterbury, Peter Abelard, Bernard of Clairvaux, Hugh of St Victor, Rupert of Deutz, and so on). That Lambert was familiar with the notion appears not only from his *mappae mundi* and his prologue to the *Liber Floridus* but also from the integration of his cosmography into the six days of Creation as described in the book of Genesis. This first biblical book was therefore an important source of
knowledge about nature in the eleventh and twelfth centuries. By completing Genesis with additions from his sources, Lambert used the biblical book to transcribe what was known about nature, while the *mappae mundi* represent it in visual form on maps. The two means are not equivalent, however. The visual representation has greater importance. It shows more than words can express. Lambert had undoubtedly read how Macrobius rationalized the use of diagrams as communication tools with the argument that the fastest way to the intellect is through the eyes, for reason sinks into the mind more easily when expressed by drawing than by speech. The maps provide a coherent picture of how existence was perceived. They harmoniously combine apparent contradictions while the text is a prompt to memory, a key to the map. But it is just this conciseness that turns the text into a useful summary for the modern reader and allows an insight into the world view the *Liber Floridus* conveys. Starting from the story of Creation we shall look at some of Lambert’s *mappae mundi* and test them against a few of the citations he added to them. They illuminate the pathways of Lambert’s thought; and although he never puts his own ideas expressly into words he uses nuanced citations, numbers and especially his creative imagery to resituate the authoritative literature and integrate it within an eleventh-century intellectual framework, such as is found in the work of Anselm of Canterbury.

**The Key to the Map: In the Beginning, what did God create in Six Days?**

How does Lambert describe what God created in six days? On the first day, says Lambert, he created the celestial hierarchy, with its nine orders of angels. On the second day he made the seven heavens: the first was the blue heaven, the second heaven was the firmament, the third heaven contained Paradise, the abode of perfect souls, the fourth heaven was for the angels and archangels who were sent to earth as messengers, the fifth was for the heavenly powers and dominations, the sixth for the principalities, the thrones and the eternal course of the stars, and the seventh heaven was for God and the troops of cherubim and seraphim that are so close to God that there are no other beings between them. On the third day God formed the firmament in order to separate the waters above it, which were intended to temper the fire of the stars, from the waters below. On earth, God created the four rivers of Paradise and the two seas that girdled the earth and divided it into five zones. The circumference of the earth was fixed at 252,000 *stadia* or 21,000 Gallic miles. The sizes of the continents and the distances between them were also decided. The fourth day was devoted to the sun, moon and stars. Lambert is unsure whether the sun is four or eight times larger than earth and therefore does not give the preference either to Bede or to Helperic, who were his sources for this data. But the moon was certainly bigger than the earth and was lit by the sun in the manner of a mirror. On the fifth day the aquatic creatures were created: several species of whale, dolphins, herrings, eels, sea pigs, sea dragons, fish of all kinds, mullet, snails, crabs, mussels and many others,
as well as the apocalyptic Leviathan, whose role was thus already decreed at the Creation. On the sixth day it was the turn of the land animals: lions, tigers, panthers, antelopes, leopards, rhinoceroses, elephants, chameleons, lynxes, bears and beavers, as well as cynocephali, satyrs, pygmies, antipodes, panotii, hippopods and other monstrous races, plus camels, donkeys, mules, a host of birds, the reptiles and the snakes. At the very end God kneaded Adam from the clay of the earth and from Adam’s rib he formed Eve.\textsuperscript{8}

The Celestial Globe: All Things are Connected in Nine Orbs

With this account of Creation in mind the \textit{mappae mundi} in the \textit{Liber Floridus} acquire a frame of reference that considerably increases their legibility. From Macrobius’ \textit{Commentary} on the \textit{Dream of Scipio} Lambert takes the idea that all things are linked to each other in nine nested orbs (\textit{orbibus}) or globes (\textit{globis}), with the outermost celestial orb enclosing the rest.\textsuperscript{9} On the inner wall of this celestial orb are the fixed stars, illuminated by the sun. Moving within are the seven planets, the moon, Mercury, Venus, the sun, Mars, Jupiter and Saturn, each in its own orb. At the centre is the ninth orb, the earth, like a small island. The movement of the celestial orbs produces music. The universe itself is a scale, as it were, with the celestial orb producing a sharp tone while the moon produces the deep tone.\textsuperscript{10}

Although Lambert certainly makes errors in his writing elsewhere too – though it should be borne in mind that the errors may not have been his but rather in the copies of the works he consulted – a small slip of the pen in the citation from the \textit{Commentary} on the \textit{Dream of Scipio} has an important implication. Instead of the word ‘orb’ (\textit{orbibus}) he uses ‘order’ (\textit{ordinibus}), with the result that everything is linked through nine ‘orders’.\textsuperscript{11} The nine orders allude to the nine orders of angels described by the fifth-century Neoplatonist Pseudo-Dionysius the Areopagite.\textsuperscript{12} Whether or not this was a deliberate adaptation can only be conjectured. In the text that Lambert copied the word ‘order’ appears earlier in the sentence; perhaps this led to the idea of associating the orbits of the planets with Pseudo-Dionysius’s heavenly orders. Be that as it may, on Lambert’s maps each of the angelic orders is accommodated within a planetary orbit.\textsuperscript{13} Indeed, the association occurred more often in the literature, though there was no unanimity of approach. Nor is the \textit{Liber Floridus} free from contradictions in this respect. For instance, in the same miniature the stars are depicted on the inner wall of the globe, in accordance with the \textit{Dream of Scipio}, yet we also find them in the sixth heaven where the thrones and principalities dwell.\textsuperscript{14} In the Wolfenbüttel \textit{Liber Floridus} there is an image that complicates things further still, because the northern sky is added to a representation of the cosmic globe.\textsuperscript{15}
Lambert based his northern sky on the work of Bede (673/4-735) and Aratus (315-245 BCE). If we look at the stars from the earth they all seem equally distant (fig. 75). They have relatively fixed positions in relation to each other which remain unchanged over time. They are illustrated by mythological figures that are easily represented thanks to the number and particular arrangement of stars in each constellation (figs. 76-82). The celestial dome itself can be seen as a sphere that turns on its axis in a uniform circular motion. On earth the constellation that coincides with the sun at sunset can be noted. When that notation is continued for a whole year, we see the orbit of the sun around the earth, the ecliptic. The name indicates that eclipses of the sun and moon occur in that orbit. The moon and the planets move in a zone of 8.5 degrees on either side of the ecliptic. That is the zodiac.

Just like his geography, in Lambert’s cosmography the representation of space is never a matter of three dimensions only; time always plays a role. The concept of time is based on the cycles that can be observed in nature. Day and night are determined by the rotation of the celestial vault, the month is related to the duration of the four lunar phases, while the length of the year depends upon the orbit of the sun. On a cosmic level, Lambert distinguishes the Great Year that comes to an end when the seven planets and the constellations have returned to their original positions, which takes 15,000 years. Like Macrobius, Lambert’s source for this information, he confuses the conjunction of the moon, the sun and the five planets with the rotation of the celestial sphere, now better known as the precession of the equinoxes in which the earth makes an axial movement. Although the phenomenon was discovered by Hipparchus in the second century BCE, Macrobius was one of the first Latin authors to have some knowledge of this celestial movement.

The Terrestrial Globe: The Whole Inhabited Earth is like a Small Island surrounded by an Ocean

In Aratus’s *Phaenomena* Lambert could discover that the earth’s axis has two poles, of which only the northern pole is permanently visible from the northern hemisphere. In the thirteenth century it was the very invisibility of the southern pole that prompted Johannes de Sacrobosco to argue that the world is round. In the *Liber Floridus* this is taken for granted. On one of the fold-out maps Lambert writes: *globus terrae*, globe.

Exactly what the surface of the globe looked like was largely determined by water. In the second century BCE, Crates of Mallus distinguished two oceans that girdled the earth, crossing at right angles to each other. One ran around the equator; the other around the poles. They divided the earth into four continents, only one of which was the known, inhabited world. An image of the world that
Lambert found in the work of Macrobius and to which he added ‘the mare mediterraneum runs from sunrise to sunset and divides the inhabited world’ (fig. 48). Mare mediterraneum usually refers to the Mediterranean – or ‘middle-lands’ sea, but here the word is literally interpreted as ‘middle-earth’ sea, which logically coincides with the equatorial ocean, while the Mediterranean proper becomes the mare nostrum, ‘our sea’. He took the idea from the Bible – though from which part is hard to say exactly. ‘From sea to sea’ was a standard expression that occurs in several places in the Latin Vulgate and was extensively glossed by Jerome and Augustine. Twelfth-century writers also commented on it, following the good example of Isidore and Bede. Writings on the Antichrist also implied a connection between the sea and the cardinal directions. Adso of Montier-en-Der (c.910/930-992) wrote of the Antichrist, ‘His message and his might will prevail from sea to sea, from east to west, from north to south.’ Adso was cited by twelfth-century authors like Pseudo-Anselm of Canterbury and Pseudo-Augustine. Lambert may have found it simpler to express the position of the equatorial ocean within a verbal framework whose authority was self-evident, but, by taking Adso as his source, he simultaneously emphasized the eschatological dimension of his cartography (fig. 86). Geography was illuminated by the sombre light of the awaited End Time.

Such interventions are a Lambertian characteristic. If he makes what amounts to an independent remark he harks back to phrases, sometimes only a combination of two or three words, that leave the reader and also himself in no doubt that it is based on a biblical or other authority. Though Lambert seems to eschew propositions of his own in the Liber Floridus, minor changes to the source text show that here and there, and with extreme caution, he does nonetheless express ideas that are not derived from that source. Whether those changes are all his own doing, or whether he had found them in commentaries on his source texts, cannot be said with certainty. But based on the similarities between such additions in various passages of the Liber Floridus it can be assumed that they were indeed made by Lambert himself. This implies that he thought in and through the word of the other – the other being either the Bible or one of the many authoritative authors.

What else can we say about the appearance of Lambert’s world? The ocean covered a large part of the equatorial zone. In line with Crates of Mallus, in the east and west it split into two great rivers that flowed to the southern and northern poles respectively. The meeting of the two currents at the poles created the tides. The land therefore consisted of four continents. Europe, Africa and Asia formed one of these. Lambert stressed that the equatorial ocean was invisible to the human eye, owing to the fire of the sun. Some continents did indeed have an extreme climate. The polar areas were uninhabitable because of the freezing cold, while the equatorial region was scorching hot. This created five climatic belts. The result was Macrobius’s ‘zonal map’ (figs. 87-89), which Lambert also finds within the celestial globe (fig. 54). The northern zone with a temperate climate is, in Lambert’s view, the habitable world in which God placed Adam and Eve. The sun rises in the east of this zone,
which consists of a number of archipelagos. Lambert rejects the accepted idea that the south is where the Ethiopian desert stops. He puts the real south in the habitable temperate zone in the southern hemisphere. There he situates the race known as the antipodes. There is not a great deal he can tell us about them, as the antipodes were unknown to the descendants of Adam. Thanks to the scorching heat of the sun as it passes through the zodiac the equator is impassable, so the southern hemisphere is impossible to reach. Nevertheless, some features of it could be theoretically deduced. There is another sky, night and day differ, and it is winter there when it is summer in the north. Indeed, Lambert considers that the southern hemisphere has two winters. In the extreme west of the northern hemisphere, near the equatorial zone, is an island that is also inhabited by antipodes. Like Isidore of Seville Lambert uses the term ‘antipodes’ both for the inhabitants of the west side of the northern hemisphere and for those of the southern habitable regions.

The Sun on Earth

On what Lambert calls Macrobius’s zonal map the double course of the ocean is combined with the movement of the sun from east to west through the zodiac (fig. 48). The same projection of the ecliptic on the equatorial ocean is the centrepiece of the fold-out map in the Liber Floridus (fig. 84). It shows the angle between the plane of the ecliptic and the plane of the celestial equator (in reality, 23.5 degrees) to the north at the time of the summer solstice and to the south at the winter solstice. The planets move across the fixed sphere of the stars within a couple of degrees of the ecliptic. Sometimes they seem to stand still in their ‘stations’: sometimes they seem to move backwards (figs. 91, 92). Inevitably the mappa mundi evokes the image of light as the syndesmos, the Platonic belt that holds the circle of the universe together. The way Lambert composes his images is analogous to the way he intervenes in the texts. A datum is derived from one source to be reinterpreted in the context of another. Thus he thinks not only in the verbal but also in the visual language of his sources. In the same way that he uses citations, the visual elements form the language in which he thinks. Yet because several pictorial layers can be combined in one image, Lambert can express the stratification of his sources and the nuances of his intervention more successfully in the visual medium.

Light gives structure to Lambert’s maps in several respects. In the first place it relates to the use of the cardinal directions in the maps’ construction (fig. 93). For the cartographic north and the four directions are established on the basis of the orbit of the sun. The east-west axis is the line that joins sunrise to sunset at the vernal and autumnal equinox. Perpendicular to it is the north-south axis. Unlike our maps, medieval mappae mundi were almost always orientated eastward – orientation in the etymological sense of the word, the placing or arranging of something so as to face the east (oriens). The solar orbit determines the length of day and night and leads to the creation of the
seasons. Twice a year the sun crosses the celestial equator, at the time of the equinox, when day and
night are of equal length. And twice a year the sun changes direction, when the day is longest at
the summer solstice and shortest at the winter solstice. The turning points lie on the tropic of Capricorn
and the tropic of Cancer. Equinoxes and solstices were matters of great interest in the twelfth-century
renaissance. William of Conches tells how the Jews and the Romans placed the Creation in the
spring, whereas the Egyptians – and Macrobius after them – kept it in summer. To Lambert too
the springtime Creation is an indisputable fact. At the vernal equinox – conventionally fixed on 25
March – he situates not only the creation of the world but also the sacrifice of Isaac, the crossing
of the Red Sea, the Annunciation, the Crucifixion and the fall of the rebel angels. In short, light not
only gives the map its structure and symbolic meaning, it also structures history and the globe (fig.
94).

When it came to substantiating the importance of the sun no stone was left unturned. In the Middle
Ages Macrobius was the accepted authority for determining the diameter of the sun and the
circumference of its orbit. Lambert cites him twice, each time forgetting one step in the
calculation. Whether the slip is indeed Lambert’s or whether it was his source that was at fault is
impossible to say. What is certain, though, is that the subject was of some interest
throughout the Middle Ages since it is also discussed by Eriugena and Hugh of St Victor. For
Lambert’s purposes the miscalculation does not really make much difference. The number itself is of
small importance, being rather a means to acquire knowledge of the immaterial, as mathematics was
defined by Gerbert of Aurillac, later Pope Sylvester II (950-1003). Adelbold II, Bishop of Utrecht,
corresponded with Gerbert of Aurillac on the same subject.

This combination of astronomy and solar symbolism is typical of Lambert’s cartography. Since early
Christian times numerous biblical allusions made the sun an obvious metaphor for the spiritual light
of God. In the twelfth century, however, it became a highly popular theme in the liturgy and
preaching. Even though the approach remained purely allegorical, in combination with the
Neoplatonic world view nature became a privileged guide to attaining knowledge of God. The result
of this can be seen on the maps in the Liber Floridus: God sits above the cosmic order and at the same
time is everywhere, just like the light of the sun or the moon. Both celestial bodies
could symbolize Christ – as appears from a list of the names of God that Lambert derived from his
sources. Not only the sun or the moon, but also the firmament could be construed as a name. Not
content to record those names on a list, Lambert also includes them on his maps. His mappae mundi
illustrate the close relationship that medieval man assumed to exist between the Creator and his
Creation.
From an Island in the Ocean to a Quarter of the Inhabited World

One of the most common representations of the inhabited world (thus not the entire globe), is the ‘T-O’ map. Within a circular plan the land is divided into three separate continents by ‘T’-shaped waters: the Mediterranean between Africa and Europe, the Nile between Africa and Asia and the Russian Don which flows into the Black Sea between Asia and Europe. Encircling everything is a vast ocean – the ‘O’.\[47\] The classical division into three continents was gradually converted into Christian form by apportioning the three parts to the three sons of Noah: Ham, Shem, and Japheth (figs. 99-102).\[48\] In the *Liber Floridus* the T-O map is often integrated into a larger whole, in which it forms an acceptable representation of the northern hemisphere – where, after all, the majority of Adam’s descendants were to be found. Bordered by the bodies of water the continents have become large islands, as it were. ‘The entire world that we inhabit is like a small island in the middle of an ocean,’ writes Lambert, citing Macrobius, who was a valued resource for Lambert even though his work was originally unillustrated. Macrobius limited himself to detailed written descriptions, and only in later copies were illustrations inserted. Like Macrobius, Lambert follows Eratosthenes (276-194 BCE) as regards the circumference of the earth, which he equates with 21,000 *leuga* or Gallic miles. A circumference of 21,000 *leuga* represents about 252,000 Roman *stadia* or around 46,620 kilometres. The circumference is yet another example of the importance that Lambert attached to numbers.

Starting from the T-O map, which to Lambert represented the races on earth, Lambert created an independent map of Europe. The quadrant covered by Europe on the T-O map was worked into an individual map. ‘Even though Europe is one of the three continents,’ writes Lambert, ‘it covers only one quarter of the inhabited world’ (fig. 4). In Carolingian times the word ‘Europe’ implied the Carolingian empire. In the *Liber Floridus* this is no longer the case. Here we find the earliest individual map of Europe, on which Lambert makes the distinction between the Roman-Frankish empire, which was outlined in red, and Europe as the geographical concept. In the literature Europe was primarily the Occident, where the sun went down. Even though Lambert’s map of Europe is unique, it was not copied, and so did not become an exemplar for others.\[49\]

Multiple World

Lambert thinks in the language of the other, even in the image of the other. But while his voice is barely audible in the written text, his imagery is explicit: sunlight as the tie that holds the universe together is the allegorical representation of the nature of God which governs existence. This theme is known mainly from the work of Pseudo-Dionysius the Areopagite and Eriugena, but in the eleventh century it occurs in the work of Anselm of Canterbury, who turned light into a theoretical model with
which a better understanding of God could be attained. Just as light originates from a single source, the sun, so too does existence originate from a single source, God.[50]

In ‘Lambert and the Scholarly Culture’, we saw a second theme that Lambert and Anselm explored in common, namely the grandeur of creation, which in the Liber Floridus is supported by statistics: the distances between the continents, the circumference of the earth, the circumference of the solar orbit – they all have figures. ‘What is great is great because there is a greatness above all else’ was an idea that Anselm of Canterbury expressed in his Monologion.[51] It is indeed principally the mappae mundi that make it possible to interpret the relationship between the Liber Floridus and the eleventh-century scholarly world, especially Anselm of Canterbury. Anselm is never a direct source. Lambert derives his data from the work of Macrobius, Calcidius, Martianus Capella and so on. Yet their texts can express the overarching ideas that Lambert shared with Anselm and his milieu in imagery.[52]

That imagery works on one important principle: multiplicity. The rationale for it can be found at the heart of medieval cosmology.[53] The Greatness, which to Anselm was not spatial in nature, formed the beginning of all things. It was an essentially plural principle and consequently its Essence could be found throughout reality.[54] The diversity of Creation in no sense concealed the unity that underlies it. Quite the contrary. Here we touch on the very reason behind Lambert’s method. To his contemporaries his broad diversity of themes revealed the key idea that everything can be traced back to the divine principle. Karl Morrison writes how to twelfth-century man diversity meant an aesthetic norm. That Creation was an ordered existence was beyond dispute.[55] The sometimes literal variation in viewpoints should lead the reader through the detail to the essence. Therefore Lambert smoothly combines maps of the earth with maps of the heavens, adds the northern sky to the cosmic globe, or projects the heavens onto the earth by drawing the course of the planets through the zodiac together with the ecliptic on a world map.[56]

The overlaying of several strata of reality hallmarks the allegorical reading of the cosmos. In the text those things that can be visually ‘projected’ onto each other are much less interwoven. The many coordinated citations are probably Lambert’s method of representing the overlapping of meanings.[57] It is, of course, significant that the word had a special status, inseparable from the divine Word which according to Genesis marked the very beginning of Creation (fig 103) and, again according to Anselm, which could encapsulate the divine idea better than the things themselves, which were only a reflection of it.[58] Marking his text must have played an important role in this process. The colouring of initials and the marking in green, yellow-white or occasionally pink took place after the text was written. It was intended literally to highlight key points in the text. Lambert also regularly adds an explanation in the margin or repeats crucial concepts.
As the word had such a status, contradictions in the text are only apparent. What seems like a contradiction to us was, to the twelfth-century scholar, a step on the way to arriving at a synthesis. ‘The sun is eight times larger than the earth, says Hilperic; according to Bede it is only four times larger,’ writes Lambert, citing two major authorities on solar measurement. However much time he spends on deciding between them, what matters essentially is not the number but rather how immense the sun, the universe and creation actually are.\(^{59}\)

John of Salisbury (c.1115-1180) compared the coincidence of opposites with a spot of colour on a painting that may be ugly when seen in isolation, but can be fully enjoyed when considered as part of the whole. Thus, something that can look bad or mad when examined individually can still appear good and beautiful when seen in relation to the whole.\(^{60}\)

In fact contradiction is also present in the imagery. On virtually all the world maps the earth is found at the centre of the solar orbit and the celestial globe, while in the Platonic sphere (or daemons diagram) the earthly region lies at the bottom of the cosmic orb.\(^{61}\) That presented no problem to Lambert, because in none of his images does he claim to be putting reality on parchment. In this respect he even deviates from the standard teaching. The creation of the world with Adam in it takes place at the spring equinox, while according to the biblical account there were six days between the start of Creation and the creation of Adam. And though, according to Genesis, God made a blue sky like ours and a firmament in motion on the second day, according to Lambert it was only on the third day that he ‘placed the waters of the firmament on the waters of the sea to temper the fire of the stars’.\(^{62}\) This was the firmament with which God separated the waters below from the waters above.\(^{63}\) In Genesis that occurs on the second day, but since the third day was reserved for watery matters, Lambert’s thesis seems more logical.

This short exploration of Lambert’s imagery has barely scratched the surface. We have glanced at only a few of its many apparent inconsistencies. It remains to mention where Lambert found the guiding principle by which the contradictions, different perspectives, representations, and so on could be smoothly integrated into his cartography. The medieval scholar took for granted the unity of existence, a unity that was expressed the form of a circle. This form can also be seen on the maps of Jerusalem that were widespread in the twelfth century (fig. 104-107). On the basis of a Commentary on Ezekiel by Jerome, Jerusalem was thenceforth regarded as the centre of the world.\(^{64}\) There must have been a map of Jerusalem in the Liber Floridus too. In their circularity Lambert’s mappae mundi symbolize that unity and also give expression to the path by which knowledge is attained. A path that is never straight.\(^{65}\)