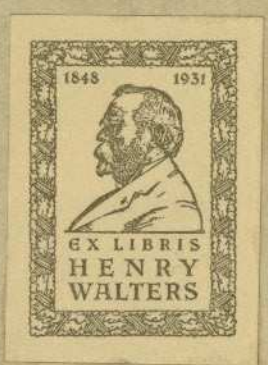

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A digital facsimile of Walters Ms. W.73, Cosmography
Title: Compendium of computistical texts

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Published 2013

Shelf mark	Walters Art Museum Ms. W.73
Descriptive Title	Cosmography
Text title	Compendium of computistical texts
Author	*Authority name:* Bede, the Venerable, Saint, 673-735
Author	*Authority name:* Isidore, of Seville, Saint, d. 636
Author	*Authority name:* Abbo, of Fleury, Saint, ca. 945-1004
Abstract	Created in England in the late twelfth century, this manuscript was intended to be a scientific textbook for monks. The manuscript is brief at nine folios, and was designed as a compendium of cosmographical knowledge drawn from early Christian writers such as Bede and Isidore, as well as the later Abbo of Fleury. Those writers, in turn, drew on classical sources such as Pliny the Elder for their knowledge but adapted it to be understood through the filter of Christianity. The twenty complex diagrams that accompany the texts in this pamphlet help illustrate them, and include visualizations of the heavens and earth, seasons, winds, tides, and the zodiac, as well as demonstrations of how these things relate to man. Most of the diagrams are rotae, or wheel-shaped schemata, favored throughout the Middle Ages for the presentation of scientific and cosmological ideas because they organized complex information in a clear, orderly fashion, making this material easier to apprehend, learn, and remember. Moreover, the circle, considered the most perfect shape and a symbol of God, was seen as conveying the cyclical nature of time and the Creation as well as the logic, order, and harmony of the created universe. England is especially notable for the production of illustrated scientific textbooks, with the earliest examples produced during the Carolingian period under the influence of the noted Benedictine scholar Abbo of Fleury, who taught at Ramsey Abbey for two years. Although the grouping of texts and diagrams here is unique, the manuscript is related to other scientific compilations from this era, such as British Library, Royal Ms. 13 A.XI, Cotton Ms. Tiberius E.IV, and Oxford, St. John's College, Ms. 17.

Date	Late 12th century CE
Origin	England
Form	Book
Genre	Scientific
Language	The primary language in this manuscript is Latin.
Support material	Parchment Medium-weight parchment; shows heavy wear from use
Extent	Foliation: i+9+i Modern pencil foliation upper right corners and middle of bottom margin; numbers match
Collation	Formula: Undetermined Catchwords: None Signatures: None Comments: The binding is extremely tight; stitching is visible between fols. 6 and 7; the manuscript might currently be three single leaves followed by a ternion (fols. 4-9)
Dimensions	15.5 cm wide by 26.7 cm high
Written surface	13.5 cm wide by 23.5 cm high
Layout	Columns: 1-2 Ruled lines: 64-69 Plummet-ruled; ruling patterns and number of columns vary due to incorporation of diagrams in page layout
Contents	*fols. 1r - 9v:* *Title:* Compendium of computistical texts *Authors:* Bede, the Venerable, Saint, 673-735; Isidore, of Seville, Saint, d. 636; Abbo, of Fleury, Saint, ca. 945-1004 *Incipit:* Ventus est aer commotus *Contents:* Text is a compilation of excerpts from early medieval scientific works, primarily by Bede, Isidore of Seville, and Abbo of Fleury: fol. 1v-2r: De ventis, Isidore, Etymologiae, XIII, xi; fol. 2r-v: De zodiaco

circulo, Bede, De natura rerum, XVI; fol. 3r: De ortu solis, from Cui ideo, after Isidore, De natura rerum, XVII, 3; De solis equorum nominibus, pseudo Bede; De solstitio et equinoctio; De duodecim signis, Bede, De natura rerum, XVII; fol. 3v: De cursu et magnitudine solis, Bede, De natura rerum, XIX; De cursu planetarum, Bede, De natura rerum, XII; De stellis, Bede, De natura rerum, XI; De vario effectu siderum, Bede, De natura rerum, XI; De natura et situ lune, Bede, De natura rerum, XX; De eclipsi soli et lune, Bede, De natura rerum, XXII; De cometis, Bede, De natura rerum, XXIV; De aere, Bede, De natura rerum, XXV; De lacteo circulo, Bede, de natura rerum, XVIII; fol. 4r: Ubi non sit et quare, Bede, De natura rerum, XXIII; Denique luna totius zodiaci..., Abbonian text; fol. 4v: De cursu solis et lune; De cursu lunae per signa; De intervallis planetarum, Pliny, Naturalis historia II, xix-xx; Dimensio celestium spatiorum secundum quosdam, cf Isidore, De harmonia et coelesti musica, and Byrhtferth's gloss on Bede, De natura rerum; De absidibus planetarum, cf Pliny, Naturalis historia II, xii and xiii, and Bede, De natura rerum, XIV; fol. 5r: De positione et cursu septem planetarum, cf. Bede, De natura rerum, XII and Pliny, Naturalis historia, II, vi; fol. 5v: Sententia Abbonis de differentia circuli et spere; fol. 6r: Sententia Abbonis de cursu septem planetarum per zodiacum circulum; De ratione bissexti et embolismi; De quinque circulis, Isidore, De natura rerum, X, 1-2; fol. 6v: De quinque zonae caeli; De quinque circulis mundi et subterraneo siderum meatu, Bede, De temporum ratione XXXIV; fol. 7v: De partibus mundi, Isidore, De natura rerum, XI, 1-3; De quattuor temporibus, elementis, humoribus, from anon. iuxta Ysidorum; fol. 8v: De concordia maris et lunae; De aestu oceani, Bede, De natura rerum, XXXIX; fol. 9r: De trimoda ratione temporum et divisionibus corum, cf Isidore, Etymologiae, V, xxxv, 1, Bede, De ratione computi, I, Bede, De divisionibus temporum, I, Bede, De temporum ratione, II; He autem divisiones temporum (with table), cf Bede, de divisionibus

temporum, I; fol. 9v: Quomodo ex minoribus temporum divisiones, cf. Bede, De divisionibus temporum I; Quibus modis soleat annus nominari

Hand note: Scholastic book script, of Gothic origin

Decoration note: Twenty scientific diagrams in total, some containing human and animal components but most designed as non-figural schemata; seventeen circular diagrams formed of concentric bands or divided into sectors, averaging 12.5-13 cm in diameter, on fols. 1r, 1v, 2r, 2v, 3r, 4r, 5r, 6v, 7r, 7v, 8r, 8v, and 9r; group of seven small roundels on fol. 5r measuring 1.5 cm across each; two square-shaped diagrams, one on fol. 5v measuring 13.4x13.8 cm, other on fol. 7v measuring 11x8.3 cm; diagrams drawn in red and dark brown ink with same, as well as green, used to write inscriptions; portions of diagrams filled with red, green, blue or yellow pigment; green and red initials throughout ranging from one to seven lines in height; rubrics in red; text in dark brown ink

Decoration

fol. 1r:

Title: Diagram of the zodiac

Form: Half-page illustration

Text: None

Label: The zodiac is the belt of twelve constellations through which the seven planetary bodies--the Sun, the Moon, and the five known planets--appear to pass during the course of a year. This wheel-shaped diagram shows the Earth at center, surrounded by the names of the months, the corresponding twelve signs of the zodiac, and an inscription explaining the relationships among the seven planetary bodies, the constellations of the zodiac, and the passage of time and its cyclical nature. Because it is the only illustration depicted on a blank page and the sole illustration that includes detailed, extensively colored figural imagery, the zodiacal diagram serves both as a frontispiece to the manuscript as a whole, and as an overview of the scientific and theological ideas presented in it.

Comment: A title, added in the thirteenth century, reads “Tractatus de sphera;” at the center of the diagram: “Terra”; in the fourth ring, the twelve months of the year; in the rim of the wheel, an inscription, beginning at ten o'clock: "hec tempora queque sidera septena per signa gerunt duodena in celo cursus eadem repetentia rursus per signum quodque retinent," or "The times carry the seven planets through the twelve constellations in the heavens. Their courses retain them [the planets], returning again through each constellation." The signs of the zodiac were developed in the ancient Near East as navigational aids and entered the medieval repertoire through the intermediary of classical art. Although Greco-Roman traditions of representation carried considerable authority, medieval depictions of the zodiacal signs often departed from their classical models. Here, the twins of Gemini are portrayed not as nude youths but as armed, mail-clad soldiers carrying a single shield. Rather than eight legs and two claws or pincers, the scorpion of Scorpio has the wings of a bird or dragon and a pair of long, curving necks, each terminating in a snake-like head. For a scorpion with a dragon’s head and wings and a tail ending in three heads, see the Calendar of an early twelfth-century English manuscript containing Isidore of Seville’s Homilies, Cambridge, St. John’s College, MS B. 20, fol. 2v. The zodiacal signs in their trapezoidal compartments are rendered in brown outline and flat blocks of pigment, their simplicity of execution being typical of illustrated scientific compilations produced in the monastic context. The schematic looping, V-shaped folds of the garments of Virgo and especially Aquarius compare with manuscript illumination and metalwork produced in England and on the Continent in the last decades of the twelfth century.

fol. 1v:

Title: Diagram (rota) of the winds
Form: Half-page illustration
Text: Isidore: De ventis

Label: The T-O map of the inhabited world occupies the center of this wheel-shaped diagram. Twelve profile busts of the winds, their Latin names provided in encircling bands, are depicted in the diagram's wide outer ring; the narrower, unpainted ring just within it contains the winds' Greek names. The four major winds are associated with the four cardinal directions, with East located at the top of the wheel. The busts of the winds blow toward the Earth at the center of the diagram, and their breath, represented as green strokes, flows into the wheel's "spokes." Each spoke bears a brief characterization of the associated wind, and these are expressed mainly in the first-person, as if spoken by the wind itself. Thus, the spokes of this diagram function like speech bubbles in a modern cartoon.
Comment: In the earth at center: "Asia," "Europa," "Affrica." In the bands encircling the busts, the winds' Latin names, with the Greek names given in the narrower, uncolored ring within. Beginning at the left (the North) and moving clockwise: "Septentrio vel Aparctias;" "Aquilo vel Boreas;" "Vulturnus vel Calcias"; "Subsolanus vel Apeliotes;" "Eurus vel;" "Euroauster;" "Auster vel Nothus;" "Austro vel" (for "Austroafricus"); "Affricus vel Lyps;" Zephirus vel Favonius;" "Chorus vel Argystes;" "Circius vel Tracias" (for "Thracias"), or "Septentrio or Aparctias;" "Aquilo or Boreas;" "Vulturnus or Calcias;" "Subsolanus or Apheliotes;" "Eurus or;" "Euroaster;" "Auster or Nothus;" "Austro or;" "Affricus or Lyps;" "Zephirus or Favonius;" "Chorus or Argystes;" "Circius or Tracias." In the spokes, beginning at left (the North) and moving clockwise: "Frigora conficio," or "I bring cold." "Constringo nubes," I bind together/wring out the clouds." "Omnia desicco," I dry up everything completely." "Subte phebe tono," or "I thunder from beneath the [rising] Sun." "Flatus nubes gigno," or "I cause the clouds to blow." "Tellus denique calescit," or "The Earth finally becomes warm." "Pluuias cum fulmine initio," or "I begin rain and lightning." "Magnos educo calores," or "I draw out great warmth." "Crebra

crebro fulmina iacto," or "I hurl thunderbolts one after another." "Tellurem floribus orno," or "I adorn the Earth with flowers." "Susstando (?) nubila pando," or "Supporting, I spread out the clouds." "De me grando uenit," or "From me comes hail." The T-O map is a conceptual diagram intended to show the relative positions of the three continents. The T, the Mediterranean Sea, separates Asia, Europe, and Africa, while the O is the surrounding ocean. Although the origins of the T-O map lie in the literature of classical antiquity, some of the earliest surviving pictorial examples occur in early medieval manuscripts of the works of Isidore of Seville. The Middle Ages inherited from the Greco-Roman world both the twelve-wind scheme and the convention of its representation in diagram form. In medieval wind diagrams, the winds may be represented as frontal or profile animal or human masks, sometimes winged; as busts; or as nude or clothed personifications. For a precedent for the wind rota in W.73, see the Winchcombe Computus, an early twelfth-century manuscript made for St. Kenelm's Abbey, Winchcombe; London, British Library, Cotton MS Tiberius E. IV, fol. 30r. The artist rendered the wind busts in simple brown outline, employing touches of red or brown on their brows, cheeks, jaws, and chests to suggest the contours of their faces and torsos. While Aristotle and other ancient authorities characterized wind as a dry exhalation, Isidore defined it as air that is stirred up and moved. The depiction of the breath of the winds here appears to evoke both of these traditions. The red quatrefoils adorning the green spandrels between the framed busts and the diagram's overall design are reminiscent of the tracery designs in contemporary rose windows, such as the early thirteenth-century rose on the western façade of the Cathedral of Notre-Dame, Chartres.

fol. 2r:

Title: Diagram of the winds
Form: Half-page illustration

Text: Isidore: De ventis
Label: Unlike the wind diagram on the preceding folio, this one is devoid of figural imagery or ornament. A schematic T-O map of the inhabited world occupies the center of the diagram. The wind names are written in the colored segments of the penultimate ring. Characterizations of each wind, comprising excerpts or adaptations of portions of the Spanish scholar Isidore of Seville's (d. 636 CE) scientific work, De natura rerum (On the nature of things, XXXVII, i-iv), fill the corresponding trapezoidal sectors.
Comment: In the earth at center: "Asia," "Europa," "Affrica." In the outer ring, beginning at the left (North), the names of the winds in colored capitals: "Septentrio" (North), "Aquilo," "Vulturnus," "Subsolanus" (East), "Eurus," "Euroauster," "Auster" (South), Euronothus," "Affricus," Zephirus" (West), "Chorus," "Circius." In the twelve corresponding sectors, beginning at left (North), the characterizations of each wind: "Ventorum primus cardinalis Septentrio qui et aparcias fri[gi]dus et niualis flat rectus ab axe. et facit arida. et frigora. et siccat nubes," or "Septentrio (North Wind), the first of the cardinal winds, which is also called Aparcias, is cold and snowy. It blows straight from the North Pole and makes [everything] dry and cold and dries out the clouds." "Aquilo ventus qui et boreas ex alto flat gelidus atque siccus et sine pluuia. quia non discutit nubes sed constringit," or "Aquilo, the wind that is also called Boreas, blows from high up [i.e., the North]. It is icy and dry and without rain, because it does not disperse the clouds but binds them together/wrings them out." "Vulturnus qui et boetias uocatus. dexter est Subsolani hic dissoluit omnia atque desiccat," or "Vulturnus, which is also called Boetias, and is to the right of Subsolanus, scatters and dries up everything." "Secundus cardinalis subsolanus qui et afeliotes. hic ab ortu intonat et est temperatus. Dicitur autem subsolanus ab ortu solis," or "The second cardinal wind is Subsolanus (East Wind), which is also

called Apeliotes. It thunders from the rising [of the Sun] and is temperate. Moreover, it is called Subsolanus [because it arises] beneath the rising of the Sun." "Eurus ex sinistro latere ueniens subsolani. orientem nubibus irrigat Eurus dictus eo quod ab euro flat. id est ab oriente," or "Eurus comes from the left side of Subsolanus and waters the East with clouds. It is called Eurus because it blows out of Euro, that is, the East." "Auroauster [Euroauster] a dextris intonat Austri. Euroauster dictus quod ex una parte habeat eurum ex altero austrum," or "Auroauster [Euroauster] thunders from the right of Auster. It is called Euroauster because it has on one side Eurus and on the other Auster." "Tertius cardinalis uentus Auster qui et nothus. meridiane plage. humidus atque fulmineus generans largos imbres. et pluuias latissimas," or "The third cardinal wind is Auster (South Wind), which is also called Nothus. It is from the South, and is moist and full of lighting, generating abundant clouds and widespread rain." "Euronothus uentus temperatus et calidus. a sinistra parte austri spirat," or "Euronothus is a temperate and warm wind. It blows from the left side of Auster." "Affricus qui et lyps ex zephiri dextro intonans. generans tempestates et pluuias. nubium collisiones. tonitrua fulgura. fulminorum impulsus," or "Affricus, which is also called Lyps, thunders from the right of Zephirus, generating tempests and rain. The pressure of the blows of clouds are thunderbolts and flashes of lightning." "Quartus cardinalis zephirus qui et fauonius ab occidente interiore flat. hic hiemem frigore relaxat flores producit," or "The fourth cardinal wind is Zephirus (West Wind), which is also called Favonius. It blows from the midst of the West. It eases the harshness of winter and produces flowers." "Chorus qui et argestes ex sinistra parte fauovnii aspirat. et flante in oriente. nubile sunt in india serena," or "Chorus, which is also called Argestes, blows from the left side of Favonius. It blows bearing clouds in the East, and tranquil weather in India." "Circius qui et tracias a dextris septentrionis intonans facit nubes

grandinumque coagulationes. circius dictus est eo quod euro sit iun[g]etus," or "Circius, which is also called Tracias, thunders from the right of Septentrio. It makes clouds and coagulated (frozen?) hail. It is called Circius because it is joined with Euro (should be "Chorus")." The T-O map is a conceptual diagram intended to show the relative positions of the three continents. The T, the Mediterranean Sea, separates Asia, Europe, and Africa, while the O is the surrounding ocean. Although the origins of the T-O map lie in the literature of classical antiquity, some of the earliest surviving pictorial examples occur in early medieval manuscripts of the works of Isidore of Seville. The Middle Ages inherited from the Greco-Roman world both the twelve-wind scheme and the convention of its representation in diagrammatic form. The earliest extant manuscripts containing circular tables of the Latin and Greek wind names equipped with both the Isidorian text and the T-O map at center date to the ninth century; see for example an early ninth-century manuscript of the second book of Cassiodorus's Institutiones, Bern, Burgerbibliothek, MS 212/I, fol. 109r.

fol. 2v:

Title: Top: Diagram of the planetary orbits and zodiac
Bottom: Diagram of the planet cycles
Form: Two half-page illustrations
Text: Bede: De zodiaco circulo
Label: The wheel diagram at the top of the page shows the Earth at center, with the seven heavenly bodies--the Moon, Mercury, Venus, the Sun, Mars, Jupiter, and Saturn--orbiting in concentric rings. The zodiacal names are given in the diagram's frame. As had the ancients, medieval authorities believed that the Earth lay at the center of the universe, and that the Sun, Moon, and planets circled it. Also following ancient writers, medieval authors called the planets "wandering stars" because of their eccentric orbits: the word "planet" derives from the Greek "planetoi," for "wanderers." Their orbits were calculated according to the length of

time it took them to complete one circuit of the zodiac. In the wheel diagram in the bottom half of the page, the Earth at center is surrounded by concentric bands containing the names of the heavenly bodies and the intervals of their orbits.

Comment: Top: In the earth at center: “Terra." In the planetary bodies, moving outward: “Luna,” “Mercurius,” “Venus,” “Sol,” “Mars,” “Iupiter,” “Saturnus.” In the outer band, the zodiacal signs, from the top: “Libra,” Scorpio,” “Sagittarius,” “Capricorn,” “Aquarius,” “Pisces,” “Aries,” “Taurus,” Gemini,” “Cancer,” “Leo,” “Virgo.” Bottom: In the earth at center: “Terra,” or “Earth.” From the outer ring, moving inward: “Saturnus fertur explere circulum suum per annos triginta,” or “Saturn is said to complete its circuit in thirty years.” “Phethon currit circulum suum per annos duodecim,” or “Phaethone [Jupiter] runs its circuit in twelve years.” “Vesper peragere dicitur circuli sui partes quindecim annis,” or “Vesper [should be “Mars”] is said to pass through its circuit in fifteen years.” “Sol fertur circulum suum explere per annos viginti,” or “The Sun is said to complete its circuit in twenty years.” “Lucifer percurrit circulum per annos novem,” or “Lucifer [Venus] runs through its circuit in nine years.” “Mercurius peragit cursum suum viginti annis,” or “Mercury passes through its course in twenty years.” “Luna cursum suum perlustrat xix annis,” or “The Moon traverses its course in nineteen years.” A diagram of planetary cycles similar to the one at the bottom of W.73, fol. 2v occurs in the St. John’s Computus, an English manuscript made ca. 1110 at the monastery of Thornley in Cambridgeshire; see Oxford, St. John’s College, Ms. 17, fol. 37v. In the St. John’s College manuscript, the periods of the planetary orbits are not the usual ones given in Bede’s De natura rerum XIII and other sources, but the unusual intervals given in Isidore of Seville’s De natura rerum XXIII, 1-4. In W.73, the periods of the orbits for Saturn, Jupiter, and Mercury accord with Isidore’s numbers; the intervals

for the other planetary bodies diverge from both the Isidorian and Bedan traditions.

fol. 3r:

Title: Diagram of the solstices and equinoxes
Form: Half-page illustration
Text: De solstitio et equinoctio
Label: This diagram shows the positions of the Sun on the days of the solstices and equinoxes. The center constitutes the observer's position, facing south (the diagram's top). The thin yellow band framing the diagram is the horizon. Six yellow circles connected by three red arcs of decreasing size indicate sunrise (left) and sunset (right) at the summer solstice, the spring and autumn equinoxes, and the winter solstice respectively, while the arcs themselves show the Sun's path above the horizon on these days. At the arcs' midpoints are the midday Suns of the solstices and equinoxes. Six straight red lines on either side of the midday Suns indicate the Sun's positions at the third and ninth hours on these days.
Comment: In the earth at center: "Terra;" in the circles that surround it: "Hic ortus pandit quoque casus circuli. Loca signat per tempora queque horarumque" or "Here the sunrise spreads through the calendar. It shows the places through the times and hours (?)". In the yellow discs representing the solstitial and equinoctial sunrises and the midday suns, in red: "Sol." Alongside sunrise at the summer solstice: "Ortus solsticii estiui," or "[Sun]rise at the summer solstice." Alongside sunset at the summer solstice: "I solsticii?" or "In the solstice?" and "Occasus estiui solsticii," or "[Sun]set at the summer solstice." Alongside the equinoctial sunrise: "Ortus solis in equinoctio," or "Sunrise at the equinox." Around the equinoctial sunset: "hic solis occasus," or "here the setting of the sun." The band connecting the equinoctial sunrise and sunset: "facit hic etiam." Alongside the band: "in equinoctio solis in equinoctio (?)" Alongside the lines on either side of the midday Suns, from left: "Hora iii equinoctio," or "The third

hour at the equinox." “Hora iii in equinoctio,” or "The third hour at the equinox. “Hora iii in hiemilis solsticio,” or "The third hour at the winter solstice." “Hora ix in solsticio hiemalis,” or "The ninth hour at the winter solstice." “Hora ix in equinoctio,” or "The ninth hour at the equinox." “Hora ix in Estiuo equinoctio,” or "The ninth hour at the summer equinox." On the band to the left of the midday Suns: “Hic semper medii tempus,” or “Here it is always midday.” To the right: "Sic nato vici," or “Thus, with a change arisen.” On the straight bands beneath the central circles: “Nocto profundam,” or “Boundless night” and "hic semper media noctem," "here it is always the middle of the night." In the arced band connecting the solstitial and equinoctial suns (at left): “Hic estiualis ortus patet. Hic hiemalis,” or “Here opens (begins?) the summer [Sun]rise. Here [opens/begins] the winter [[Sun]rise].” At right: “Hic estiualis occasus. Et hic hiemalis,” or “Here is the summer [Sun]set. And here is the winter [[Sun]set].” The oldest known version of this diagram occurs in the eighth-century C.E. Calendar of St. Willibrord, Paris, Bibliothèque nationale de France, Ms. lat. 10837, fol. 42r. In that manuscript, the diagram is called a horologium or sundial, and it also incorporates a compass figure and the face of a clock. Variant versions of this diagram are a common feature of the cosmographical sections of computus manuscripts. For a similar diagram of the sunrises and sunsets see the example in the St. John’s Computus, an English manuscript made ca. 1110 at the monastery of Thornley in Cambridgeshire; Oxford, St. John’s College, Ms. 17, fol. 35v.

fol. 4r:

Title: Diagram of the phases of the moon
Form: Half-page illustration
Text: Bede: Ubi non sit et quare
Label: This diagram illustrates the Moon’s phases in relation to its distance from the Sun. The Earth at center is surrounded by three concentric rings. Along

the inner ring are seven discs showing the phases of the waxing and waning moon, indicated by pale yellow wash emanating from the Sun, at right. As the diagram makes clear, and as medieval authorities recognized, the Moon's phases are determined by the extent of its illumination by the Sun. The cycle begins with the new, crescent Moon at upper right (approximately 2 o'clock) and moves counterclockwise, with the days of the lunar cycle given in red. It ends when the Moon is not visible -- that is, when it lies directly between the Earth and Sun, the latter labeled "Sol XXX." This day was called by Isidore of Seville (d. 636 CE) the "interlunar interval" (Etymologiae III, lv).

Comment: In the earth at center: "Terra," or "Earth." In the large yellow discs representing the Sun: "Sol" and "Sol XXX," or "Sun," "Sun thirtieth [day]." In the discs representing the Moon, starting from upper right (approximately 2 o'clock) and moving counterclockwise: "Monoides," "Diatomos," "Amphicirtos," "Luna XV," "Amphicirtos," "Diatomos," "Monoides," or "crescent Moon," "half Moon," "gibbous Moon," "Moon fifteenth [day]," "gibbous Moon," "half Moon," "crescent Moon." In the half-circle directly above the Earth: "Emisperium superius per quod luna a sole recedit que a nobis tota uidetur," or "The hemisphere above the Earth is the one through which the Moon moves away from the Sun and is all that part [of the sky] that is seen by us." And above that: "Emisperium dimidia pars spere est. Emisperion supra terram et ea pars celi," or "The hemisphere is half of the sphere. The hemisphere is that part of the heavens above the Earth." In the half-circle directly below the Earth: "Emisperium inferius per quod luna appropinquat soli. Emisperion sub terra est que uideri non potest quamdiu sub terra fuerit," or "The hemisphere under the Earth is the one through which the Moon approaches the Sun. The hemisphere under the Earth is [the part] that cannot be seen as long as it is under the Earth." For a more schematic version of this diagram, see

the example in the St. John's Computus, an English manuscript made ca. 1110 at the monastery of Thornley in Cambridgeshire, Oxford, St. John's College MS 17, fol. 38v.

fol. 5r:

Title: Above: The harmony of the spheres; Below: The planetary orbits

Form: Above: Small illustration, 3 lines high; Below: Half-page illustration

Text: Bede: De positione et cursu septem planetarum

Label: The idea of the harmony of spheres – that numerical proportions corresponding to musical harmonies governed both the movement of the seven heavenly bodies and their distance from the Earth – was taken up by medieval writers from ancient thought. In the illustration of the harmony of the spheres in the upper part of the page, the Sun, the Moon, and the five known planets are depicted as seven discs of equal size. Between them are written musical intervals -- a tone (tonus), a semitone (semitonium), or three semitones (tria semitonia). The diagram below shows the Earth at center. The names of the zodiac are written in the outer frame. The names of the planetary bodies are written above their orbits, shown as red rings. Because each of these heavenly bodies has its own, eccentric orbit, the rings representing their orbits are not concentric.

Comment: In the illustration of the harmony of the spheres, from left to right: "Saturnus;" "Semitonium." "Iuppiter;" "Semitonium." "Mars;" "Tonus." "Sol;" "Tria Semitonia." "Venus;" "Semitonium." "Mercurius;" "Semitonium." "Luna." In the diagram of the planetary orbits: In the earth at center: "Terra." The planetary bodies, moving out from center: "Luna," Mercurius," "Venus," "Sol," "Mars," Iupiter," "Saturnus." In the frame the names of the zodiac, from the top: "Capricornus," "Aquarius," "Pisces," "Aries," "Taurus," "Gemini," "Cancer," "Leo," "Virgo," "Libra," "Scorpio," "Sagittarius."

fol. 5v:

Title: Diagram of planetary courses in the zodiacal signs
Form: Half-page illustration
Text: Abbo of Fleury: Sententia Abbonis de differentia circuli et sphere
Label: In this diagram, the names of the seven planetary bodies – the Sun, the Moon, and the five known planets – are written along the vertical, at left. At top, along the horizontal, are the zodiacal names. One may follow the path of each planetary body through the zodiac by reading the graph from left to right. The diagram gives a sense not only of the independence of each planet's orbit, but also of the different lengths of time it took each planet to complete one circuit of the zodiac. Along the bottom of the diagram is a list of the planetary bodies, with their distances given as musical values -- a tone (tonus), a semitone (semitonium), or three semitones (tria semitonia) -- as well as an abbreviated account of interplanetary distances, given as proportions of the distance from Earth to the Moon.
Comment: Along the vertical, from the bottom: "Luna," "Iuppiter," "Mars," "Saturn," "Sol," "Mercurius," "Venus." Along the horizontal, at top, from left to right: "Aries," "Taurus," "Gemini," "Cancer," "Leo," "Virgo," "Libra," "Scorpio," "Sagittarius," "Capricornus," "Aquarius," "Pisces." Along the bottom, reading from left to right, beginning with "Tellus" (Earth): "Tellus. Tonus. Luna. Semiton(ium). Mercuri(us). Semiton(ium). Venus. Tria Semi(tonia). Sol. Tonus. Mars. Semiton(ium). Saturnus. Tria Semi(tonia). Signifer." Along the bottom, reading from right to left, beginning with "A Terra": "A Terra usque ad Lunam CXXV stadiorum. A Luna ad Sole(m) duplu(m). Hinc ad XII signa triplicatum," or "From the Earth all the way to the Moon is 125,000 stadia, and double that from the Moon to the Sun, and three times that [from the Sun] to the zodiacal signs." A similar version of this diagram occurs in the Winchcombe Computus, an early twelfth-century manuscript made for St. Kenelm's Abbey, Winchcombe; see London,

British Library Cotton MS Tiberius E. IV, fol. 142r. In the St. John's Computus, an English manuscript made ca. 1110 at the monastery of Thornley in Cambridgeshire, the graph is rectangular rather than square; see Oxford, St. John's College MS 17, fol. 38r. The artist colored some of the individual squares and triangles within the diagram for decorative effect. A "stade" equaled 600 Greek feet, a distance estimated to be the equivalent of anywhere from 517 to 607 feet.

fol. 6v:

Title: Above: Diagram of the celestial climate zones; Below: Diagram of the terrestrial climate zones

Form: Two 1/3 page illustrations

Text: Abbo of Fleury: De quinque zonis celi

Label: Following ancient writers, medieval scholars identified five climactic zones: the Arctic and Antarctic, or North and South frigid zones; the North and South temperate zones, extending from the Tropic of Cancer to the Arctic Circle and the Tropic of Capricorn to the Antarctic Circle; and the torrid zone between the two tropics. Only the temperate zones were thought to be habitable. In the upper diagram, the five climate zones are shown in an abstract configuration resembling a flower with five circular petals. In his De natura rerum, Isidore of Seville (d. 636 CE) relates the zones to the five fingers of the human hand. As the hand was a fundamental mnemonic tool in the ancient and medieval worlds, Isidore's likening of the petals to fingers makes this diagram an effective memory device. In the lower diagram, the zones are rendered as if projected onto the globe, as arcs and circles.

Comment: In the center of the upper diagram: "Emerinos latine dicitur dies atque nox," or "Emerinos in Latin is called the day and the night." In the "petals" of the diagram, beginning at lower left: "Primus cyclus Arcticos frigore inhabilitabilis," or "The first zone, the Arctic, is cold and uninhabitable." "Secundus thermos temperatus habitabilis," or "The second [zone] is warm, temperate, and habitable."

“Mediuus ysemerinos torridus inhabitabilis,” or "The middle zone is torrid and uninhabitable.” “Quartus exemerinos temperatus habitabilis,” or "The fourth zone is temperate and habitable.” “Quintus cyclus Antarcticos frigidus inhabitabilis,” or "The fifth zone, the Antarctic, is cold and uninhabitable.” In the lower diagram, at center: “Ethiopum Terra," or “The land of Ethiopia.” Within or along the arcs and in the circle at the bottom of the diagram, reading from top down: “Circulus Australis qui est frigore inhabitabilis,” or “The southern cycle, which is cold and uninhabitable.” “Circulus inter frigus et calorem habitabilis,” or “The cycle between the cold and hot is habitable.” “Circulus solis ardore torrens et inhabitabilis,” or "The circle of the heat of the Sun (the equatorial circle) is torrid and uninhabitable.” “Circulus inter calorem et frigus habitabilis,” or “The circle between the hot and cold is habitable.” “Circulus inhabitabilis frigore,” or “The (Arctic) circle is uninhabitable on account of cold.” Diagrams of the celestial climate zones appear frequently in scientific manuscripts from the ninth century; see for example a computus manuscript made after 861 at Fleury or Nevers in northeast France; London, British Library Harley MS 3017, fol. 90v. In a tenth-century manuscript of Isidore’s De natura rerum, the diagram’s resemblance to a flower is emphasized; see Paris, Bibliothèque nationale de France MS latin 6649, fol. 8v. The two climate diagrams on W.73, fol. 6v also appear together in the St. John’s Computus, an English manuscript made ca. 1110 at the monastery of Thornley in Cambridgeshire, and in the Peterborough Computus, produced at Peterborough ca. 1122-1135; see Oxford, St. John’s College MS 17, fol. 40r and London, British Library Cotton Tiberius MS C. I, fol. 11v.

fol. 7r:

Title: Above: Diagram of the terrestrial climate zones with the Riphaean mountains; Below: Diagram of the circuit of the moon in the zodiac

Form: Two half-page illustrations
Text: Bede: De quinque circulis mundi et subterraneo siderum meatu
Label: In the diagram in the top half of the page, the observer's point-of-view is the North Pole. This diagram is similar to the one in the lower part of fol. 6v, except that it also shows the Riphaean Mountains – a mythical range of peaks thought to mark the boundary between Asia and Europe, and the Arctic and North temperate zones -- represented as seven abstract, colored silhouettes resembling triangular game-pieces. The diagram in the bottom half of the page charts the course of the Moon through the zodiac, correlating the lunar or synodic months and the zodiacal signs. According to the De natura rerum (On the nature of things) of the English scholar, Bede (d. 735 CE), the Moon journeys through the zodiac thirteen times in twelve lunar months; thus, it runs through each zodiacal sign in a little over two days and six hours.
Comment: In the upper diagram, at center: "Riphei Montes," or "The Riphaean Mountains." Within or along the arcs and in the circle at the bottom of the diagram, reading from top down: "Circulus Australis qui est frigore inhabitabilis," or "The southern cycle, which is cold and uninhabitable." "Circulus inter frigus et calorem habitabilis," or "The cycle between the cold and hot is habitable." "Circulus solis ardore inhabitabilis," or "The circle of the heat of the Sun (i.e., the equatorial circle) is uninhabitable." "Circulus habitabilis inter frigus et calorem habitabilis," or "The circle between the cold and heat is habitable." "Circulus frigore inhabitabilis," or "The [Arctic] circle is cold and uninhabitable." Around the rim of the diagram: "Ethereus zonis quint[i]s accingitur orbis," or "The circle [of the world] girded by the five celestial zones." Below the Riphaean Mountains, in red: "Quintus," or "Five." In the lower diagram, reading outward: Innermost ring: "Cursus lune per duodecim signa," or "The course of the Moon through the twelve zodiacal signs." In the third ring from center: The first letters

of the names of the twelve months of the year, reading counterclockwise from the top and beginning with “A” for April. In the fourth ring: The number of lunar days in each month -- either XXIX or XXX. In the fifth ring: The days of a single siderial month, numbered I-XXX and reading counterclockwise from the top. The numbers in this ring are the days of the siderial month in which the Moon is in the zodiac sign named in the corresponding sector of the sixth ring (the next ring out). In the sixth ring: The twelve names of the zodiac, reading counterclockwise from the top, beginning with Aries. In the outer ring, beginning at bottom left: “Hic qualem mensis fert lunam quisque uidebis. Unus ter denam fert alter et unde tricenam. Et lune cursus per singula signa notabis,” or “Here you will see what sort of moon each month brings. The one moves three times ten, the other, and whence thirty (?). And you will note the course of the Moon through each zodiacal sign.” At the bottom, a small inscription describes the middle of the moon's monthly course: "Diametrum vocatur locus ubi xv erit luna vel ideo Diane terminum (?) dicitur quia ibi est dimidium men[s]ium celi." In the version of the diagram of the terrestrial climate zones in the St. John’s Computus, an English manuscript made ca. 1110 at the monastery of Thornley in Cambridgeshire, the Riphaean Mountains are represented as a zig-zag; see Oxford, St. John’s College MS 17, fol. 87v. The St. John’s Computus contains a similar diagram of the Moon’s circuit through the zodiac, as does the Winchcombe Computus, an early twelfth-century manuscript made for St. Kenelm's Abbey, Winchcombe; see Oxford, St. John’s College MS 17, fol. 77v and London, British Library Cotton MS Tiberius E. IV, fol. 62r. A sidereal month is the time the Moon takes to complete one full orbit of the Earth in relation to the background stars. A sideral month lasts about 27 1/3 days, while a synodic or lunar month – the period of the Moon’s phases – is about 29 ½ days. A synodic month is longer than a sideral month on account of the fact that the Earth orbits the Sun: as a result, the Moon must

travel slightly more than one full orbit of the Earth to get from one new moon to the next.

fol. 7v:

Title: Above: Diagram of a cube; Below: Diagram of the microcosmic-macrocosmic harmony

Form: Two 1/3 page illustrations

Text: Isidore: De partibus mundi

Label: Two overlapping squares with a common diagonal create the cube in the upper diagram. The Sun is portrayed in the upper left corner, the Moon in the lower right. The four elements, Earth, Air, Fire, and Water, along with their respective properties, occupy the cube's upper square. The wheel-shaped diagram in the bottom part of the page visualizes the idea that Man is a microcosm of the universe, and the universe a macrocosm of Man. Within the ring at center are the words (reading from top to bottom) "World," "Man," and "Year." The eight intersecting arcs illustrate the relationships among the parts of the world – the four elements, the four bodily humors, and the four seasons. The cross shape created by the arcs expresses Christ's role in restoring to nature its original harmony, order, and meaning, believed to have been disrupted by the Fall of Man.

Comment: In the upper diagram, in the center square, moving clockwise from left: "Hec figura solida est secundum geometriciam rationem," or "This solid figure is according to the rule of geometry." "Ennagonus Sol," or "The seven-fold Sun." "Ignis. Tenuis. Acutus. Mobilis," or "Fire. Light (Weightless). Sharp. Mobile." "Aer. Mobilis. Acutus. Crassus," or "Air. Mobile. Sharp. Dense." "Aqua. Crassa. Obtunsa (for "Obtusa"). Mobilis," or "Water. Dense. Dull. Mobile." "Terra. Crassus. Obtusas. Immobilis," or "Earth. Dense. Dull. Immobile." "Eptagonus Luna," or "The seven-fold Moon." In the lower diagram, at center: "Mundus. Homo. Annus," or "World. Man. Year." Beginning at the top of the diagram, the outer ring and "bars" of the cross, moving clockwise: "Ignis. Siccus. Calidus:

Estas, colera rubea," or "Fire. Dry. Warm: Summer, angry bile." "Aer. Calidus. Humidis: Ver, sanguis," or "Air. Warm. Moist: Spring, blood." "Aqua. Humida. Frigida: Hiemps phlegma," or "Water. Moist. Cold: Winter, phlegm." "Terra. Frigida. Sicca: Autumnus. Colera. Mela[ncholia]," or "Earth. Cold. Dry: Autumn, [black] bile, melancholy." Versions of the cube diagram occur in London, British Library Harley MS 3017, fol. 90v, a computus manuscript made after 861 CE at Fleury or Nevers in northeast France; and the St. John's Computus, an English manuscript made ca. 1110 at the monastery of Thornley in Cambridgeshire, see Oxford, St. John's College MS 17, fol. 39r. The diagram of the microcosmic-macrocosmic harmony also appears in the St. John's Computus; see Oxford, St. John's College MS 17, fol. 39v. The cube illustrates the mathematical equilibrium believed to exist among the different degrees of angularity, density, and mobility of the four created elements, Earth, Air, Fire, and Water.

fol. 8r:

Title: Above: Diagram of the harmony of the year and seasons; Below: Diagram of the harmony of the elements, seasons, and humors

Form: Two half-page illustrations

Text: Anon., iuxta Ysidorum: De quattour temporibus, elementis, humoribus

Label: Both of these wheel-shaped diagrams resemble in their structure the diagram of the microcosmic-macrocosmic harmony on the preceding page. The eight intersecting arcs of the top diagram show the relationships among the four seasons, the four qualities of the year, the four cardinal directions, and the dates of seasonal changes. Thus, this diagram illustrates the notion of the unity of time and space as expressed in the Spanish scholar Isidore of Seville's (d. 636 CE) scientific work, De natura rerum (On the nature of things, X). The bottom diagram illustrates the relationships among the four elements – Earth, Air, Fire, and Water – the four seasons, and the four bodily

humors – phlegm, blood, yellow bile, and black bile -- as well as giving qualities associated with each. These relationships, first articulated by classical authorities and reprised in Isidore's De natura rerum, XI, iii, form the basis of medieval medicine.

Comment: In the top diagram, at center: "Annus cuius communionis hec est figura." or "The year, of whose communion this is the figure." Starting at the top and moving clockwise: "Ver oriens iiii Kalends Martii. ix.? Diebus. ii," or "Spring East 4 Kalends March 9 days 2." "Calidus," or "Warm." "Estas meridies viii Kalends Iunius. Diebus. xv," or "Summer South 8 Kalends June 15 days." "Sicca," or "Dry." "Autumnus occidens x Kalends Septembrio Diebus xviii," or "Autumn West 10 Kalends September 19 days." "Frigidus," or "Cold." "Hiemps septemtrio viii Kalends Octobrio Diebus xx," or "Winter North 8 Kalends October 20 days." "Humida," or "Moist." In the bottom diagram, at center: "Communio elementorum mundi temporum anni humorumque corporis humani," or "The communion of the elements of the world, the seasons of the year, and the humors of the human body." Starting at the top and moving clockwise: "Ignis calidus et siccus estas calida et sicca," or "Fire is warm and dry, summer is warm and dry." "Aer calidus et humidus ver humidus et calidus," or "Air is warm and moist, spring is moist and warm." "Aqua humida et frigida hyemps humida frigida," or "Water is moist and cold, winter is moist and cold." "Terra frigida et sicca Autumnus frigidus et siccus," or "Earth is cold and dry, Autumn is cold and dry." "Colera rubuea sicca et calida," or "Red, angry bile (or yellow bile) is dry and warm." "Sanguis humidus et calidus," or "Blood is moist and warm." "Flegma humidum et frigidum," or "Phlegm is moist and cold." "Melancolia humida et frigida," or "Black bile is moist and cold." For simpler versions of the two diagrams on W.73, fol. 8r, see London, British Library Cotton MS Vitellius A. XII, fols 50v and 52v, a late-eleventh-century manuscript with twelfth-century additions made in Salisbury, England.

fol. 8v:

Title: Tidal diagram (rota)

Form: Half-page illustration

Text: Bede: De aestu oceani

Label: This wheel-shaped diagram illustrates the monthly movement of the tides, and shows the correspondences between the tides and the age of the Moon as set out in the English scholar Bede's (d. 735 CE) De natura rerum (On the nature of things, XXXIX). The T-O map of the inhabited world occupies the diagram's center. The twelve sectors contain brief characterizations of the twelve winds. The first of the three outer rings shows four tidal cycles of seven or eight days each; the next ring, labeled "water" (aqua) thirty times, represents the ocean surrounding the world. The last ring in this group gives the days of the lunar or synodic month, beginning at top. The four small circles at the corners--perhaps four representations of the Moon--give the days of the two lesser (or lowest) tides and the two greater (or highest) tides of the month.

Comment: In the band around the diagram's circumference: "Mare lune altum luci flue sic obsequitur," or "The deep sea complies with the light of the flowing moon." At the center: "Asia. Europa. Affrica." In the band around the center: "Partibus his terris totus distin[g]uitur orbis," or "The whole orb is divided into parts by these lands." In the twelve sectors, beginning at left (the North): "Ventorum primus cardinalis Septentrio frigidus et niualis facit frigora et niues," or "The first of the cardinal winds, Septentrio, is cold and snowy and makes cold and snow." "Aquilo sinister Septentrionis gelidus atque siccus non discutit nubes sed distringit," or "Aquilo, to the left of Septentrio, is icy and dry. It does not disperse the clouds but draws them apart." "Vulturnus qui et calcias dextrior Subsolani hic dissoluit cuncta et desiccat," or "Vulturnus, which is also called Calcius, is to the right of Subsolanus. It breaks up and dries out everything." "Secundus cardinalis Subsolanus ab

ortu intonat Solis et est temperatus," or "The second cardinal [wind], Subsolanus, thunders from [beneath] the rising of the Sun and is temperate." "Eurus sinister Subsolani orientem nubibus semper irrigat," or "Eurus, to the left of Subsolanus, always waters the East with clouds." "Euroauster calidus ventus a dextris intonat Austri," or "Euroauster is a warm wind. It thunders from the right of Auster." "Tertius cardinalis Auster humidus calidus atque fulmineus," or "The third cardinal wind, Auster, is moist, warm, and bears lightning." "Euronothus ventus temperatus calidus a sinistris Austri aspirat," or "Euronothus is a temperate and warm wind. It blows from the left of Auster." "Affricus dexter zephiri generat tempestates et pluuias et facit fulminum impulsus," or "Affricus to the right of Zephirus generates storms and rain, and makes lightning strikes." "Quartus cardinalis zephirus hiemem resoluit floresque producit," or "The fourth cardinal wind, Zephirus, breaks winter and produces flowers." "Chorus qui et argestes ex sinistra parte fauonii aspirat," or "Chorus, which is also called Argestes, blows from the left side of Favonius." "Circius dexter Septrionis facit niues et gra[n]dinum coagulationes," or "Circius to the right of Sept[ent]rio makes snow and coagulations of hail." In the moon-discs at the corners, beginning at upper right and moving clockwise: "Luna v incipit ledona," or "The fifth lunar day begins the lesser tide." "Luna xiiii incipit malina," or "The fourteenth lunar day begins the greater tide." "Luna xx incipit ledona," or "The twentieth lunar day begins the lesser tide." "Luna xxviii incipit malina," or "The twenty-eighth lunar day begins the greater tide." Around the sides of the page, beginning at upper right: "Monstrant ledones hoc iugiter atque maline scilicet accessus maris assiduusque recessus ens egit lune tumidum mare cedit exoritur luna mox effluit et maris unda occidit et luna refluendo recurrit," or "The greater and lesser tides show this continually [and] of course the constant ebb and flow of the sea... The moon arises and soon recedes and the swell of the sea diminishes, and the moon

returns flowing back." The T-O map is a conceptual diagram intended to show the relative positions of the three continents. The T, the Mediterranean Sea, separates Asia, Europe, and Africa, while the O is the surrounding ocean. Although the origins of the T-O map lie in the literature of classical antiquity, some of the earliest surviving pictorial examples occur in early medieval manuscripts of the works of Isidore of Seville. Simple versions of the tidal diagram occur in scientific manuscripts from the Carolingian period on. The tidal rota on W.73, fol. 8v is a hybrid that fuses the basic tidal diagram with early wind rotae. This combination reflects Bede's assertion that the winds effect the movement of the tides. For a tidal diagram similar to the one in W.73, see London, British Library Harley MS 3017, fol. 135r, a computus manuscript made after 861 CE at Fleury or Nevers in northeast France.

fol. 9r:

Title: Consanguinity chart

Form: Half-page illustration

Text: Isidore: De trimoda ratione temporum et divisionibus eorum

Label: This wheel-shaped diagram sets out the degrees of kinship that determine whether two individuals related by blood may marry. Diagrams of consanguinity also were used to determine inheritance when the deceased left no will. The six concentric rings of the diagram represent six generations of a family. Each ring is divided into ten sectors, in which are written the bloodlines of family descent and connections.

Comment: At the center of the diagram: "Vox filii utriusque sexus." In the band around the center, beginning at top: "Vox sobolis patris prolis vox ista que matris." In the surrounding bands, the inscriptions describe and name the various relations that an individual might have, e.g.: "Genitores patris mei et et matris mee avi mihi sunt," or "The parents of my father and mother are my grandparents"; "Proamita est

proavi paterni soror," or "[My] paternal great-aunt is the sister of [my] paternal great-grandfather"; "Filii matertere mee ad se germani et ad me fratrueles," or "The children of my aunt are brothers to themselves and cousins to me." They are arranged into ten categories, beginning at the top and proceeding clockwise: father and mother and their parents; from maternal uncles and aunts and their children; maternal uncles and aunts and their parents; maternal cousins; nephews and nieces; sons and daughters and their children; aunts and uncles; paternal cousins; paternal uncles and aunts and their parents; paternal uncles and aunts and their children. In medieval scientific manuscripts, material on consanguinity was presented in three formats: as a tree diagram, a step diagram, and as a wheel-shaped diagram, as in W.73, fol. 9r. The tree diagram was the most popular schema. A tenth-century manuscript made at Saint-Martial, France, contains all three types of diagram; see Paris, Bibliothèque nationale de France, Ms. latin 5239, fols. 163r-166r. In some scientific and legal manuscripts, the table of consanguinity is superimposed on a human figure. In a manuscript of Isidore's Etymologiae made ca. 1160-65 at the German monastery of Prüfening, the consanguinity chart becomes the body of Adam; see Munich, Bayerische Staatsbibliothek, Clm 13031, fol. 102v. In a manuscript of the Decretals of Gregory IX made in Paris or Sens ca. 1170-80, the consanguinity table is superimposed on the image of God; see Los Angeles, J. Paul Getty Museum, Ms. Ludwig XIV 2, fol. 227v.

Binding

The binding is not original.

Bound in the late nineteenth or early twentieth century by Léon Gruel in Paris; brown calf over mill-board, scorched line border, gold fillet on board edges, three gold fillets on turn-ins; title scorched in spine "Cosmographia"

Provenance

Created in England, late twelfth century, for monastic use

Gruel and Englemann collection, Paris, no. 131, bookplate inside upper board

Acquired by Henry Walters from Léon Gruel, June 9, 1903

Acquisition

Walters Art Museum, 1931, by Henry Walters' bequest

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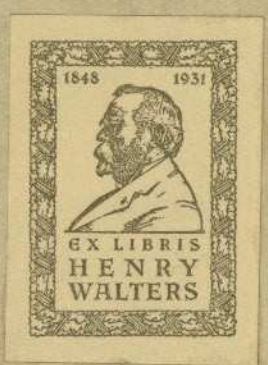
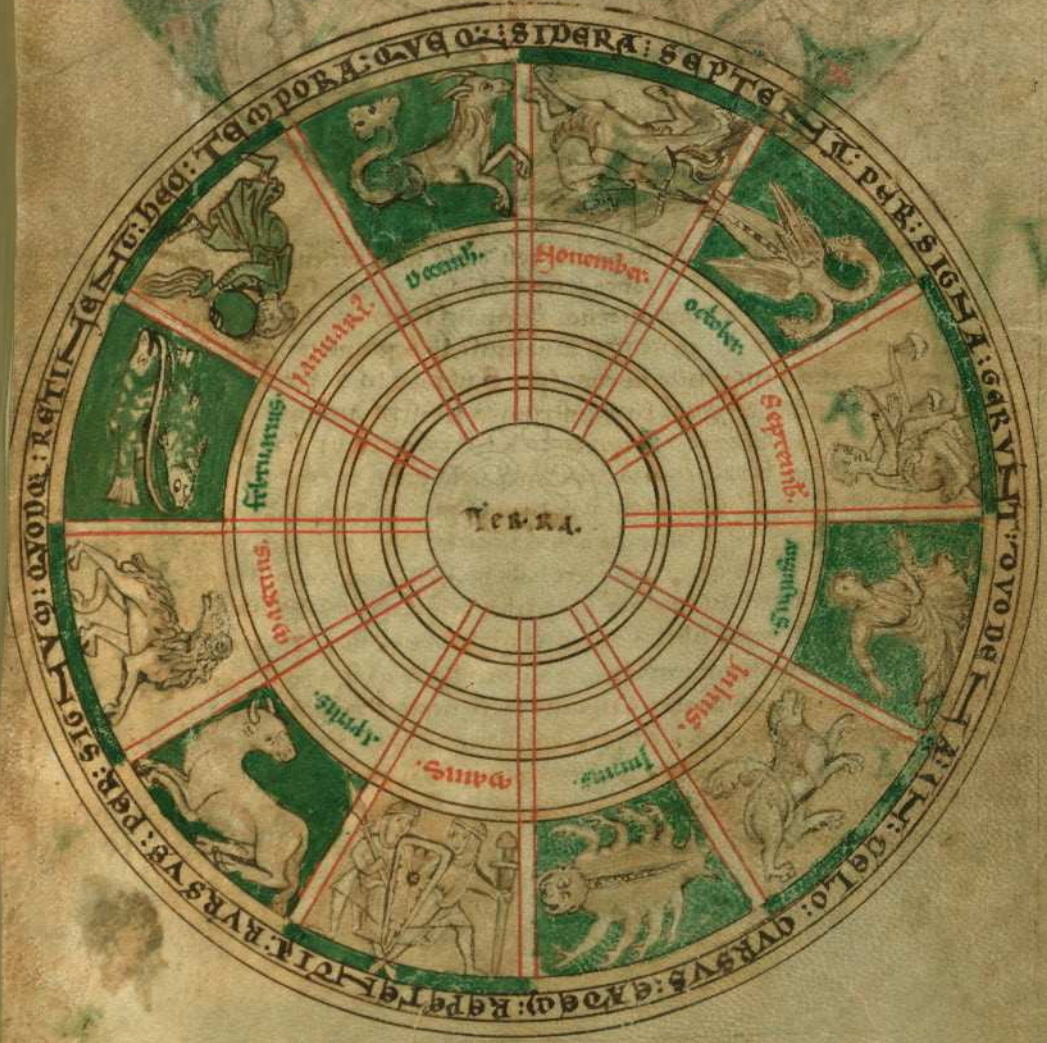
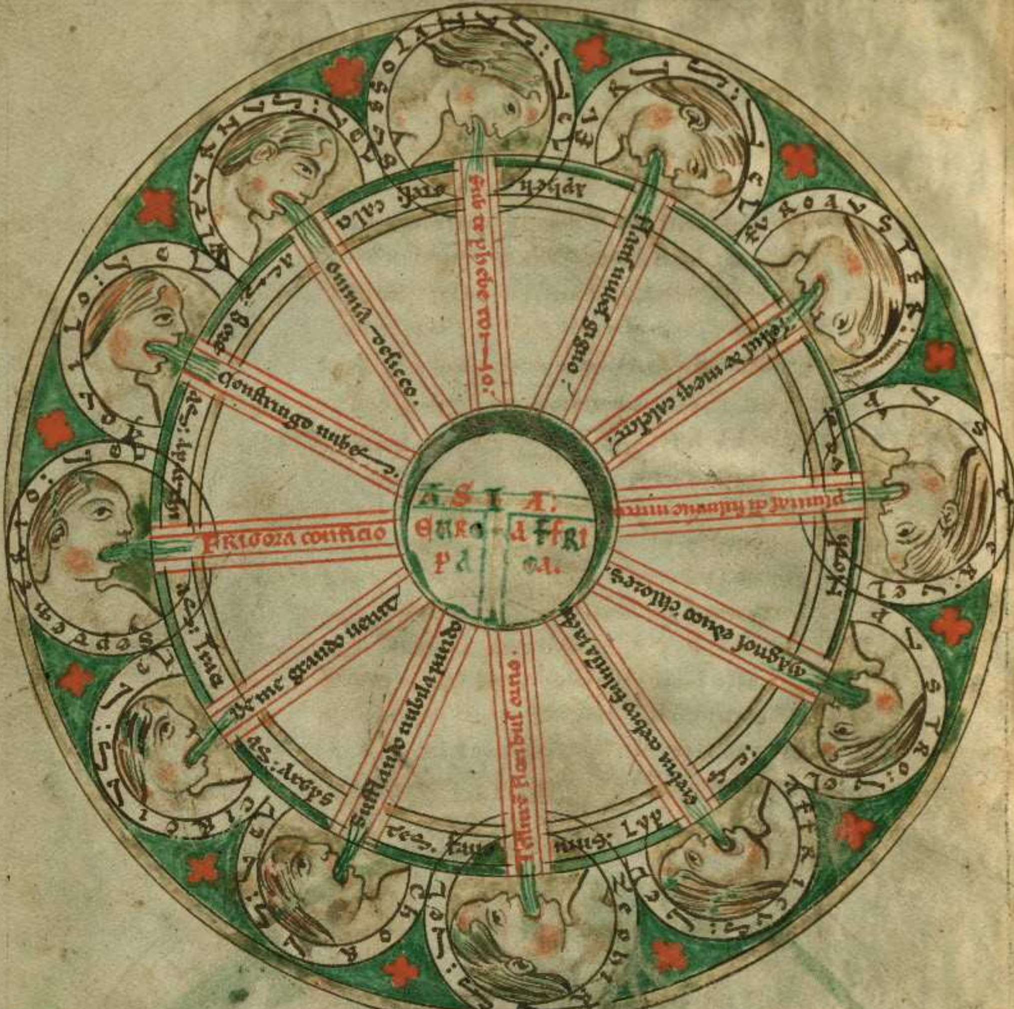


Tractat de Sphera



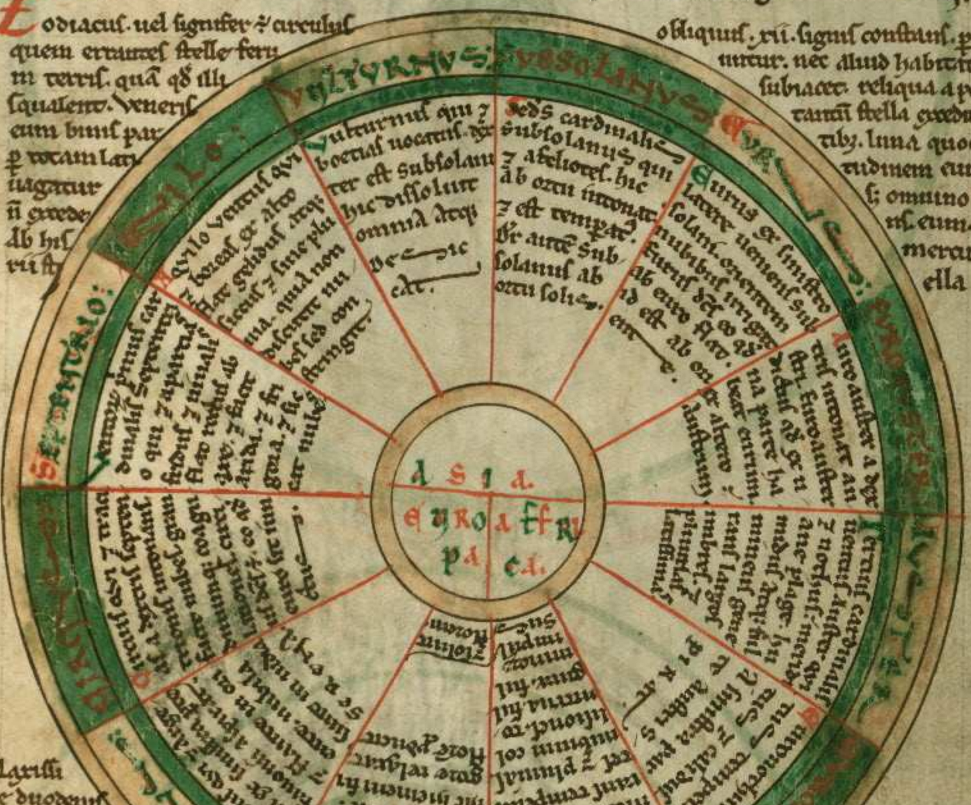


Ventus est aer commotus. et pro diuersis partibus celi diuersa nomina sortitus. Dictus autem ventus quod sit uehemens et uiolentus. Vis enim eius tanta est. ut non solum saxa et arbores uellat. sed etiam celum terramque conturbet. maria commoueat. Ventorum quatuor principales sunt spiritus. Quorum primus ab oriente Subsolanus. A meridie: auster. Ab occidente: fauonius. Ab Septemtrione: eidem nomine uentus aspirat. habentes geminos hinc et inde uentorum spiritus. Subsolanus a latere dextro Vulturnum habet. a leua Eurum. Auster a dextris Euroaustrum. a sinistris: austroaffricum. Fauonius a parte dextra: affricum. a leua: chorum. Septentrio a dextris circium. a sinistris: aquilonem. Hi duodecim uenti mundi globum flatibus circumagunt. quorum nomina proprius ex causis signata sunt.

Subsolanus uocatus: eo quod sub ortu solis nascatur. Eurus ab eo quod flat ab oriente. Vulturnus eo quod alte tonat. Auster ab hauriendo aquas uocatur. Idem et nothus: quod interdum corrumpat aerem. Euroauster dictus: quod ex una parte habeat Eurum. ex altera austrum. Austroaffricus quod iunctus sit hinc austro. inde affrico. Ipse et libonothus quod sit Lyps hinc et inde nothus. Ex eius nomine pars mundi tercia libia est dicta. eo quod ipse lyps inde flat. Zephirus appellatus: eo quod flores et germina eius flatu uiuificentur. Idem et fauonius. pro eo quod foueat que nascuntur. Affricus. quod in affrica initium flandi sumit. Chorus: quod ipse uentorum circulum claudat. et quasi chorum faciat. Septentrio dictus: eo quod a circulo septem stellarum consurgit. Circius dictus: eo quod choro sit iunctus. Aquilo dictus: eo quod aquas stringat. nubesque dissipat. Idem et boreas. quia ab yperboreis montibus flat. Inde enim origo eidem uenti est: unde et frigidus est. Natura autem omnium uentorum septentrionalium frigida et sicca est. australium uero humida et calida. Ex omnibus autem uentis

duo cardinales sunt. Septentrio. et Auster. Ethesie autem flabra aquilonis sunt. quibus nomen inditum est. quod certo anni tempore flatus agere incipiunt. Duo sunt autem extra hos ubique spe magis quam uenti. aura et altanus. Aura: ab aere dicta. quasi aeria. quod leuis sit motus aeris. Agitatus enim aer: auram facit. Altanus qui in pelago est: pro diuinatione ab alto. id est mari uocatur. Nam alter est flatus in ripis. quem dicunt auram. Aura enim terre est. Turbo est uolubilitas uentorum. Et turbo dictus est a terra. quotiens uentus consurgit. et terram in circuitu mittit. Tempestas autem pro tempore dicitur. sicut ubique hystoriographi solent. dum dicunt ea tempestate. aut a statu celi. que magnitudine sui multis diebus oritur. Verno autem et autumnali tempore quam maxime fiunt tempestates: quando nec plena est estas. nec plena est hiemps. Vnde et medium est confine utriusque temporis ex coniunctione aerum contrariorum efficiuntur tempestates. Fragor a fractarum rerum nominatus est sonitus: quia sicca quoque et arida facile franguntur. Procella ab eo quod percellat. id est percutiat et euellat. Est enim uis uenti cum pluuia. Procelle enim aut de fulminibus. aut de uentis fiunt. Michil autem uelocissimi uenti. Vnde et propter celeritatem tam uentos quam fulmina poete alata fingunt.

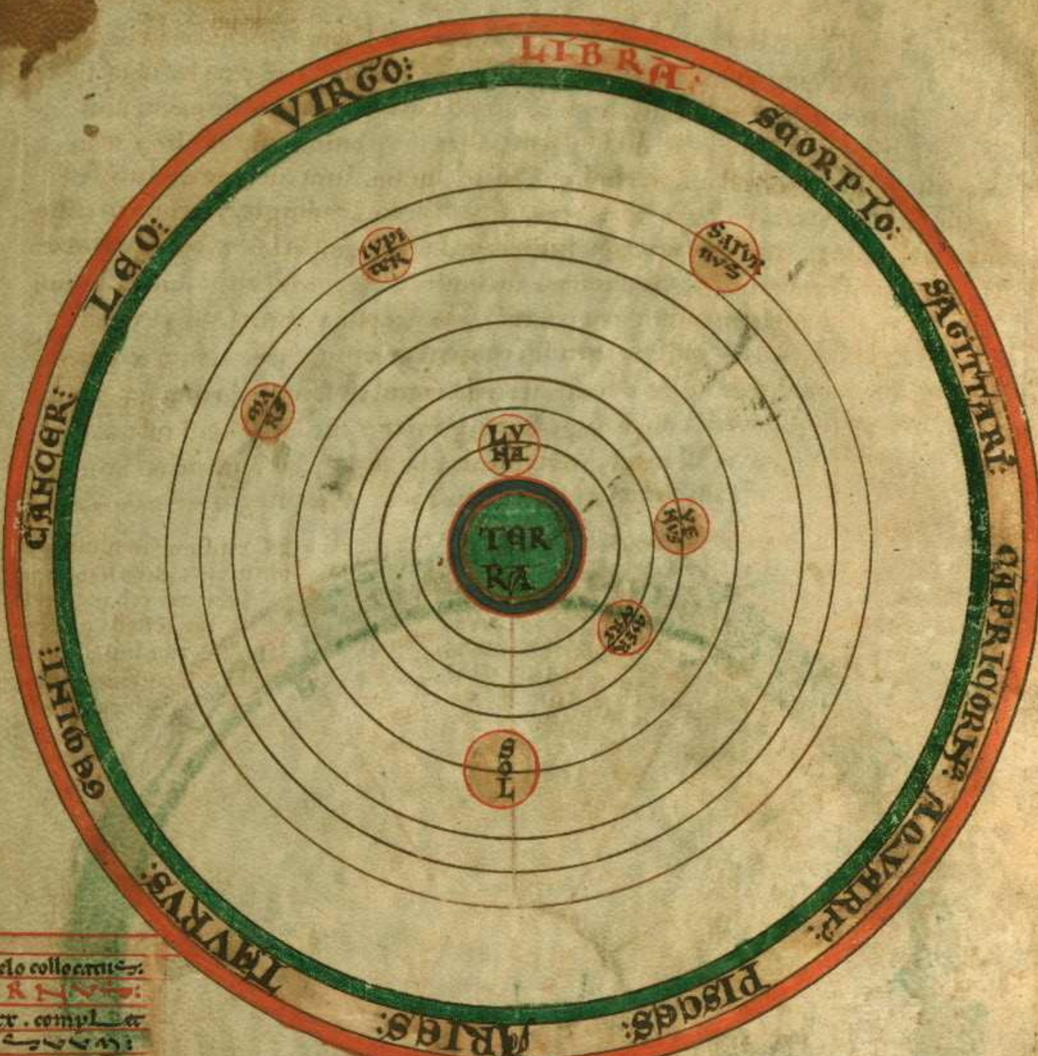
Zodiacus. uel signifer est circulus quem errantes stelle ferun[t] in terris. quam quod illi squalent. Veneris eum binis par per totam lat uagatur non excede ab his uii



obliquus. xii. signis constans. p nitur. nec aliud habitatur subiacet. reliqua a polis tantum stella exced tibus. luna quoque tudinem eius sed omnino nis. eum. mercu ella

latissi e duodeni enim latitu us octonas per inter. sed duas in me duas. Sol deinde in medi flexuoso draconum meatu inequa media. et super eam duabus. Saturni. duabus ut sol.

ine. ut tam partibus tot fr dines. non amplius tet. neque has equa dio est et supra iiii. infra o fertur inter duas partes lis. Martis stella. iiii. medius. Iouis



In .vii. celo collocatus:
SATURNUS:
Annis .xxx. complet circulum suum:

In .vi. celo positus:
IUPITER:
Annis .xii. complet suum cyclum:

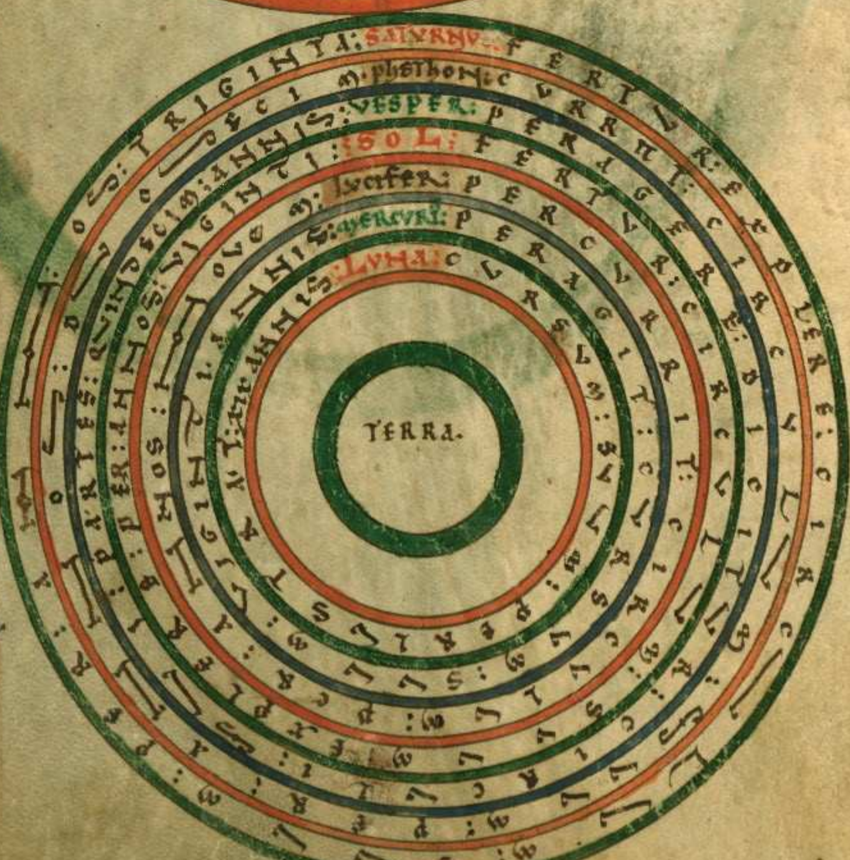
In .v. celo locatus:
MARS:
Annis .ii. suum complet ambitum:

In .iiii. celo collocatus:
SOL:
Annis .xxviii. suum perlustrat circulum:

In .iii. celo situs:
VENUS:
Annis .ix. suum percurrit cyclum:

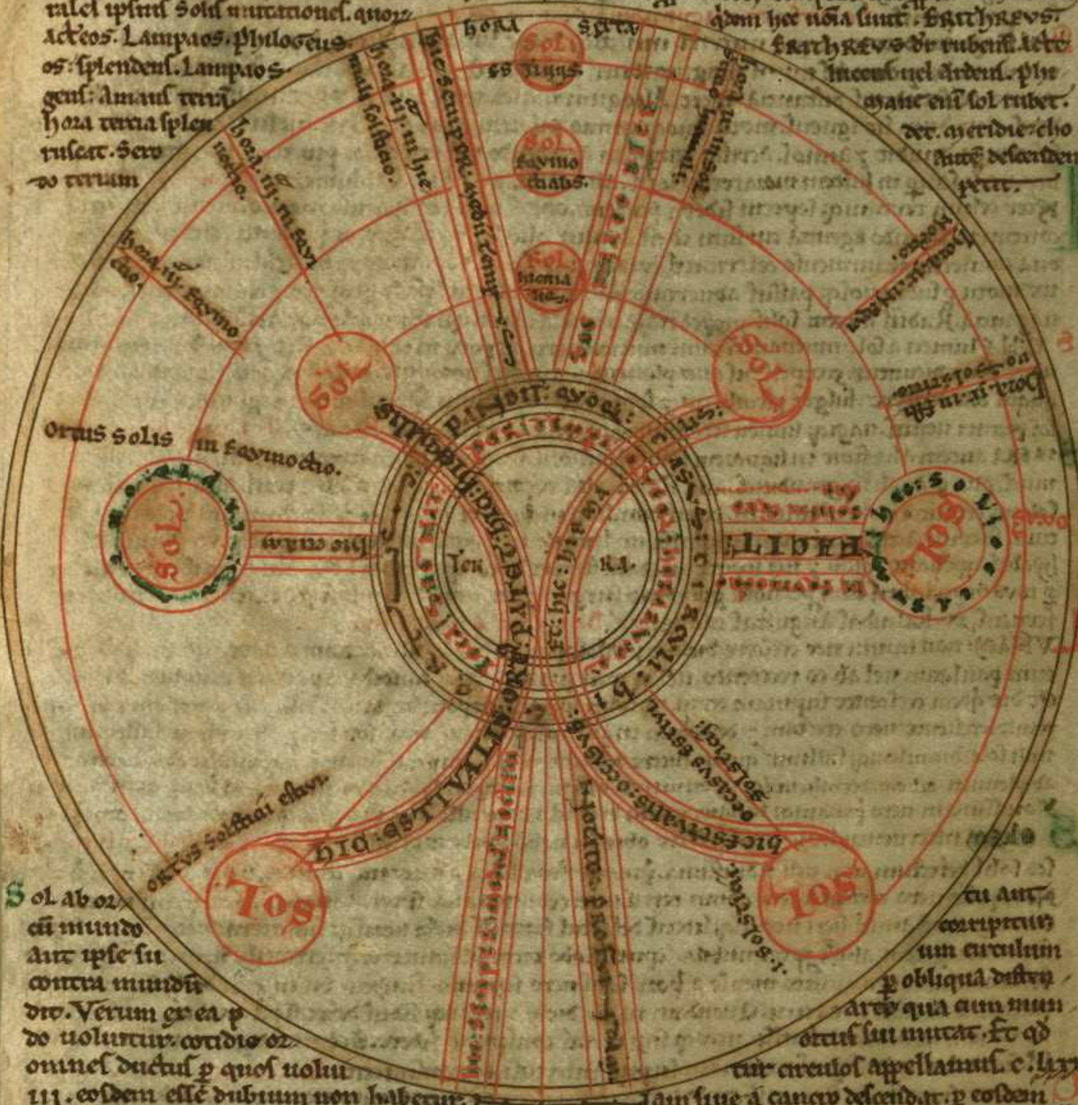
In .ii. celo positus:
MERCURIUS:
Annis .xx. suum complet cyclum:

Omnium infimus et terre proximus.
LUNA:
ANNIS .xix. suum peragit ambitum:



Decursu solis. Hoc modo ut ista formula assignavimus. cursus solis hiemalis. et equinoctialis et estivalis patuit. Qui ideo ds diversos constituit cursus. loca eciam et tempora medium autem [illegible] moraretur locis. cotidiano eius vapore consumerentur quoque nascentia terre. Sed cursus [illegible] quibus aeris tempies pro tempore ratione disponatur. Nam dum ad superiora conscendit: vernale temperamentum reddit. Ubi autem ad summam celi venerit arcem: estivos accendit calores. Rursus descendens: autumno tempiem reddit. Ubi vero ad inferiorem circulum: glaciali compage ob celi rigorem hiberni frigoris nobis derelinquit.

Sol dr habere. iiii. equos: vel propter. iiii. tempora. vel propter. iiii. naturales ipsius solis mutationes. quorum quidem hec nomina sunt. Erithreus. Acteos. Lampaos. Philogeus. [illegible] Erithreus dr rubens. Acteos: splendens. Lampaos [illegible] incens vel ardens. Philogeus: amans terram [illegible] mane enim sol rubet. hora tercia splen[dens] [illegible] dev. meridie cho[ruscat] [illegible] autem descenden[do] terram [illegible] petit.



Sol ab o[riente] [illegible] cum mundo [illegible] aut ipse su[o] [illegible] contra mundum [illegible] [illegible] tu aut [illegible] corripitur [illegible] um circulum per obliqua distri[buit]. Verum ex ea p[arte] [illegible] arte qua cum mundo volvitur: cotidie or[tus] [illegible] ortus sui mutat. Et quod omnes ductus per quos volu[itur] [illegible] tur circulos appellamus. c. lxxxiii. eosdem esse dubium non habetur. Nam sive a cancro descendat. per eosdem usque ad brumalem circulum currit. sive a bruma in solsticium veniat: per ipsos denuo revolvitur. Qui quidem secantes sedo zodiacum: contrariis signis pp[er]tuo lineantur. Nam primus Arietis articulus. primus est Libre. Item xxx. Arietis: xxx. est libre. Item tauri prior: Scorpionis est primus. Sic ergo ccc.lxvi. partibus fiunt. c. lxxxiii. circuli. quos omnes parallelos appellamus. Et ex contrario ut dixi. signa isdem partibus secant. Ergo bis hos circulos annuos ccc lxv. diebus et quarta diei parte peragit sive ad solsticialem circulum tendat. sive ex inde revertatur.

Illud etiam non tacendum. quod cum duo sint emispia. unum ab equinoctiali circulo in septentrionali. aliud in austrum ab eodem equinoctiali. tamen sol diversa utrumque ratione transcurrit. cum ut dixi paria sint inter signa partis utriusque. Verum id quod ad solsticialem consurgit. ccc. lxv. diebus et quadrante diei noctisque. id autem quod ad brumalem deprimitur. c. lxxx. diebus peragitur. Sol ubique tenens equinoctialem circulum: utrique parti tempiem facit.

De [illegible]

Signa xii. vel a causis annalibus. vel a gentilium fabulis nomina sumpserunt. Nam Arietem martio mensi propter Ammonem Iovem tribuunt. unde et in eius simulacro arietis cornua fingunt. Taurum aprili propter eundem Iovem quod in bovem sit fabulose conversus. Castorem et Pollucem maio. propter insigne virtutis. Porro Cancrum Iunio. quando sol ad inferiora redit. quod cancer impulsus retro cursum dirigere soleat. Leonem quem occidit hercules

iulio propter nimii fervoris assignavit. Virginem augusto, quia tunc exhausta caloribus tellus nichil pariat. Libram septembri, ob equalitatem diei et noctis. Scorpionem et sagittarium equinis cruribus deformatum, propter flumina mensium ipsorum october et november accipiunt. Capricornum december, propter capram iovis nutricem. Cuius extrema pisci similia pinguntur, quod huius mensis ultima sint pluvialia. Aquarium ianuario. Februario pisces ob menses imbriferos tradunt. Singulis autem signis xxx. partes, terne vero decades deputantur, eo quod sol triginta diebus et decem semis horis illa percurrit a medio mensis, id est xv. kalendarum die semper incipiens.

De cursu et magnitudine solis.

Solis ignem dicunt aqua nutriri, multoque hunc luna ampliorem. Luna vero terra esse maiorem, unde et cunctis tantus magnitudinis apparet. Quod enim nobis quasi cubitalis videtur, nimie celsitudinis distantia facit. Alioquin maior indis oriens et britannis appareret occidens. Qui dum sit igneus, motu quoque nimio calorem adauget. Hic cursu variante dies et menses, tempora dividit et annos, aerisque temperiem accedendo vel recedendo pro temporum ratione dispensat, ne si semper in hisdem moraretur locis, alia calor, alia frigus absumeret.

De cursu planetarum.

Inter celum terramque septem sidera pendent, certis discreta spatiis, que vocantur erantia, contraria mundo agentia cursum, id est levum, illo semper in dexteram precipiti. Et quamvis assidua conversione immense celeritatis attollantur ab eo, rapiantur que in occasus, adverso tamen ire motu per suos quosque passus advertuntur; nunc inferius nunc superius propter obliquitatem signiferi vagantia. Radiis autem solis prepedita, anomala vel retrograda vel stationaria fiunt.

De stellis.

Stelle lumen a sole mutuantes, cum mundo verti, utpote in uno loco fixe, et non stante mundo vage ferri dicuntur, exceptis his que planete, id est errantes vocantur. Easque diei adventu celari, nec umquam celo decidere, fulgor plenilunii et solis probat deliquium. Quamvis videamus igniculos ex ethere lapsos potari ventis, vagique lumen sideris imitari, tractibus cito orientibus ventis.

De vario effectu siderum.

Sidera autem alia sunt in liquorem soluti humoris fecunda, alia concreti in pruinas aut coacti in nives, alia glaciali in grandines, alia flatus, alia teporis, alia vaporis, alia roris, alia frigoris. Hoc solum errantia velut saturnus, cuius transitus imbriferi fiunt. Sed et quedam fixa polo cum errantium fuerint accessu vel radiis impulsa, ut sucule in fronte tauri, quas ob id greci pluvio nomine hyadas appellant. Quin et sua sponte quadam statutisque temporibus, ut hedorum exortus et arcturi, qui per idus septembris cum procellosa grandine surgit, et ut nimbosus orion et canicula, que nimium fervens xv. kalendas augustas emergit.

De natura et situ lune.

Lunam non minui nec crescere dicunt philosophi, sed a sole illustratam a parte quam habet ad eum paulatim vel ab eo recedendo vel ei propinquando nobis candidam partem revolvere vel atram. Et die quidem crescente supinam cerni novam lunam, utpote superiorem soli, et ad aquilonia subeuntem; decrescente vero erectam et deiectam in austros. Plenam autem soli semper adversam, sublimem humili sole, humilemque sublimi; quam lucere dodrantem et semuncias horarum a secunda adicientem usque ad plenum orbem, detrahentemque in diminutionem. Intra xiiii. autem partes solis semper occultam esse. Novissimam vero primamque lunam eadem die vel nocte nullo alio in signo quam in ariete conspici.

De eclipsi solis et lune.

Solem interventu lune, lunamque terre obiectu nobis perhibent occultari, sed solis defectum non nisi novissima primave fieri luna, quod vocant coitum; lune autem non nisi plena. Non posse vero totum solem adimi terris intercedente luna, si terra maior esset quam luna. Omnibus autem annis fieri utriusque sideris defectus statutis diebus horisque sub terra, nec tamen cum superne fiant ubique cerni, aliquando propter nubila, sepius globo terre obstante convexitatibus mundi. Et lune defectum aliquando quinto mense a priori, solis vero septimo. Eundem bis in xxx. diebus super terras occultari, sed ab aliis hoc cerni. Quondam in xv. diebus utrumque sidus defecisse. Semel iam intra tertio ne lunam in occasu defecisse, utroque super terras conspicuo sidere. Sed ne singulis mensibus eclipsis fieret, latitudo signiferi lunam superius inferiusve transmittit.

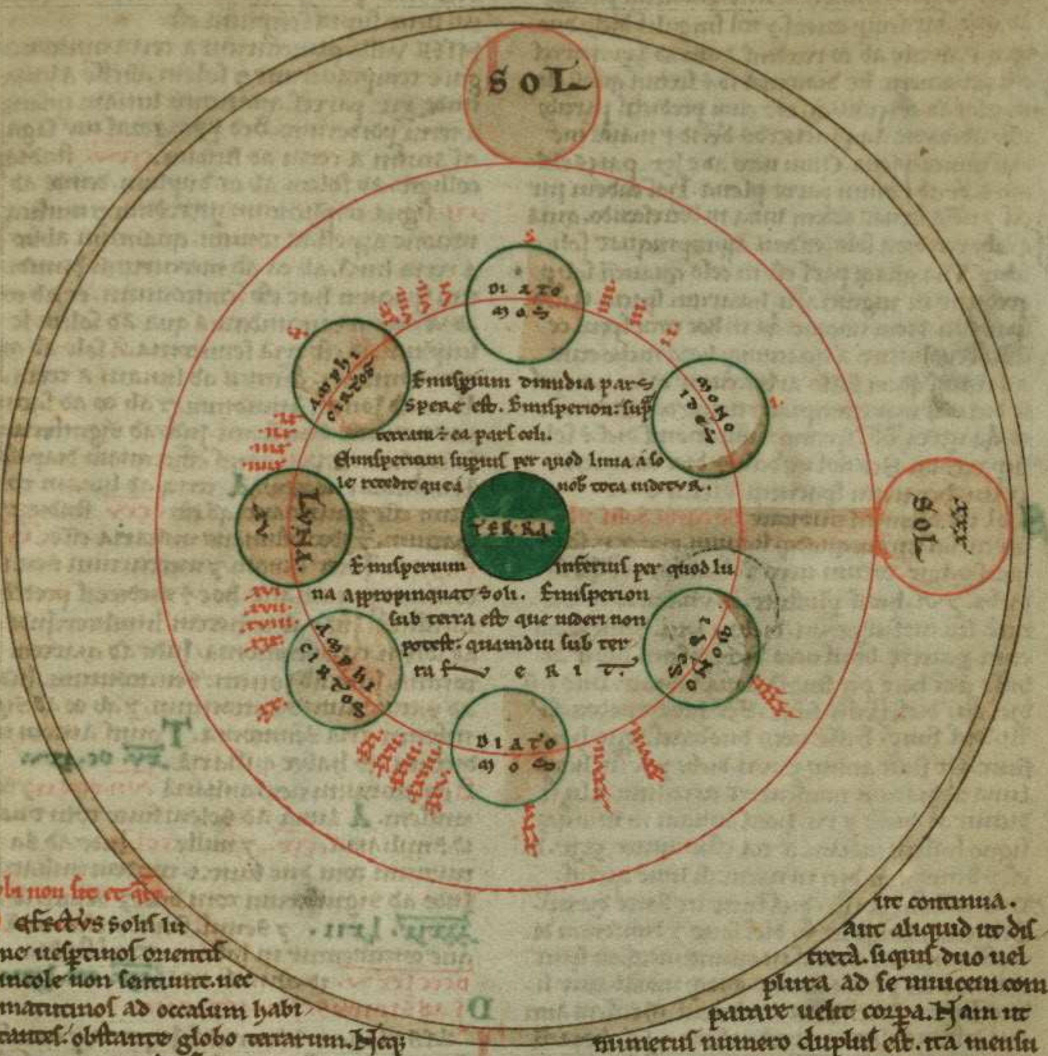
De cometis.

Comete sunt stelle flammis crinite, repente nascentes, regni mutationem aut pestilentiam aut bella vel ventos estusve portendentes. Quarum alie moventur errantium modo, alie immobiles herent. Omnes ferme sub ipso septentrione, aut aliqua eius parte non certa, sed maxime in candida que lactei circuli nomen accepit. Brevissimum quo cernerentur spacium septem dierum annotatum est, longissimum octoginta. Sparguntur aliquando et errantibus stellis ceterisque crines. Sed cometes numquam in occasum parte celi est.

De aere.

Aer est omne quod inani simile vitalem hunc spiritum fundit infra lunam, volatus avium, nubiumque et tempestatum capax. Ubi etiam potestates aerie superna sede deturbate cum tormento diem iudicii durius tunc dampnande prestolantur, et ex quo hominibus apparentes aeria sibi corpora meritis similia sumunt. Nam supra lunam que aeris etherisque confinio currit, omnia pura ac diurne lucis sunt plena. Cuius vicinia tangere fertur olimpus. A nobis autem per noctem cernuntur sidera ut reliqua lumina e tenebris. Superior vero et serenus aer celo, inferior autem qui exhalationibus humidis corporascit terre deputatur, ubi sunt ignes, grando, nix, glacies et spiritus tempestatum, que dominum de terra laudare iubentur. Sed et ipse aliquando celum vocatur, unde et petrus ait celos in diluvio perisse, cum aer turbulentus esset conversus in undas. Et celi volucres dicuntur; siderei celi nomine aeriorum, tanquam superiores inferiorum.

Lacteus circulus est fixa candidior per medium celi incedens, quem vulgo dicunt ex splendore solis in eo currentis ita fulgere. Sed frustra, cum ab illo nusquam nisi in parte sagittarii vel geminorum tangatur, in quibus candidum circulum signifer cingit.



Vbi non sit ec

Defectus solis in... ne uespertinos orientis incole non sentiunt. nec matutinos ad occasum habitantes. obstante globo terrarum. Neque enim nox aut dies. quamuis eadem toto orbe simul est: oppositu globi noctem. aut ambitu diem afferente. Tempore enim alexandri magni. luna defecit in arabia hora noctis secunda. eademque in sicilia exoriens. Et solis defectum qui fuit ipsanio et fonteio consulibus. ii. kalendas maii. campania hora diei inter vii. et viii. armenia inter x. et xi. sensit.

Deinceps luna totius zodiaci. signa. puncta partes. studioso lectori manifestabit. si de hac eadem re recordaremus discat argumenta maiori sollertia posita. Nam auctores non frustra in his argumentis tantum elaborauerunt. Et ideo dum numeros diuidis multiplicas. non nichil agere te credas. Numerus enim quantitatis species est. Omnis autem quantitas circa aliquid est: et numquam sine corpore. Numerus ergo circa aliquid est et numquam sine corpore. quia eius esse in aliquo est. Quid certe aliud in mathematica. id est arithmetica. Geometrica. Musica. Astrologia attenditur. nisi ut quod fit in ratione numeri. id fiat in corporibus numero subiectis. Omnis quippe numerus aut per se aut per aliud aliquid est. ita et corpora aut per se sunt

...ut continua. ...aut aliquid ut discreta. siquis duo uel plura ad se inuicem comparare uelit corpora. Nam ut numerus numero duplus est. ita mensura mensure. linea linee. et unus pes meus contra duos pedes meos. non contra duos pedes alterius cuiuslibet. nisi eius quantitatis sit cuius ego sum. Et omnino quicquid de numero in quolibet genere feceris. ut duplum. uel triplum. aut sesquialterum. uel sesquitertium aut superbipartientem. uel supertripartientem. et reliqua id est in discretis corporibus proportionaliter euenit. Ergo dum primam lunam. xii. partibus semper a sole distare audis. ita intellige. ac si. xii. fratribus distet abbo a suo abbate. et ita. xiii. aliquo loco resideat in ordine. Cognitis quoque punctis. partibus. et quo signo moretur sicut argumenta produnt per omnium lunationum singulos dies curioso oculo per singulas noctes intuens eadem luna quo loco sit. et quas stellas in circuitu suo habeat. et crede michi quod numquam sequenti die ita positam uidebis sicut pridie uideris. quia cotidie aliquantulum adcrescente progreditur. Hoc quoque attende per exemplo. In quinta luna et decima quarum alterum duobus. alteram quatuor signis semper a sole aberit. et alias stellas in circuitu quinte. alias in circuitu decime inuenies. Et quanto soli uicinior tanto minor. quantoque ab eo ad orientem elongatur. tanto maior efficitur. Siquidem prima

monoides. id est singularis. Et duodecim partibus ab eo distat semper oriens et ita singulis diebus duodecim partibus ab eo recedens. dum ad lxx. partes celi peruenerit fit diatomos id est sectilis quasi clara usque ad centrum. Et cum predictis partibus xlv adiecerit amphicirtos dicitur id est maior media minor plena. Cum uero ad clxx. partes [?] hos. dicitur id est omni parte plena. Has eadem partes et nouam seruat eadem luna in decrescendo. quia quibus recedit a sole. eisdem appropinquat soli semper. Vna quaque pars est in celo quantum sol progreditur in uigintiquattuor horarum spacio. Quod spacium diem uocant. quia in hoc tota spera celestis reuoluitur. a quacumque hora inchoetur. quamuis quidam falso arbitrentur diem non posse dici nisi mane incipiat et uespere desinat: iccirco quia iuxta speciem diffinitionis dies est sol super terram. Sed nos ut diximus diei nomine xxiiii. horarum spacium diciamus.

Sol ut diximus tarditate **De cursu Solis et lune.** sui cursus unum quodque signum xxx. et x. semis horis peragit. totum uero zodiacum ccc.lxv. diebus et vi. horis perficit. Luna uero uelocitate sui cursus xxvii. diebus et viii. horis zodiacum percurrit. binis uero diebus et semis horis ac bisse unius hore per singula signa labitur. Duo enim dies xlviii. hore sunt. Sex hore duodecies [?] sunt. Bisse uero duodecies viii. hore sunt. Est sicut autem xxvii. diebus et viii. horis luna zodiacum transcurrit circulum. Alii uero dicunt ii. diebus et xii. horis lunam in uno quoque signo habere moram. Et ita efficiuntur xxix. dies et dimidium diei in naturali lune cursus. Duo enim xii. xxiiii. dies sunt ut ante diximus. Duodecim hore xii. dies sunt et dimidium diei efficiunt. Est ueteres uocabant mensem spacium quo sol et luna in uno quoque morabantur sidere. Isidoro attestante ita dicens. Mensem antiqui diffinierunt. quamdiu luna et sol zodiacum percurrunt circulum. Vnum quodque uero signum habet xxx. partes. Si ergo uis scire quantum spacium luna moretur in una qualibet de xxx. partibus. sume horas duorum dierum que sunt xlviii. adde his vi. horas cum bisse. fiunt l. iiii. hore. Has multiplica per punctos. quibus luna moratur in uno quoque signo. Has etiam lunares horas distribue unicuique parti per equas portiones. dans uidelicet singulis partibus singulas horas. et remanent tibi xxiiii. hore. has multiplica per punctos ea lege qua hora habebat v. punctos. et fiunt puncti c.xx. Hos partire per xxx. quater xxx. centum [?]. Da unicuique parti punctos quatuor. et remanebit bisse. Hanc partire per lx. ostenta. quia plena hora xl. habet ostenta. et bisse due partes sunt unius hore. Ideo ut dixi lx. ostenta efficit bisse unius hore. Da singula ostenta singulis partibus et remanent x. ostenta. Hec multiplica per iiii. fiunt xxx. et uidebis quod luna in spacio unius hore et iiii. punctis et unius ostenti et iii. partis ostenti tantum cursus peragit quantum sol in xxiiii. horis et xx. ostentis.

Si etiam de luna approbare uolueris qualiter explet xii. signa. inuenies quod horas habentes ii. dies. hoc sunt xlviii. adde sex horas. fiunt l. iiii. Duc l. iiii. per xii. signa: fiunt dc. xlviii. hore. Duc bisse per xii. signa: fiunt

viii. hore. et fit grande xxvii. dies et viii. horas sicut supra scriptum est.

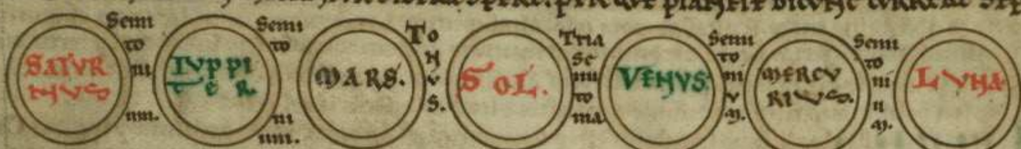
Interualla planetarum a terra multi indagare temptauerunt et solem abesse a luna inde xxx. partes. quantum lunam ipsam a terra prodiderunt. Sed pythagoras uir sagacis animi a terra ad lunam **cxxv.** stadiorum colligit. ad solem ab ea duplum. deinde ad **xii.** signa triplicatum interdum et musica ratione appellat tonum. quantum absit a terra luna. ab ea ad mercurium dimidium spacium hoc est semitonium. et ab eo ad uenerem tantundem. a qua ad solem sesquiplum. id est tria semitonia. A sole ad martem tonum. id est quantum ad lunam a terra. Ab eo ad iouem dimidium. et ab eo ad saturnum tantundem spacii. Inde ad signiferum sesquiplum. Ita **vii.** tonis effici quam diapason armoniam uocant. A terra ad lunam tonum esse pronuntiant. quod est **cxxv.** stadiorum spacium. et ideo estimant miliaria esse. **xv. dcxxv.** Inter lunam et mercurium semitonium pronuntiant. hoc est medietas predicte mensure. Inde ad uenerem similiter. Inde ad solem tria semitonia. Inde ad martem tonum. Inde ad iouem semitonium. Inde ad saturnum semitonium. et ab eo ad signiferum tria semitonia. Tonus autem ut dictum est habet miliaria **xv. dc. xxv.** Semitonium uero miliaria **vii. dccc. xii.** et semissem. A luna ad solem sunt toni duo. id est miliaria **xxx.** et mille **ccl.** Inde ad saturnum toni duo sunt. id est totidem miliaria. Inde ad signiferum toni duo et semis. id est **xxxix. lxii.** et semis. Sunt in summa que continentur in his **vii.** tonis stadia **dcclxxv.** id est miliaria **cix. ccc. lxxv.**

De absidibus planetarum.

Tres planete. Saturnus. Jupiter et mars. supra solem siti. occultantur meantes cum eo. exoriuntur uero matutino discedente sole. partibus nunquam amplius undenis. Post ea radiorum eius contactu reguntur et in triquetro partibus **cxx.** stationes matutinas faciunt. que et prime uocantur. mox in aduerso a partibus **clxxx.** exortus uespertinos. Iterumque in **cxx.** partibus ab alio latere appropinquantes stationes uespertinas quas et secundas uocant. donec assecutus sol in partibus duodenis occultet illas. qui uespertini occasus appellantur. Martis stella propius etiam ex quadrato sentit radios. a **xc** partibus ab utroque exortu. eadem stationalis senis mensibus moratur in signis. cum cetere utraque statione quaternos menses non impleant. Inferiores autem due occultantur in coitu uespertino. simili modo. Relicteque a sole. totidem in partibus faciunt exortus matutinos. Ad quos longissimus distantie sue metas solem insecuntur adeptoque occasu matutino condiuntur ac pretereunt. Mox eodem interuallo uespere exoriuntur usque ad quos diximus terminos. Ab his retrogradiuntur ad solem. et occasu uespertino delitescunt. Veneris stella stationes duas matutinam uespertinamque ab utroque exortu facit a longissimis distantie sue finibus. Mercurii stationes breuiori momento quam ut deprehendi

hendi possint. cuius rei ratio pluribus reddenda est. Percussę in qua parte diximus et triangulo solis
radio inhibente rectum agere cursum. ignea vi levantur in sublime. Hoc non protinus intellegi potest
visu nostro. ideoque existimantur stare. Unde et nomen statio accepit. Progreditur deinde eadem radii vio
lentia. et retro ire cogit vapor repercussas. multo id magis in vespertino earum exortu toto sole adver
so. cum in summas absides expelluntur. minimeque cernuntur. quoniam altissime absunt et mi
nimo feruntur motu. tanto minore. cum hoc in altissimis evenit sig...

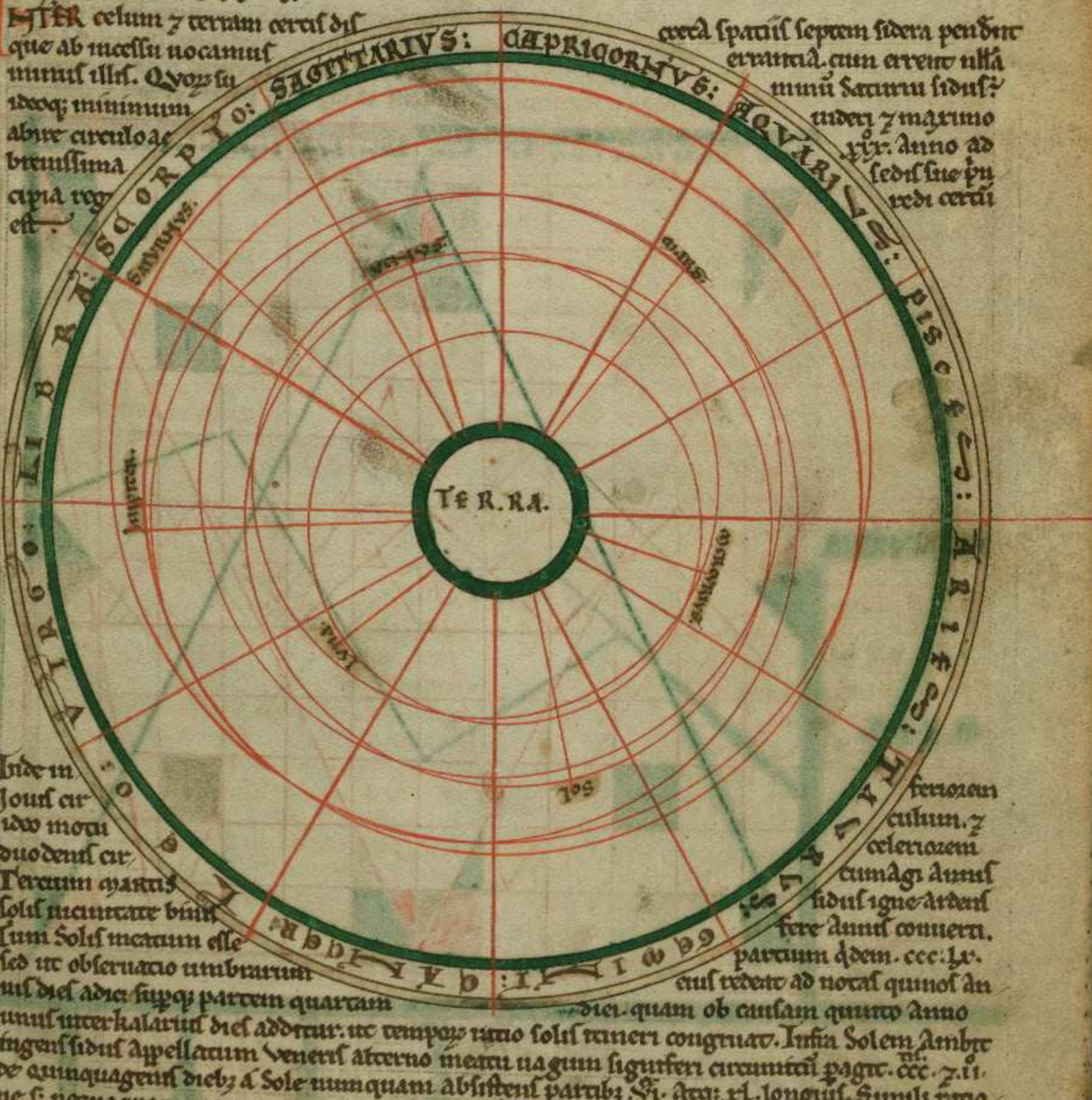
BIS SEX SIGNIFERĘ LUSTRANTUR SIDERA SPERĘ: PER QUĘ PLANETĘ DICUNTUR CURRERE SEPTEM:



QUE: RESPEXIT: RURSUM: PROPRIUM: COMPLEXIT: UBI: QURSUM:

Absides autem dicuntur circuli earum greco vocabulo. Sunt autem hi sui cuique earum. aliique quam mundo quoniam terra inter vertices duos quos appellaverunt polos et signiferum centrum mundi esse videtur. ideoque suam quamque absidum a proprio centro exurgere necesse est. Quapropter diversos habent orbes. motusque dissimiles. quia interiores absides constat breviores esse. Igitur a terre centro absides altissime sunt. Saturno in scorpione. Iovi in virgine. Marti in leone. Soli in geminis. Veneri in sagittario. Mercurio in capricornio. mediis eorundem signorum partibus et hec contrario. id est in signis contrariis ad terre centrum humillime atque proxime. Sic fit ut tardius moveri et minores videantur. cum altissimo ambitu feruntur. Cum vero terre appropinquaverint. maiores esse et celerius ferri. non quia accelerent tardentve naturales motus. qui certi ac singuli sunt illis. sed quia deductas a summa abside lineas coartari ad centrum necesse est sicut in rotis RADIOS.

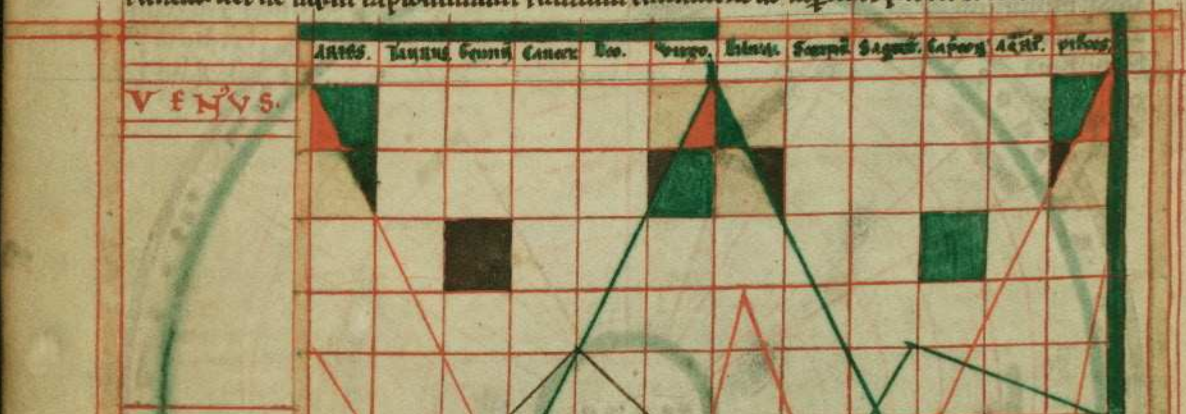
INTER celum et terram certis discreta spatiis septem sidera pendent que ab incessu vocamus errantia. cum errent nulla minus illis. Quorum summum Saturni sidus ideoque minimum videri et maximo ambire circulo ac xxx. anno ad brevissima sedis sue principia regredi certum est.



Inde inferiorem Iovis circulum. et ideo motu celeriorem duodenis circumagi annis. Tertium Martis sidus igne ardens solis vicinitate binis fere annis converti. Tum Solis meatum esse partium quidem ccc.lx. sed ut observatio umbrarum eius redeat ad notas quinos annis dies adici superque partem quartam diei. quam ob causam quinto anno unus interkalarius dies additur. ut temporum ratio solis itineri congruat. Infra Solem ambit ingens sidus appellatum Veneris alterno meatu vagum signiferi circumitum peragit. ccc. et .ii. de quinquagenis diebus a Sole numquam absistens partibus .vi. atque .xl. longius. Simili ratione sed nequaquam magnitudine aut vim proximum illi MERCURII sidus inferiore circulo fertur.

Nouem dieb; otiorem ambitu modo ante solis exortum. modo post occasum splendens. numq̄
ab eo .xx. duab; partib; remotior. Ideo 7 peculiaris hoꝝ siderum ratio ē. neq; communis cum
supradictis. Nam et 7 quarta parte celi a Sole abesse 7 tertia 7 aduersa Soli sepe cernuntur.
Sed omnium admirationem uincit nouissimum sidus terris familiarissimum lune crescens
semꝑ aut senescens. modo curuata in cornua facie. m̄ equa portione diuisa. m̄ sinuata in orbē
maculosa. eademq; subito prementis immensa orbe pleno ac repente nullā alias ꝑuex alia seu 7
parte diei 7 Solis lucem adiuuans. deficiens 7 in defectu tn̄ conspicua. Iam uero humilis 7 excelsa
7 ne id quidem uno modo. s; alias admota celo. alias contiguā montib; nunc in aq̄lonem elata. nc̄
in Austro deiecta. ꝑxima ergo cardini. ideoq; minimo ambitu uicenis dieb; septenisq;. 7 tertia diei
parte peragit spatia eademq; Saturni sidus altissimum .xxx. ut dein est annis. De inmorata
incoctu Solis biduo cum tardissime a tricesima luce ad easdem uices exit.

STUDIOSIS astrologie ꝑmo sciendum est ꝑ geometricam. qd distat inter circulum 7 speram. Cir
culus siquidem est in plano quasi circini circumductio. ut quiqes q̄m .xxv. Spera uero rotunda
in solido corpe sicut pilota ut quinquies quinq; .xxv. 7 quinqes .xxv. c. 7 sunt circuli in spera. dū
spera non possit esse in circulo quippe tantū ualet in solido corpe sursum ac deorsum equa
lis a medio puncto circini circumductio. quantū 7 plano. Cuius circuli uel spere medio pun
cto terram coequant. equalib; spatiis ab omni circumductione distantē. 7 mundum qui ex
quatuor elementis constat. dicunt quicqd infra se circuli spere claudunt. Circulos etenim spe
re nominus .x. esse. quoꝝ ꝑmi sunt .v. paralleli .i. directi linea numquam in se incidentes. s;
quasi fascie ꝑ supius 7 inferius emispium terram cingentes. q ꝑ transuersum poloꝝ ducuntur.
De quoꝝ temperie. calore. 7 frigore rationem inueniet siquis media hieme accenso foco in medio
campo hinc inde aliquos constituat. ex quoꝝ uicinitate uel longinquitate circuloꝝ distanti
as cognoscet. quia predictarū zonarum quarum sunt noīa. Artica. Estiua. Equinoctialis. Bruma
lis. Antartica. sola media semꝑ a Sole rubet 7 torrida semꝑ ab igni. Sunt etiam duo coluri .i.
ꝑfecti circuli a polo ad polū ducti. qui ex integro ꝑpter antarticum uideri non possunt. Octauus
circuloꝝ lacteus pene omnib; notus diuidit zodiacū in Geminis 7 in Sagittario. Nonus dr̄ Ori
zon. q ē tantus unicuiq; quantum potest uisum ꝑ celum huc illucq; extendere. Decimus ē zodia
cus. in quo .xii. signa ordinantur. ꝑ quē .vii. planete ex obliquo discurrunt. 7 ad orientem fe
runtur. uel ut siquis rapidissimum fluuium transiliens ad superiores partes ei contendat. non



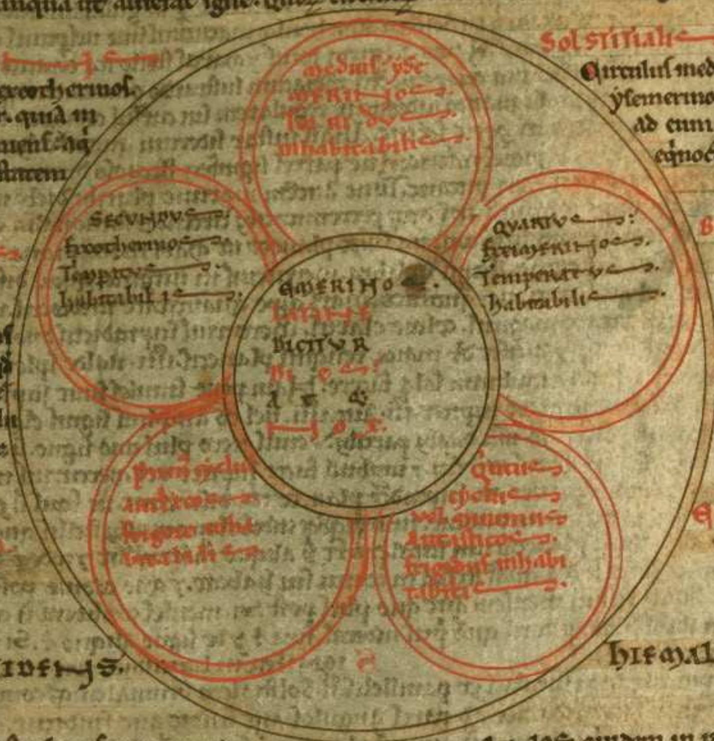
contra impetum sed ex obliquo natat aut navigat. Qui zodiacus habet in longitudine partes. ccc.
lx. v. In latitudine vero, xii. quas luna cum venere omnes tenet in commune. sed singulis partibus
hinc et inde eum venus excedit in latitudine. Sol vero cum Saturno medias duas tenet omnino.
Mercurius. viii. circuit. qui numquam a sole plus. xxx.ii. partibus poterit elongari. Mars. v. qui
strum. interdum ad aquilonem iacet. eclipsin facere prohibetur. dum lineam in qua sol est transit.
si tunc, xxx. fuerit. Quod ideo post menses. cc. xxviii. i. annos, xix. evenit. quia spatiosis angulis
zodiacum secat. ne in eadem parte, eodem mense, eodem momento. per singulas lunationes accidat. Itaque
stelle veneris et mercurii numquam nisi in Solis vicinia horisque matutinis sive vespertinis cernuntur. ma
ne Solem precedentes. vespere sequentes. Namque Saturni Jovis et martis stelle ita erraticos hoc est sibi dissi
miles ortus habent et occasus ut tamen omni tempore noctis zodiacum lustrando generaliter appareant. Que
tamen hoc habent proprium. ut aliquando videantur regularem sui cursus ordinem tenere. et inter
dum cum signifero retrogradientes pergere solent. Aliquando instar siderum que celo fixa tenentur uno
loco consistere. aliquando in superiores inferioresve partes signiferi flexuoso draconum meatu decli
nare. quo philosophi radiis solis fieri putant. Tunc autem maxime pluribus diebus non cernuntur
planetas cum in absidum commissuris atque extremitatibus circulorum stationalia esse contigerit.
Absides autem dicuntur loca in quibus in principio condita sunt planete ut mars in Scorpione. Jupiter in Sa
gittario. Saturnus in capricorno. Venus in libra. Mercurius in virgine. quorum differentiam potes
cognoscere. ex situ vel qualitate vel quantitate. Mars quippe quantitate mediocris. rubens est et ter
ribilis. Jupiter quantitate magnus. colore clarus. Mercurius supradictis duobus maior. et ru
tilando clarior. Venus vesper et lucifer dicitur maior reliquis planetis. iiii. valde splendens cum can
dore. in tantum ut videatur umbram solus facere. Nam pene similes sunt Jupiter Mercurius
Venus. sed ex situ discernuntur. quod Jupiter. iii. aut. iiii. vel eo amplius signis elongatur a Sole.
Mercurius numquam plus uno nisi duabus partibus. Venus vero plus uno signo. sed numquam plus
duobus recedit a Sole. Est quod Venus ut dictum est umbras facit. Jupiter vel Mercurius numquam. Ho
rum ergo. xii. signis zodiaci per que. vii. supradicte planete ita discurrunt. ut fixas non exeant. et quas
stellas iuxta prefixam rationem habeat. unumquodque videbis in omnibus stellis que fixe dicuntur.
nullam marti aut alicui planetarum similem. Et si aliquo in simul sit et inde est dubitatio inci
dit. nota illa dubitabilis stella quas stellas in circuitu sui habeat. et quo ordine positas. hic ubi gra
si de hac nocte facias post unum mensem aut quo plus post. vi. menses considera si eundem ordinem
in circuitu dubitabilis stelle videris quem prius videras. fixa est et de signo aliquo est. Si vero nota est
aliquis planetarum est.

Signifer in latitudine. xii. in longitudine est
ccc. lx. v. discriminibus interstinctus ex parallelis. ii. Solstitialem brumalemque contingens. equi
noctialem medium secat secundo. nec ad pares angulos aut findit aut finditur. qui Soli luneque
iter prebet cum. v. sideribus. Summum omnium planetarum Saturnum philosophi phenonam appel
lant. Jovem phetontam. Pyroin martem Venerem phosphoron. Mercurium Stilbonta. Soli
vero luneque diversitas gentium numinera vocabula sociavit. Horum ergo. vii. illa est maxime cum fixis si
deribus habenda distantia. quod illa celi tantum in cursibus commoventur propria statione ornata. Hi vero Satur
nus. Jupiter. Mars. Sol. Venus. Mercurius. Luna. tam mundanis raptibus auferuntur. quam propriis cursibus
commoventur. Nam quantum eis refert diei noctisque rotatio. tantum nituntur diversis temporibus com
pensare. i. aut mense ut luna. aut anno ut Sol. aut. xxx. annis ut Saturnus. ceterisque temporibus
attributis per spatiorum quibus eveniunt longitudine. aut brevitate. Que cuncta sidera licet in ortum pergere
videantur. non tamen adversum mundum rigido motu. sed obliquo per zodiacum dextra moliuntur. Alioquin
ex contrario partium suarum motu mundus stare non posset.

CERTA Ratio et vera etatis lune computatio annorum bissextilium atque embolismorum hec est. In om
nibus bissextilibus annis totius decennovenalis cicli. iii. xxx^{mas} lunationes insimul computare memen
to. Scilicet Januarii. februarii. martii. Et si evenerit primus embolismus cum bissexto sicuti sepe evenire
solet qui incipit. iiii. Nonas. decembris. in iii. ogdoadis anno. vel iii^{us} embolismus qui incipit. iiii. Nonas.
martii. in anno ogdoadis ultimo. sive. iiii. embolismus qui incipit. ii. Nonas decembris. in iii. endecadis
anno. vel vii. embolismus qui incipit iii. Nonas. Mar. in anno endecadis ultimo. tunc iterum. iiii. xxx.
lunationes insimul computare memento. scilicet in primo et iiii^{to}. embolismo cum bissexto ita. Pri
mitus. xxx^{am} embolismi. deinde Januarii. februarii. et Mar. Et iterum in. iii. et vii. embolismo cum bissexto ita.
Primitus. xxx^{am}. Januarii. februarii. et Mar. deinde embolismi. Postea alie lunationes secundum ordinem. Sed non ita
in aliis. iii. embolismorum annis. scilicet in. ii^o. et in. v^o. et vi^o. In his ergo. iii. si evenerit bissextus. sicut aliquando
evenire solet. tunc ut in ceteris bissextilibus annis. iii. xxx. lunationes Januarii. februarii. et Mar. insimul
computare memento. Et postea iterum in eisdem. iii. annis. ii. insimul xxx^{am} computa. scilicet xxx^{am} mensis
Sept. et xxx^{am}. secundi embolismi. qui iiii. Kalendas. incipit Sept. in anno ogdoadis vi. vel xxx^{am}. mensis Novembris.
et xxx. quinti embolismi. qui. iiii^o. Kalendas. incipit Nov. in xiiii. endecadis anno. Sive xxx^{am} vi^{ti}. embo
lismi. qui incipit. iiii. Nonas. Aug. in xvii. endecadis anno. et xxx^{am}. mensis Sept. Et iterum memento.
ne turberis in hoc. in toto decennovenali ciclo. preter. iiii. annos. s. iii. vi. et xiiii. et xvii. si bissextus
evenerit xxx^{am}. lunam febr. facere. ubi prima luna Mar. debet esse secundum argumentum epactarum. quia
sic necesse est in omnibus bissextilibus annis preter supradictos. iiii. et sic necessitas cogit. Iterumque
in ultimo. xix^{ti} cicli anno. iii. xxx. lunationes preter saltum insimul computare memento. scilicet
Junii. Julii. et Aug. Et ubi lunam. xxix. Julii occurrerit. ibi fac saltum. Et ubi. xxx. deberet esse secundum
argumentum epactarum. ibi fac primam lunam Aug. Si ergo hec omnia feceris per certo totius. xix. cy
cli lunationes et embolismorum a[...]

In definitione autem mundi circulos aiunt philosophi quinque quos greci parallelos. id est zonas

uocant. in quibus diuiditur orbis terre. Has uirgilius in georgicis ostendit dicens. Quinque tenent celum
zone. sed fingamus eas in modum dextere nostre. ut pollex sit circulus articos frigore inhabitabilis.
Secundus circulus therinos temperatus habitabilis. Medius circulus hisemerinos torridus inhabita
bilis. Quartus circulus cheimerinos temperatus habitabilis. Minimus circulus antarcticos frigidus
inhabitabilis. Horum primus septentrionalis est. Secundus solsticialis. Tertius equinoctialis. Quartus
hiemalis. Quintus australis. De quibus uarro ita dicit. At quinque etheriis zonis accingitur orbis.
Ac uastant unas hiemes mediamque calores. Sic terre extremas inter mediamque coluntur. Quam
sol ualido nunquam ut auferat igne. Quorum circulorum diuisiones talis distinguit figura.



Oriens

Circulus secundus exotherinos uel tropicos dicitur. quia in eo Sol circumiens aquilonis finibus estatem facit.

Circulus primus arcticos dicitur eo quod iuxta eum arcturi signa media perspiciuntur.

Septentrio

Occidens

Solstitialis

Circulus medius icirco dicitur ysemerinos. eo quod sol cum ad eum orbem peruenerit equinoctium facit.

Brumalis

Meridies

Equinoctialis

Hiemalis

Iginus et alii astrologi ferunt quod quinque sunt zone celi. Septentrionalis: uidelicet. australis. Solsticialis. brumalis. et equinoctialis. Grece enim ita uocantur. Arcticos. Exotherinos. Ysemerinos. Antarticos. Quarum due id est Septentrionalis et australis inhabitabiles sunt frigore. Due uero temperate calore et frigore. ac per hoc habitabiles. id est Solsticialis et brumalis.

Hos quidem in una. in altera antipodes esse dicuntur. Una perusta nimio calore. et est inhabitabilis. id est equinoctialis. Secundum Ptolomeum uero quatuor tantum sunt zone: quia uere mox tam de antipodibus noluit quasi certum confirmare mundum consueuit attribuere. Circuli autem uel zone uocantur. ex eo quod circuitu solis efficiuntur. Equinoctialis que media est zona. equali spatio terras super subtusque circumflectitur.

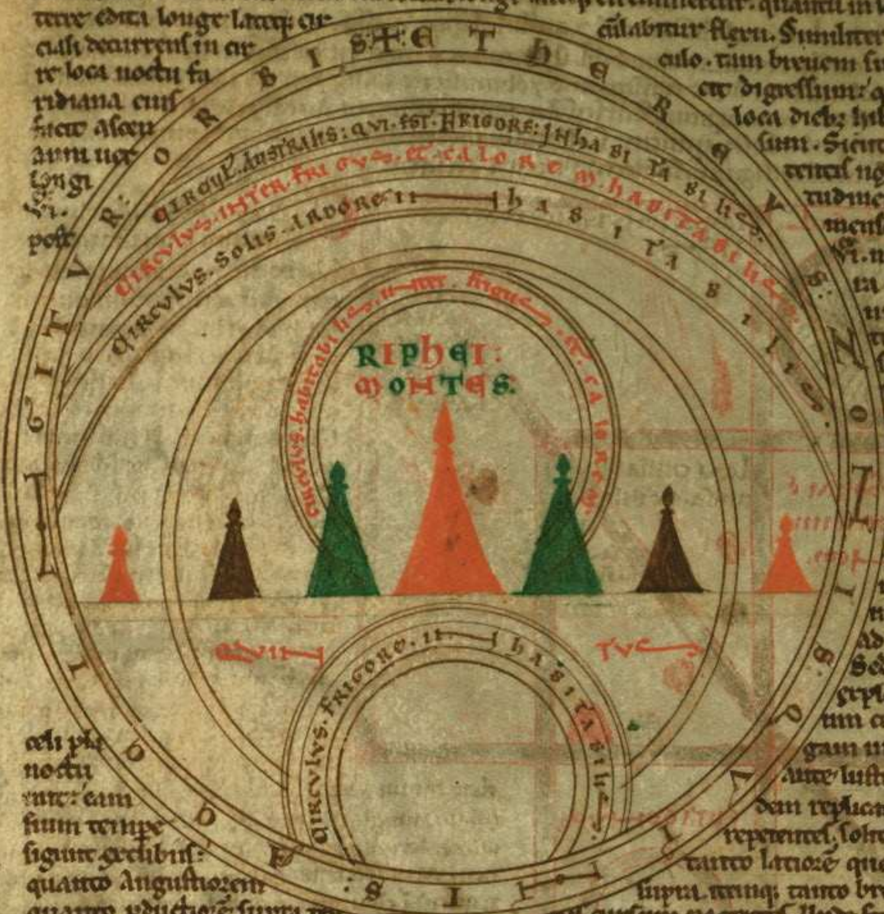
Satis quidem de temporibus loquentes necesse habuimus aliquotiens equinoctialis uel Solsticialis uel Brumalis meminisse Circuli uel zone. et de his paulo latius dicendum putauimus. Solent enim philosophi inequalitates temporum uel cursuum solis diuinorum his distinguere uocabulis. ut equinoctialem uocant zonam uel circulum illam celi regionem qua Sol circa equinoctia. Solsticialem qua circa Solsticium. brumalem qua in hieme

At Solsticialis tum paruum spatii sub terris quam brumalis agit super terras. Itemque brumalis qui super terras angustius est tantam habet amplitudinem circuitus sub terra. quantam solsticialis super terram. quia uidelicet sol in equinoctio tantum spatii noctu sub terris. quantum interdiu super terras egit. Tanto magis crimine sub boreas partes occultus. quanto unius iter situm deflecteris ad austros. Porro

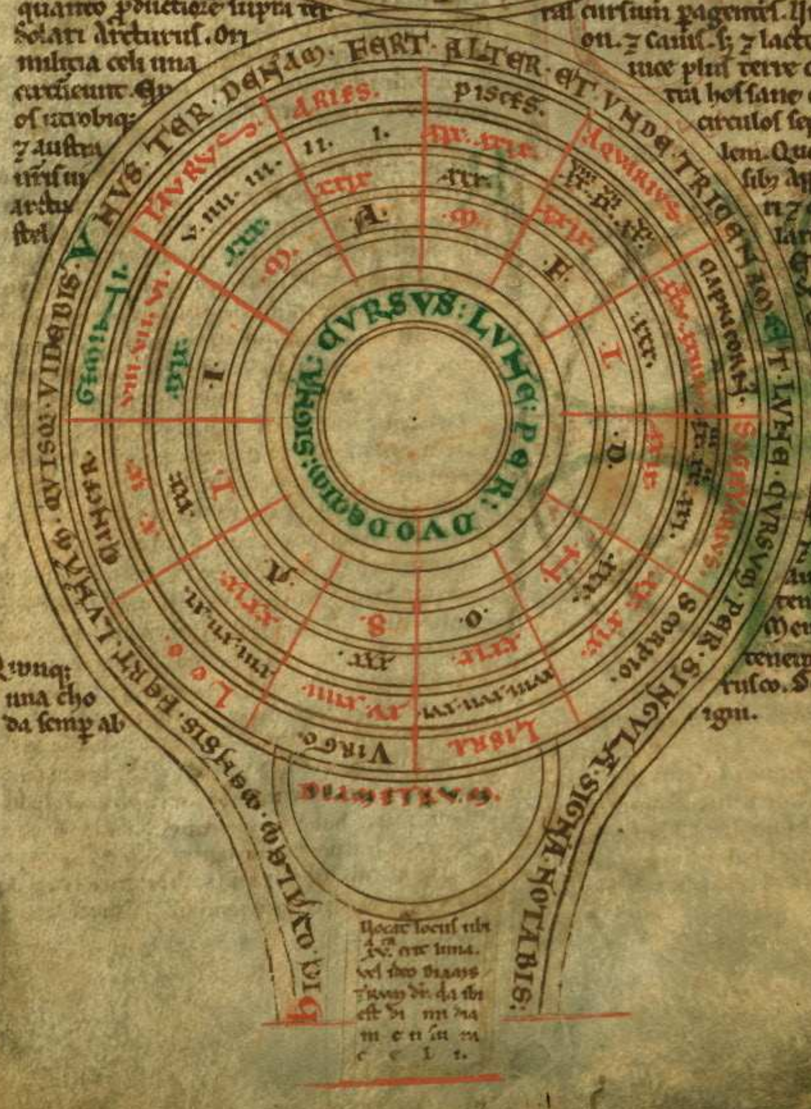
in bruma tantum sub terre inferiora longe lateque circumfertur. quantum in solsticio supra terre edita longe lateque cir culabitur flexu. Similiter estiuo .i. solsticio. tam breuem sub aquilonia terre digressum: quam sup meridiana loca diebus hibernis breuem.

cuit decurrens in circuli loca noctu fa ridiana cuius fiteor ascen dum uer longi .vi. post

sum. Sicut enim quelibet terras uer illam haber tudinem quam dimi menses habent. 7 .vi. menses habitu ta .... dies. ita omni noctu sol tan tum agit regi sub terra. qu tum ante .vi. menses egit. 7 post .vi. men ses exactum est sup terram. Tantum ue ingessit ad aquilo ne. quantum tunc interdum girans ad meridiem. Sed 7 stelle omnes expleto .vi. mensi um curriculo illam gam interdum quam ante lustrando eunde dem replicato totidem me repetentes. solitis noctu tanto latiorem queque sub terris. supra. terrasque tanto breuiorem subtus. ral cursum peragentes. Unde fit ut in anno on. 7 canis. Sed 7 lacteus circulus ceteraque uice plus terre orbem quam sol ipse tra hos sane circulos solis tres. du circulos septentrionalem polum lem. Quorum septentrionalis sep sibi apparens. non solis sed tri 7 que circa eum sunt larum ambitu conficiunt. Et qa uicinitate caret solis. frigidus esse non cessat. Cui similis est australis. 7 ipse ob lon ginquitatem solis geli dus. obque terre obiec tum nobis semper ab sconsus. De quo tamque in dei laude dicitur. Qui facit arcturum 7 oriona. 7 hiadas. 7 interiora austri. Est alibi. Qui ex tendit aquilonem sup uacuum. Meminit hor 7 poeta. tenent celum zone quarum rusco. Semp sole rubens. 7 tom igni.



celi pl noctu tur: eum sium tempe sigunt circulbus: quanto angustiorem quanto productiorem supra ter Solari arcturus. Orim militia celi una circuieunt. Eq os utrobique 7 austra uersus in arctus stel

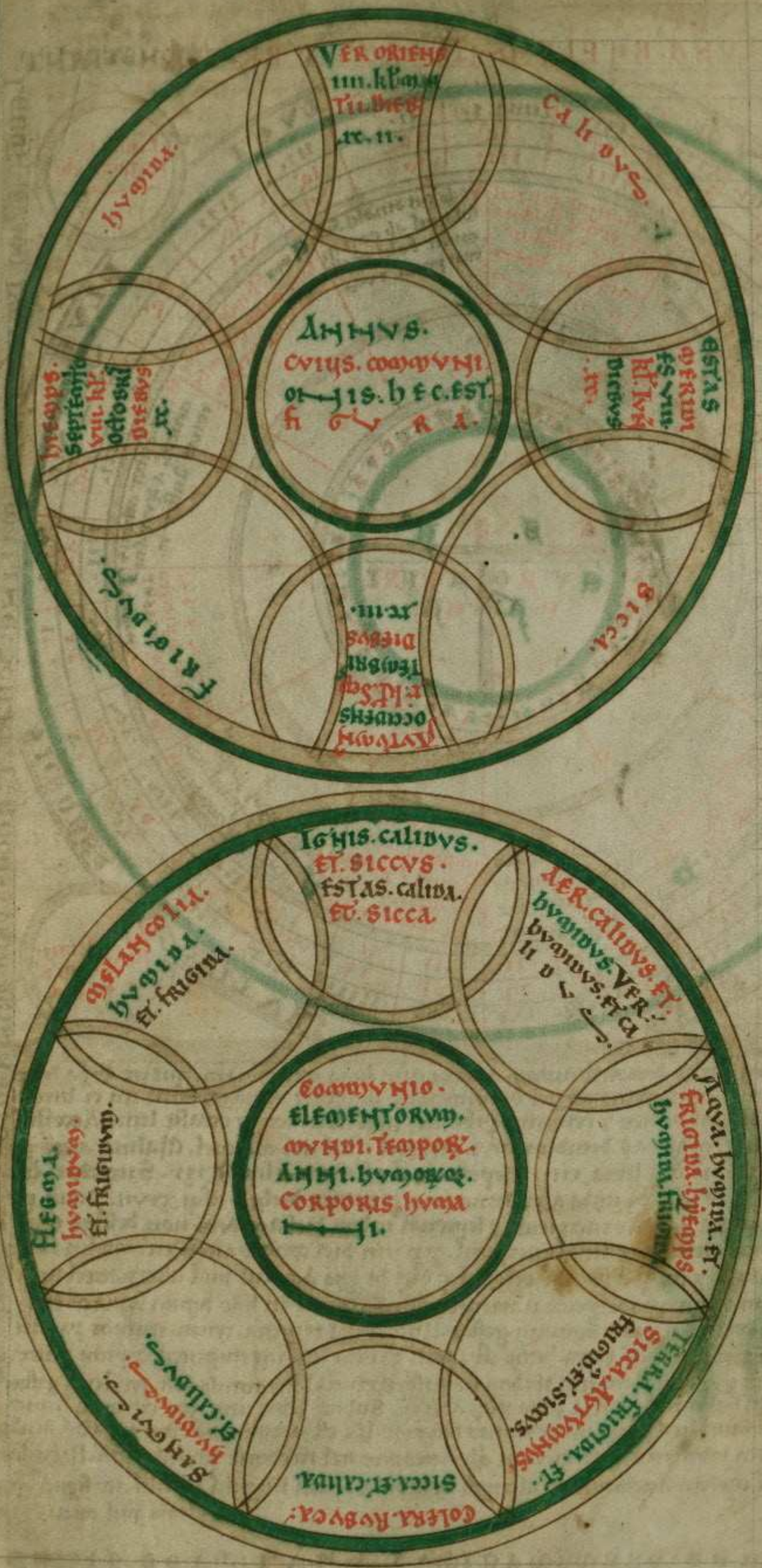


Quinque una cho da semper al

PARTES mundi quattuor sunt. Ignis. Aer. Aqua. Terra. Quarum hec est natura. Ignis: tenuis. acutus. et mobilis. Aer: mobilis. acutus. et crassus. Aqua: crassa. densa. vel obscura. obtunsa et mobilis. Terra: crassa. obtunsa. immobilis. Que etiam sic ita conmiscentur. Terra quidem crassa. obtunsa et immobilis: cum aque crassitudine et obtunsitate colligatur. Deinde aqua aeri crassitudine et mobilitate coniungitur. Rursus aer igni communione acuti et mobilis colligatur. Terra autem et ignis a se separantur. sed a duabus mediis aqua et aere iunguntur. Hec itaque confusa unius colligationis. subiecta pictura declarat.

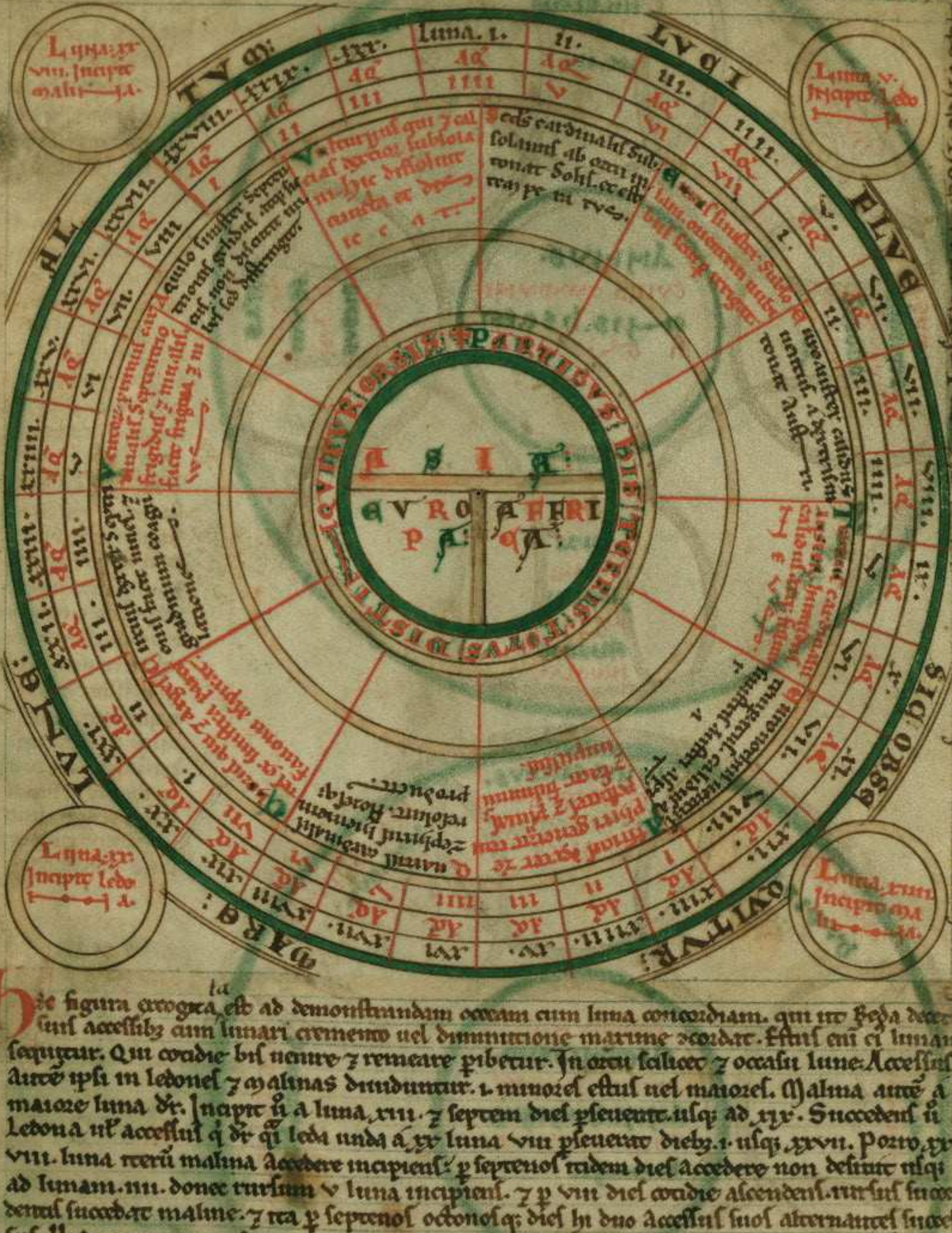
Ceterum sanctus Ambrosius eadem elementa per qualitates quibus sibi invicem quadam nature communione conmiscentur. ita his verbis distinguit. Terra inquit arida et frigida est. Aqua frigida et humida. Aer frigidus. calidus est et humidus. Ignis calidus atque siccus. Per has enim iungabiles qualitates. sic sibi singula conmiscentur. Terra enim cum sit arida: coniungitur aque per cognationem qualitatis frigide. Rursus aqua aeri per humorem. quia humidus est aer. Aqua vero quasi quibusdam duobus brachiis frigoris atque humoris. altero terram. altero aerem videtur complecti. frigido quidem terram. aerem humido. Ipse quoque aer. medius inter duo compugnantia per naturam. hoc est inter aquam et ignem. utrumque illud elementum sibi conciliat. Quia aquis humore et ignis calore coniungitur. Ignis quoque cum sit calidus et siccus calore aeri annectitur. siccitate autem in communionem terre sociatur. atque ita sibi per hunc circuitum quasi per quendam chorum concordi societate conveniunt. Unde et grece stichia dicuntur. que latine elementa vocantur. eo quod sibi conveniant et concinant. Quorum distinctam communionem. subiecti circuli figura declarat.

Rotule post posite ad unam quidem fidem spectant. Verum hoc differunt. quod superior tantummodo temporum anni. atque climatum celi concordiam signat. ingressusque eorundem temporum vel quot dies unumquodque teneat: iuxta Ysidorum notat. quinis apud romanos quos sequimur. alii temporum computatores introitus. illi scilicet qui in martyrologio notati sunt. Porro inferior rotula elementorum mundi. temporum anni. humorumque humani corporis quandam commendat communionem. Homo enim qui ad exemplar mundi conditus est. unde et a philosophis microcosmus. id est minor mundus appellatur. totidem constat humoribus quot mundus elementis. quot annus temporibus. imitantibus eisdem humoribus modum vel qualitatem tam elementorum quam temporum. Sanguis enim in homine humidus. et calidus. In elementis aeri. in temporibus assimilatur veri. quod utrumque hisdem viget qualitatibus. Colera rubea in homine sicca et calida. In elementis igni. in temporibus estati concordat. Similiter melancolia in homine frigida et sicca. In elementis terre. in temporibus autumno confertur. Porro flegma in homine frigidum et humidum quod in rotula proprii humoris dicitur. In elementis aque. in temporibus hiemi consonat. Hac concordia ad invicem elementorum. temporum. humorumque societate mundus. annus. homoque sibi invicem copulentur. Nam aer calidus et humidus. calore igni. humore coniungitur aque. Unde ipse ... sicut et cetera suas. Item ignis calidus et siccus. per caliditatem aeri. per siccitatem terre coheret. Terra quoque sicca et frigida. frigiditate aquam. siccitate ignem sibi associat. Ac vero



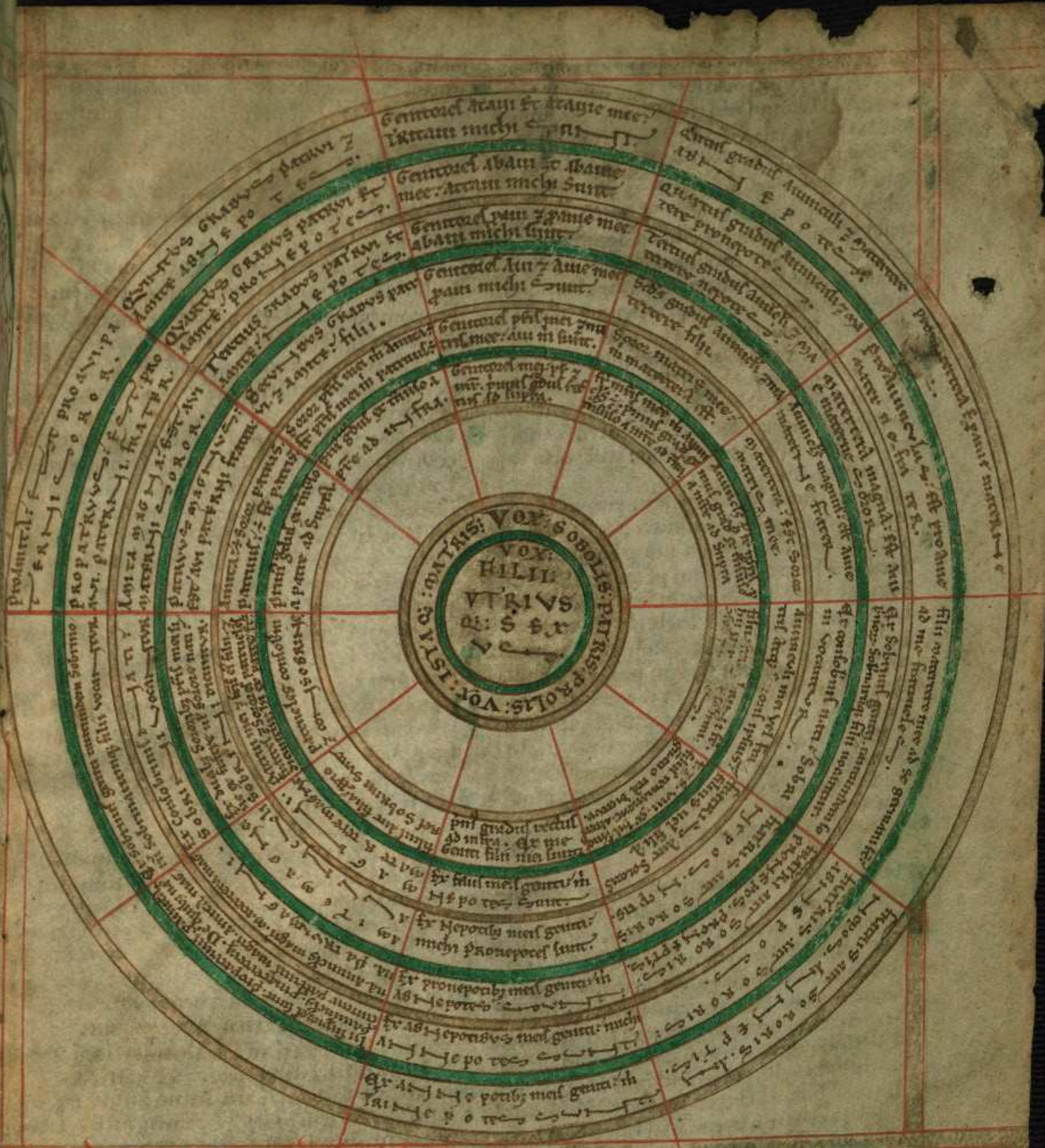
aqua humida 7 frigida. frigore terram. humore aerem tam gitur. 7 hoc est .iiiior. elementorum sinzugie a. coniunctiones que a philosophis dicantur: qd medio non negante ut copulari possunt. Habent autem quasdam proprietates. qa quedam ele-mentorum sibimet copu-lari nequeunt sine aliorum interpositione. Ubi gra. ignis calidus 7 siccus aque frigide 7 humide nulla ratione copulatur: sine terrene siccitatis interpositione. Item aer calidus 7 humidus terrenam frigiditatem 7 siccitatem non recipit. Nanq; interveniente humore inde has coniunctiones medietates dixerunt. qa iungi possunt. medium requirunt. Quod autem de elementis diximus. idem de temporibus de qs humoribus intellige. sicut he figure evidentissime patent.

OCCIDIT: ET: LVNA: REFLVENDO: RECVRRIT MONSTRANT:



Hec figura excogitata est ad demonstrandam occeani cum luna concordiam. qui ut Beda dicit suis accessibus cum lunari cremento uel diminutione maxime concordat. Estus enim ei lunaris sequitur. Qui cotidie bis uenire et remeare perhibetur. In ortu scilicet et occasu lune. Accessus autem ipsi in ledones et malinas diuiduntur. i. minores estus uel maiores. Malina autem a maiore luna dicitur. Incipit uero a luna .xiii. et septem dies perseuerante usque ad .xx. Succedens uero Ledona uel accessus qui dicitur quasi leda unda a .xx. luna .viii. perseuerat diebus. i. usque .xxvii. Porro .xxviii. luna iterum malina accedere incipiens per septenos itidem dies accedere non desinit usque ad lunam .iiii. donec rursum .v. luna incipiens et per .viii. dies cotidie ascendens. rursus succedentis succedat maline. et ita per septenos octonosque dies hi duo accessus suos alternantes successus. Unde quemque mensem quadripertita uarietate diuidunt. ut in hac figura signatum est. Ubi intima rotula toti orbis terre figuram gestat. Unde et ipsa tripertita trium mundi partium nomina habet scripta. Spatium uero quod circa hanc est aeris terram undique cingentis typum tenet. Unde et nomina uentorum per aerem flantium ibidem notantur. Extima sane rotula lunaris circuli gestat imaginem. etates eius habens asscriptas. a prima usque ad .xxx. Subtus hanc uero que est linea aque nomine per singula loca binis litteris .i. a. q. ex minio designatur. Ipse est occeanus. quem constat mundum ambire. At infra ducta linea numerum continet dierum quibus accedunt uel recedunt prefati estus. Unde semper contra primum numerum eorundem accessuum sunt ascripta uocabula deforis singulis rotulis. ut signetur quota luna quis eorum.

Estus occeani lunam sequitur: tamquam eius aspiratione retrorsum trahatur. eiusque impulsu retracto refundatur. Qui cotidie bis affluere et remeare unius semper hore dodrante et semiuncia transmissa uidetur. eique omnis cursus in ledones et malinas. i. in minores estus diuiditur et maiores. Sed ledon a quinta et a uicesima luna inchoans. quot horis accurrit tot et recurrit. Malina uero a .xiii. luna et a .xxviii.



De quadam ratione temporum & divisionibus eorum

Tempora dicta sunt a communi temperamento. quo invicem se humore: siccitate. calore et frigore temperent. sive quod unumquodque illorum spacium separatim temperatum sit. seu quod momentis. horis. diebus. mensibus. annis. seculis et etatibus omnia mortalis vite curricula temperentur. Divisiones temporum sunt.

Atomus. Ostentum. Momentum. Pars. Minutum. Punctum. Hora. Quadrans. Dies. Ebdomada. Mensis. Vicissitudo triformis. Annus. Olimpias. Lustrum. Cyclus bissextilis. Cyclus indictionalis. Cyclus decemnovenalis. Cyclus lunaris. Cyclus Solaris. Cyclus magnus. Seculum. Etas. Mundus.

He autem divisiones temporum in Solis ascensu descensuque et luna crescente ac decrescente minuuntur. et sic crescunt de minoribus ad maiora. hoc est ab athomis in ostentum. Ab ostento in momentum. a momento in partem. a parte in minutum. a minuto in punctum. a puncto in horam. ab hora in quadrantem. a quadrante in diem. a die in ebdomadam. ab ebdomada in mensem. a mense in tempus. a tempore in annum. ab anno in cyclum. a cyclo in seculum. a seculo in etatem. deinde in plenitudine. dicitur mundus.

Athomus grece: indivisio latine.
Athomus in tempore: indivisibilis pars temporis.
In corpore: pars insecabilis.
In Sole: tenuissimus pulvis.
In oratione: littera sive tempus unum in brevi sillaba.
In arithmetica: unitas.
In Geometria: punctum.
In musica: unisonus.
Ostentum: ab ostendendo dicitur.
Momentum: certus locus Solis in celo. et dicitur a motu siderum.

Pars in Signifero. quadrans Solis progressus est.
Minutum dicitur a minore temporis intervallo. quasi minus momentum.
Punctum dicitur a parvo puncti transcensu qui fit in horologio.
Hora grecum nomen est et cum latinum sonat. et est finis temporis. sicut et ore sunt fines maris. fluminum. vestimentorumque.
Quadrans. iiii. pars unius cuiusque rei.

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