The Origins and Rise of Medieval Information Visualization

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God creating the earth, Tours Cathedral, 13th C
The Corpus of Medieval Narrative Art : http://www.medievalart.org.uk

Origins

Three seminal authors:

- Macrobius (c. 395 – 423)
- Boëthius (c. 480 – 524)
- Isidore of Seville (c. 560 – 636)

Where visualizations are to be found:

- Carolingian manuscripts associated with the quadrivium (arithmetic, geometry, music, and astronomy)
- Most charts and diagrams either astronomical or cosmological in nature

Dissemination

Carolingian Renaissance
8th to 9th Century

Charlemagne (742 – 814)

➢ Increased Scholarship
➢ Standardized:
  ✓ Language
  ✓ Writing
➢ Education

Charlmagne quizzing his wise men about the Milky Way
Bay 07, *The Legends of Charlemagne*, Chartres Cathedral
The Corpus of Medieval Narrative Art : http://www.medievalart.org.uk/index.html

Macrobius (c. 395 – 423)

- Last of the Latin authors
- Wrote *Commentary on the Dream of Scipio* (*Commentarii in Somnium Scipionis*)
  - early medieval astronomical primer
  - explanation of text from last section of Cicero's *De re publica*, a treatise on the state of the Roman republic.
  - He believed the visual channel was a faster means of communicating concepts than either text or speech
  - Five diagrams integrated into his *Commentary*, with instructions for drawing four of them as part of its narrative stream

Zonal map of the Earth

Commentary on the Dream of Scipio, Macrobius, c. 820

Bibliothèque Nationale de France, Paris, Lat. 6370

# Boëthius (c. 480 – 524)

- Translator:
  - Euclid's *Elements*
  - Porphyry's *Introduction to Aristotle's Logic*
- Wrote handbooks based on Roman and Greek sources:
  - logic (*In Ciceronis Topica*)
  - music (*De institutione musica*)
  - arithmetic (*De institutione arithmetica*)
- Best know as a philosopher:
  - *De consolatione philosophiae*

Arithmetic diagram
De institutione Arithmetica,
Boëthius, c. 850
Cod. Sang. 248, fol. 10a, St. Gallen, Stiftsbibliothek

Musical arc diagram
De institutione musica,
Boëthius, 12th C
VadSlg. 296, fol. 53r, St. Gallen,
Kantonsbibliothek, Vadianische
Sammlung.
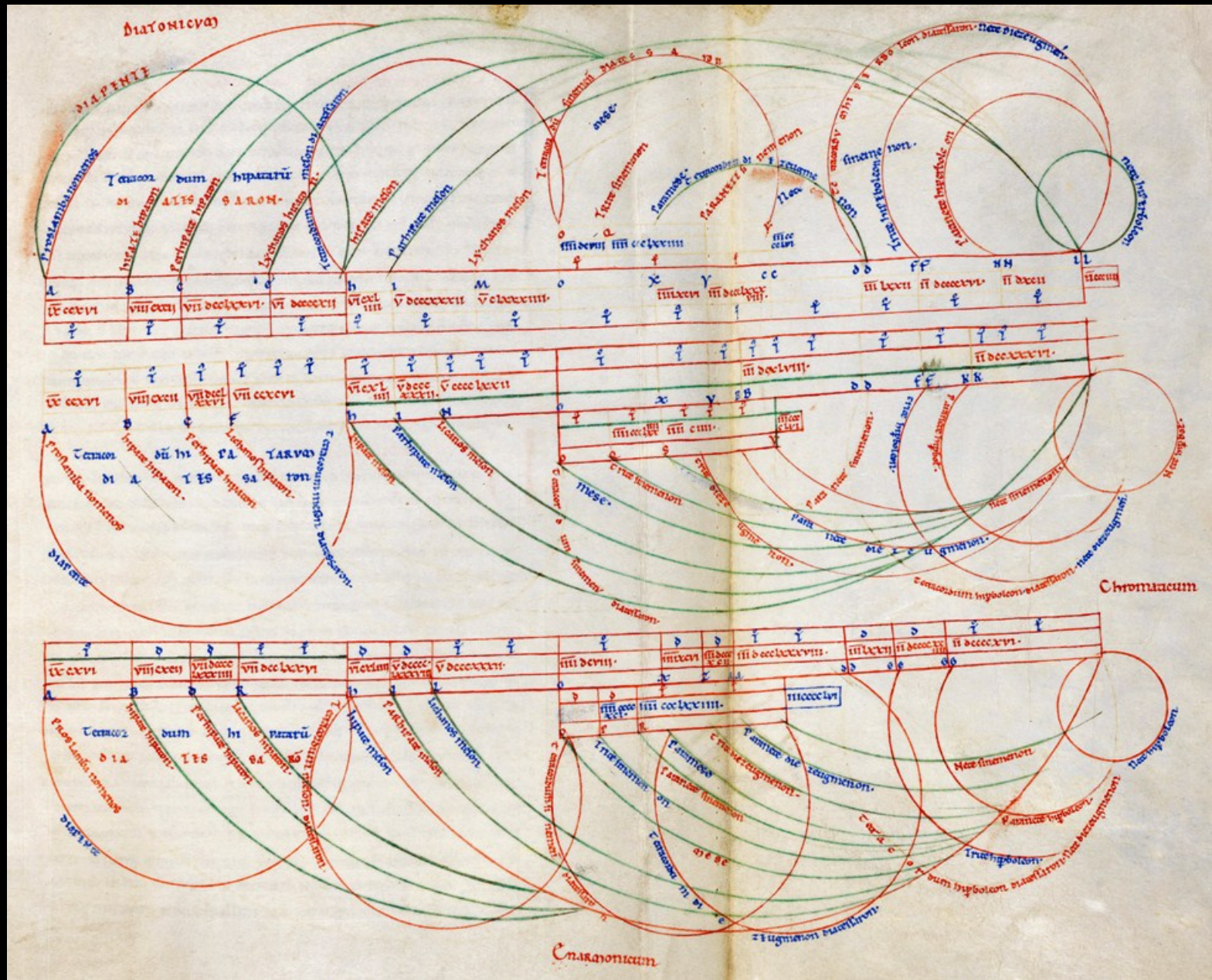
Musical arc diagrams for the monochord. *De institutione musica,* Boëthius, 12th C
Kantonsbibliothek, Vadianische Sammlung, St. Gallen, VadSlg. 296
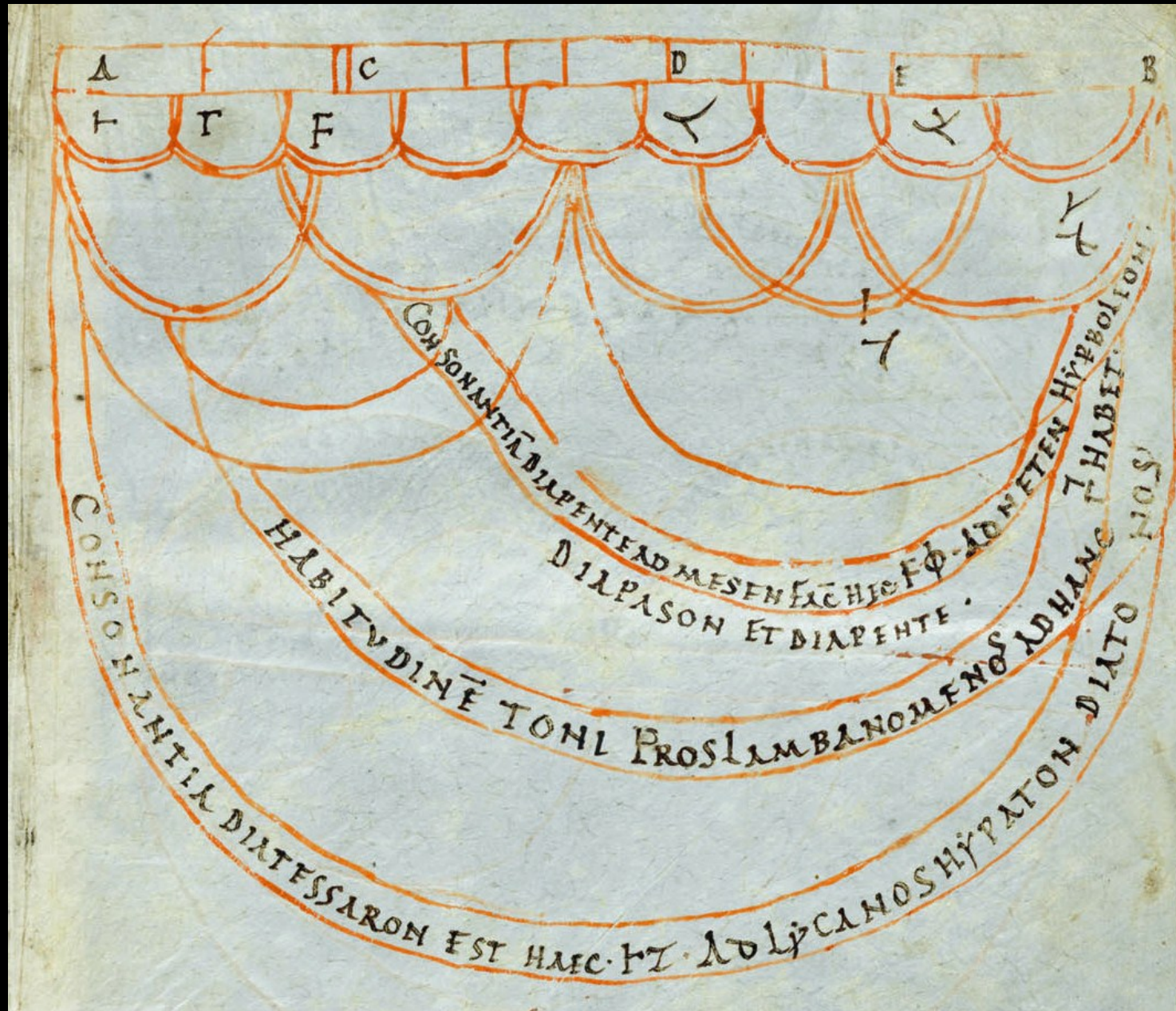
De arithmetica et geometria. De musica.institutione Arithmetica, Boëthius, 10th C
Einsiedeln, Stiftsbibliothek, Codex 358(610)
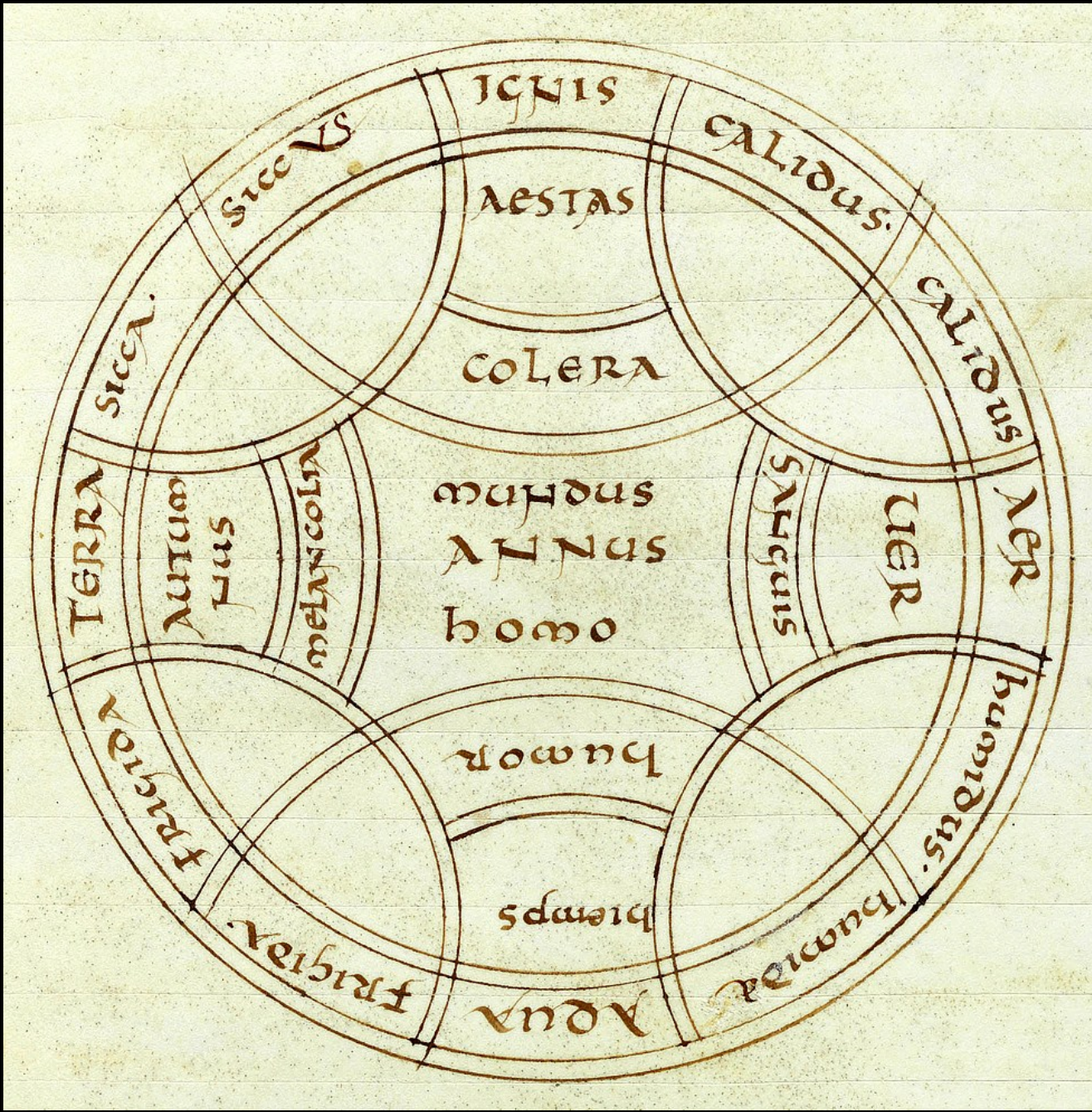
Isidore of Seville (c. 560 – 636)

- One of the greatest scholars of late antiquity
- Best known as the 1ˢᵗ encyclopedist of the Middle Ages
- *Etymologiae* (Etymologies) - 20 books that quotes over 154 classical authors encompassing grammar, religion, law, agriculture, medicine, and more
- *Etymologiae & De natura rerum* – of interest to history of information visualization
  - contain diagrams that *he* considered useful for communication of ideas.
  - 7 figures in *De natura rerum*
  - 6 circular diagrams called rotae used for cartography, computus, the elements, and the relation of man to the cosmos.
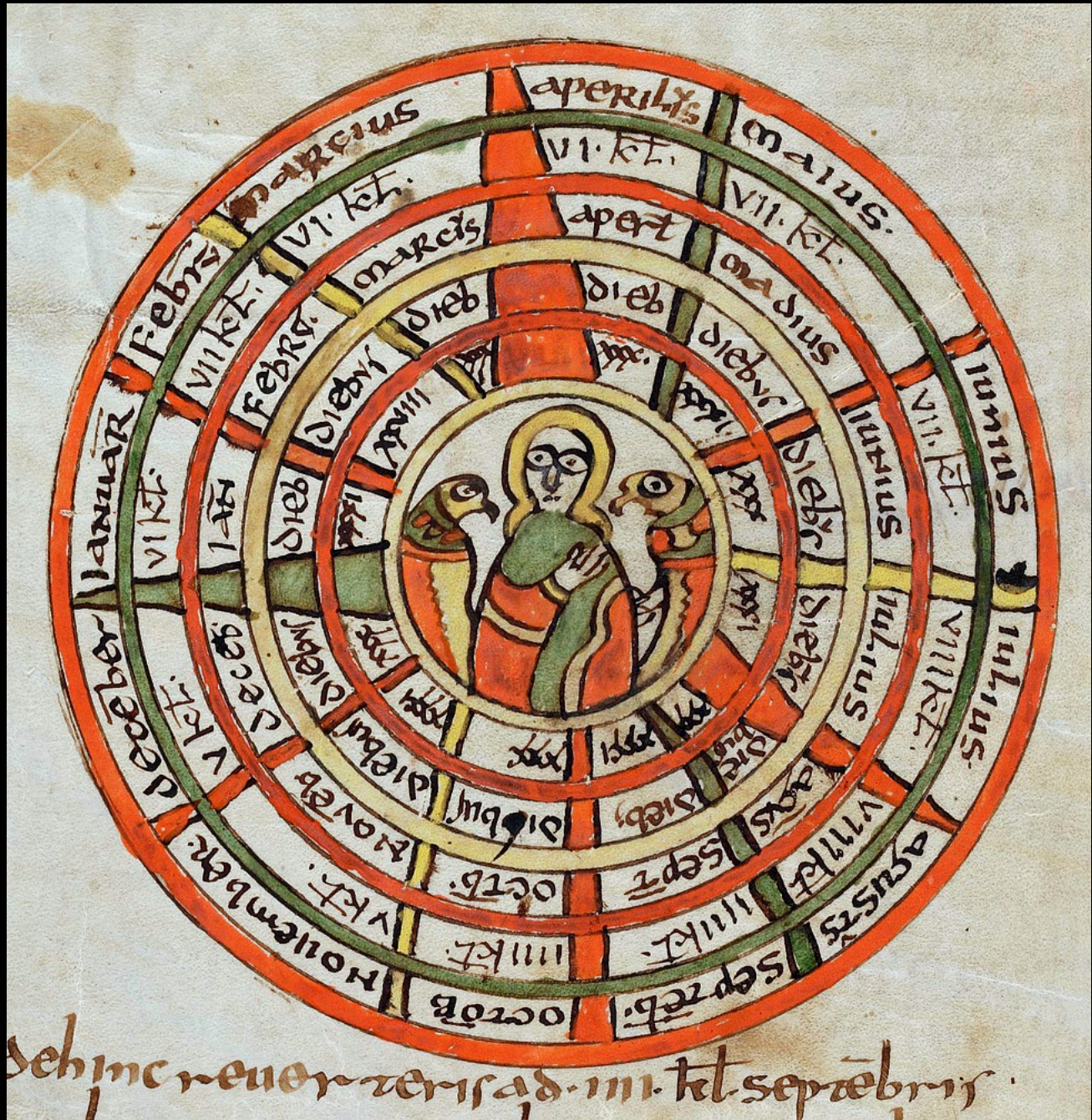
De natura rerum,
Isidore of Seville,
c. 760-780

St. Gallen,
Stiftsbibliothek,
Cod. Sang. 238

Annus-Mundus-Homo
Isidore of Seville,
c. 800

St. Gallen,
Stiftsbibliothek,
Cod. Sang. 240

Antecedents (1)

Macrobius

- Zonal map of the earth dates back to the Pythagoreans with references to the cosmography of:
  - Eratosthenes (c. 275-194 BCE)
  - Posidonius (c. 151-35 BCE)
  - Crates of Mallos (c. 168 BCE)
- Until Macrobius no extant physical record of a diagram of this kind.

Antecedents (2)

Boëthius

- Arc diagrams used for logic
- Application traceable back to Plato:
  - e.g. *Timaeus* and *The Republic*
- May have been employed as far back as Pythagoras
- None found in any existing copies of the original versions of *Timaeus* and *The Republic*

Antecedents (3)

Isidore of Seville

Rota found in Greco-Roman designs

Neptune & 4 Seasons,
2nd C Mosaic,
Bardo Museum, Tunisia

Four Winds,
The Hinton St Mary Mosaic
Dorset, UK, Roman Britain,
4th C, British Museum

Dolphin Mosaic, c. 3rd C
Fishbourne Roman Palace, UK

Take-away Points

- This paper has placed visualizations by Macrobius, Boëthius, and Isidore of Seville within a timeline of information visualization

- Diagrams created *explicitly* to elucidate concepts within respective texts.

- Conceptual antecedents may be found in antiquity.

- These visualizations are important for their innovative application and extensions *not* their act of invention.

- Disseminated by Carolingian schools, visualizations influenced the way information was communicated for the next four hundred years.

Thank you!