

The Medieval Cosmos



Ideas of Creation in Europe

- Obviously influenced by the Bible
- Departure from literal accounts began to emerge in 13th century
 - Pope Innocent III
 - Fourth Lateran Council (1215)
- 3 basic interpretations
 - God created world in 6 days
 - world created simultaneously
 - combination of above two
- Augustine tried to reconcile contradiction between two views
 - God did indeed create all things simultaneously but chose to narrate the creation day by day, because “those who cannot understand the meaning of the text, *He created all things together*, cannot arrive at the meaning of Scripture unless the narrative proceeds slowly step by step” (p. 84)
 - also example of the rising Sun
 - Augustine’s position was the most widely held in the Middle Ages

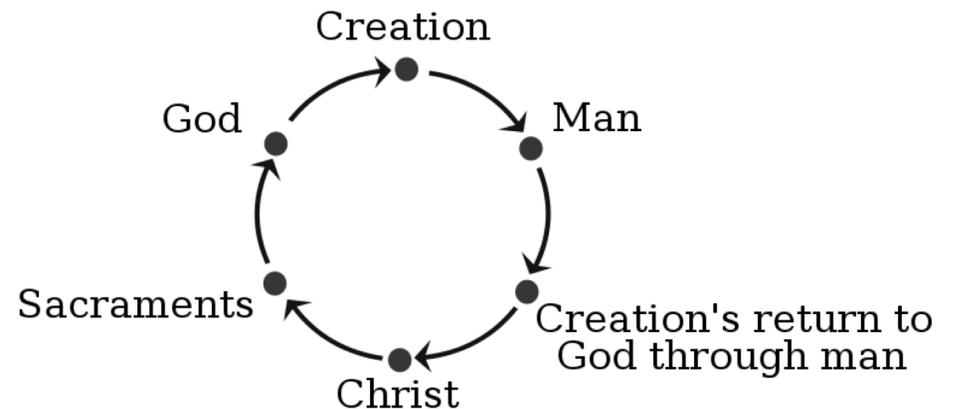


- Thomas Aquinas' perspective
- adopted a similar position to that of Augustine
 - God created all things simultaneously with respect to their unformed substance
 - but did not create them simultaneously with respect to their differentiation and ornamentation (which occurred over 6 days)
 - this view peaked in the 13th century



- God, with compass in hand, designing the universe. Within the perfect circle already created are the spherical sun and moon and the unformed matter that will become the earth once God applies the same geometric principles to it.
 - Obviously influenced by Greek geometry
- Source: Prefatory miniature from a moralized Bible of "God as architect of the world", folio I verso, Paris ca. 1220–1230. Ink, tempera, and gold leaf on vellum 1' 1½" × 8¼". Osterreichische Nationalbibliothek, Vienna 2554

- Was creation from nothing (*ex nihilo*)?
 - No explicit statement on this in Jewish, Christian, Muslim texts
 - Conclusion: probably yes. Why?
- How much leeway did scholars have to depart from biblical accounts in the Middle Ages?
 - Read quote from Thomas Aquinas' on Grant, pp. 90-91
- *Summa theologica* (or *Summa theologiae*) written 1265-1274 by Aquinas
 - summarized history of the cosmos
 - cyclical order



- Days of Creation: Six Days
- Day 1: heaven (*caelum*), earth (*terra*), light (*lux*)
- Day 2: firmament (*firmamentum*) that divides water above from those below → heaven (*caelum*)
- Day 3: seas, dry land, plants, trees
- Day 4: light, celestial bodies, Sun, Moon
- Some contradictions:
 - Internal inconsistencies: Read p. 92
 - How to reconcile with with Aristotle?
 - How do prime matter and the four elements relate to creation?
 - what did Aquinas say?



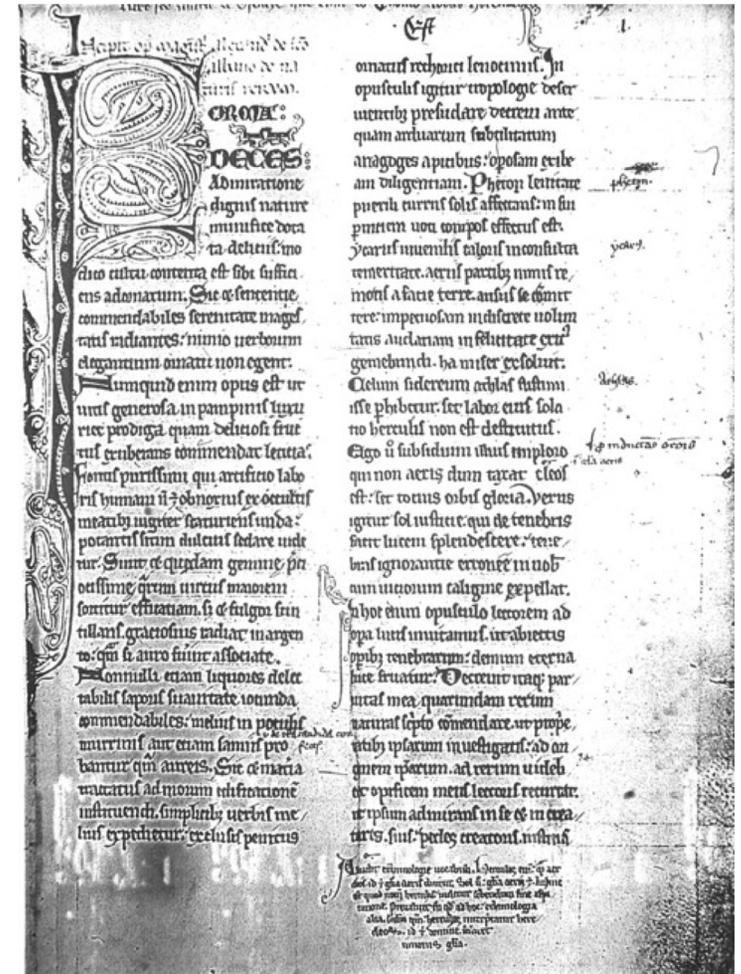
Edward Burne-Jones, *The Days of Creation* (1871)

- **The Moon in the Early Middle Ages**
- Important medieval text:
 - Martianus Capella, *The Marriage of Philology and Mercury* (late 5th century)
 - a kind of handbook for most of Middle Ages, esp. during Charlemagne
 - wrote about the seven liberal arts
 - one of the first texts to consider the nature of the Moon
 - considered shapes on the Moon
 - sistra (a curved metal rattle), a lamp, bow, tambour (a drum), a cat, a stag
 - rooted in pre-Christian cults
 - suggested close observation of Moon by naked eye
 - Moon was often the source of Earthly events

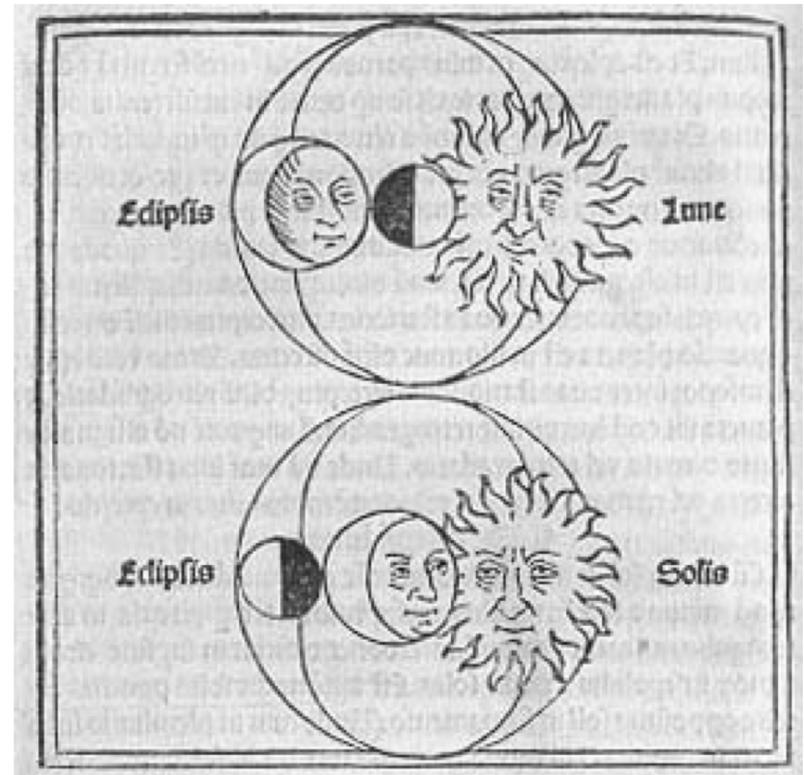


From Symbolism to Naturalism

- in 12th-14th centuries, study of surface of Moon became a formal intellectual activity
 - move from literary & allegorical interpretations
 - move to more realistic depictions of Moon
- in conjunction with rise of Aristotelean scholarship, scholasticism, Islamic astronomy (Averroes), etc.
- al-Haytham (965-1039)
 - *On the Light of the Moon*
 - *On the Nature of the Marks Seen on the Surface of the Moon*
 - His theories about the differences between the light and dark areas of the Moon
 - read pp. 73-74, 75-76
- interest in “spottedness” of the Moon
 - Alexander of Neckam (1157-1217)
 - *De naturis rerum* (On the nature of things)
 - said that some believe the Moon to be covered by mountains
 - his own view: lunar spots were intended by God as a sign of original sin stained upon heavenly bodies



- key events in a shift in perception
- in centuries after Charlemagne's death
 - Goddess “Luna” slowly shifted to become a male face
- By 12th/13th centuries, the “man-in-the-Moon” image had become a standard icon in a wide range of new media
 - woodblock, prints, stained glass, fresco paintings
- *De sphaera* (On the Sphere), originally written in 1250 was a brief introduction to astronomy
 - standard university book
 - John of Sacrobosco (1195-1256), monk
 - even during Kepler's time
- Why was the face on the Moon male?
 - especially since the woman was linked to the Moon (“luna”) in Greco-Roman culture
 - misogyny?
 - merger of ancient Greek + biblical folklore
 - read p. 67
- by 15th century, the face had become an artistic cliché, you could see it everywhere



Sphaera mundi by John of Sacrobosco (c. 1250)

Crisis of 1277

- In 1277, the Bishop of Paris (Etienne Tempier) condemned 219 articles of natural philosophy then taught in universities
- “Condemnation of 1277”
- Basically, an attempt to ban Aristotle’s works
 - what kind of conflicts?
 - Whitney, p. 30
- showed divide in universities between faculty of arts and theology
- also a conflict between knowing the world through reason or revelation
- Example:
 - Aristotle said that a vacuum could never exist in the world and that other worlds like this one could not come into being
 - Theologians believed that God could create a vacuum if he wished
 - Natural philosophers backed off their positions by saying that God had the ability to counteract any position they took
- Could be seen as a victory of religion over ‘science’
- But some argue (Pierre Duhem) that the origins of modern science can be dated to 1277 because natural philosophers began to look for other explanations of the universe that did not depend on Aristotle, i.e., began to reject Aristotle.