

Science and Religion in the Middle Ages



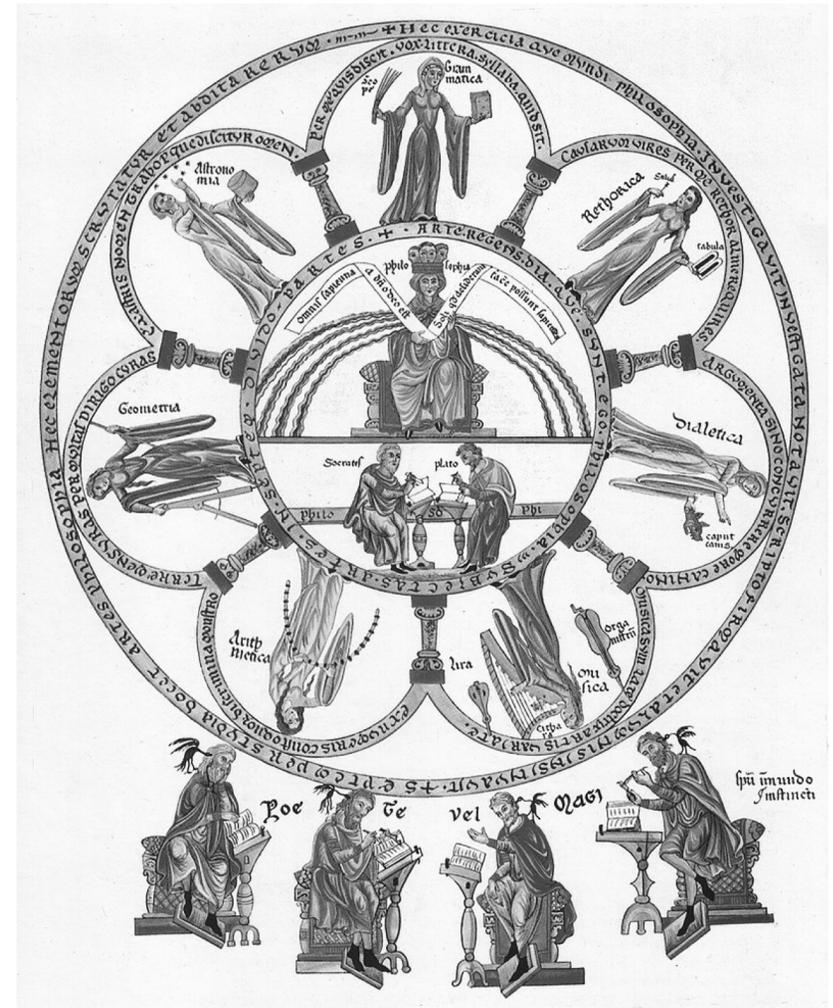
Vienna 2554 of the *Bibles Moralisées* (mid-13th century)

Medieval Science

- was always conducted in an environment concerned with God
- nature was seen as God's handiwork
- thus "science" and "religion" were essentially seen as part of a singular way to understand the world

Knowledge in the Middle Ages

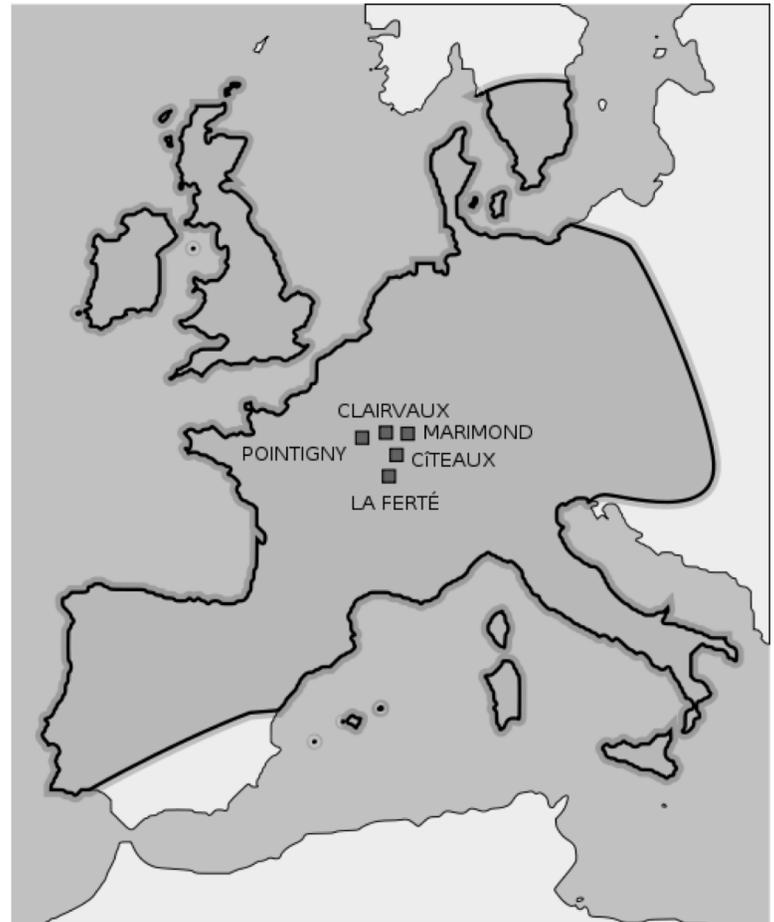
- Philosophy
- Speculative Philosophy
 - Natural Philosophy
 - concerned with the nature of material things
 - Theoretical Philosophy
 - concerned with abstract things
 - *trivium*: grammar, rhetoric, logic
 - *quadrivium*: arithmetic, music, geometry, astronomy
 - The 7 Liberal Arts
 - Divine Philosophy
 - concerned with nature of God

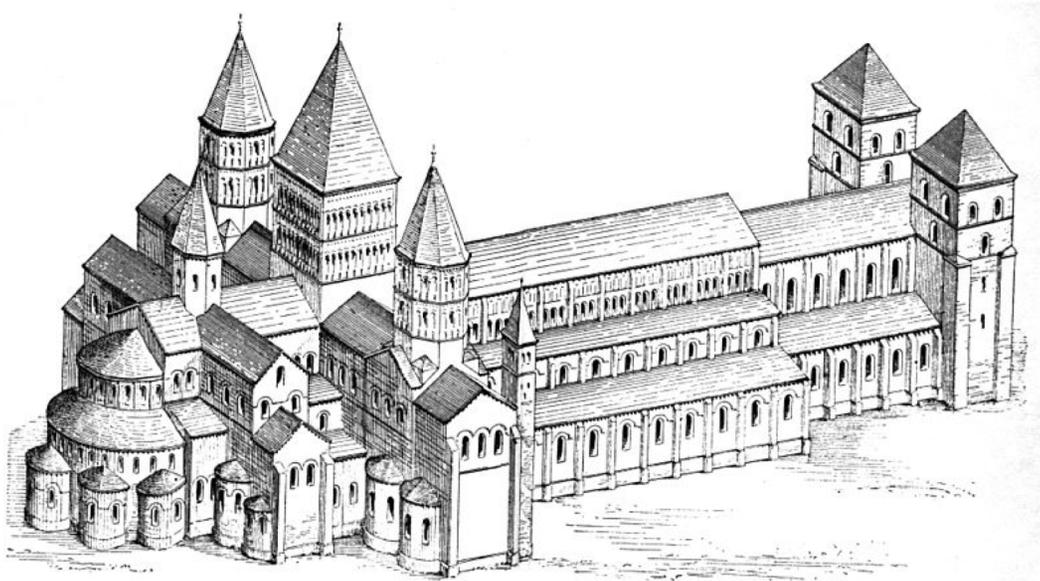


–Philosophia et septem artes liberales (from Hortus deliciarum, 12th century)

Monastic View of Science and Technology

- Cistercian Monks
 - Robert, Abbot of Molesmes founded order in 1098
- inspired by Benedictine Rule (5th century)
- golden age of Cistercians in early 12th century
 - under St. Bernard in 12th century
 - more than 740 monasteries
 - reinforced ideal of work and physical labor through brotherhood
- Jean Gimpel:
 - *“In their sincere desire to flee the worldly and commercial life of the cities the Cistercians went to live in areas ‘remote from habitation of man.’ But by attempting to become independent of the outside world, they created an economic empire based on a highly centralized administration and on up-to-date technological expertise.”* (p. 47)
- production of wine
 - used for Communion
- waterwheel to operate grinding stone (for olive oil)
- iron production
 - Cistercian monks in Rievaulx Abbey in Yorkshire, England may have built the first blast furnaces for iron production





2. CLUNY (NO).

Abbey of Cluny

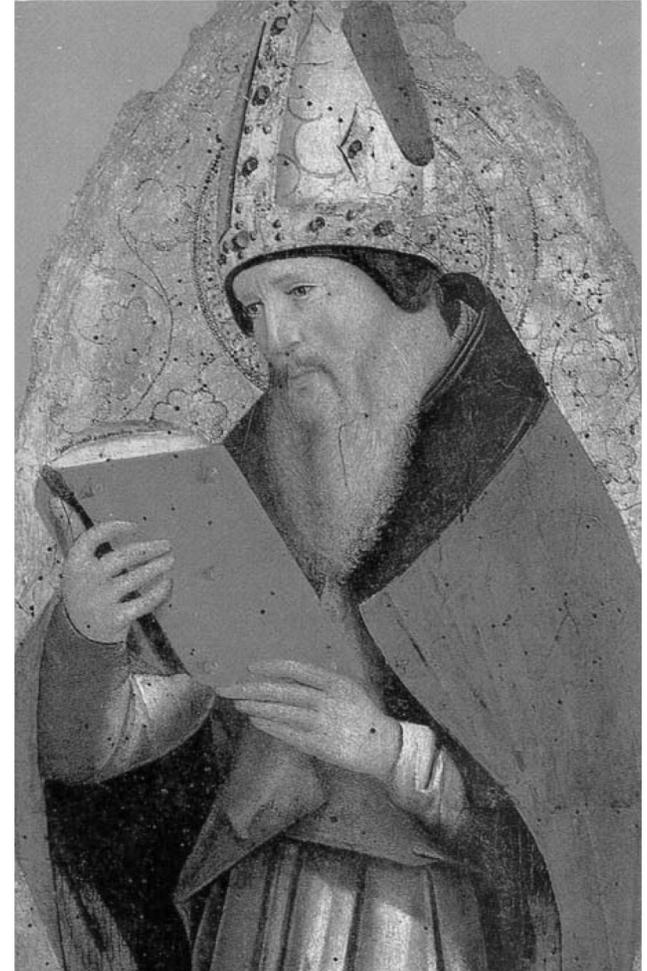


St. Bernard of
Clairvaux (1090-
1153)



Early Issues in the Science/Religion Relationship

- St. Augustine of Hippo (354-430 CE)
- influenced by Manicheism
 - matter and spirit created by individual Gods
 - matter = evil, spirit = good
- influenced by ideas of Plato
- Augustine viewed material world as corrupt and imperfect
 - but study of it (i.e., ‘science’) led to knowledge about God and Heaven
 - ‘science’ was the handmaiden of religion
 - but the hierarchy must be maintained: theology > ‘science’



Importance of Translations of Greek Works

- Medieval Islamic scholars translated many Greek works into Arabic
 - Aristotle, Plato, Euclid, Galen
- 8th Century: Abbasid Dynasty centered in Baghdad
- Importance of ‘Commentary’
 - scholars always added explanatory notes to Greek works
 - commentaries were crucial
- Avicenna (980-1037) – real name “Abu Ali Sina”
 - Persian polymath, father of early modern medicine
 - wrote *The Canon of Medicine*
 - “floating man” experiment
- Averroes (1126-1198) – real name “Ibn Rushd”
 - from Muslim Spain, known as “The Commentator”
 - founder of “Averroism” in 13th century Europe
 - often linked to early forms of atheism
- Both:
 - translated Aristotle (Avicenna did 10-volume *Metaphysics*)
 - had profound influence on ‘scientific’ thought in West
- How did Arabic translations reach Western Europe?
 - through Crusades in 11th/12th centuries
 - in Spain (most important), Sicily, southern Italy



St. Thomas Aquinas (1225-1274)

- Dominican order of Friars
- studied at the University of Paris
- wrote *Summa contra Gentiles* (Summary Against Nonbelievers, 1265)
 - summarized Aristotlean philosophy that could be used against non-believers
- believed that one should use the weapons of non-believers against them
 - used Aristotlean philosophy to complement biblical points
 - Aristotle believed: everything in the universe had a purpose and a place
 - according to St. Thomas Aquinas, this purpose was a form of revelation that showed divine purpose and planning
- fight against Cathars
 - dualist worldview



Scholasticism

- first medieval universities established in Italy, France, England in late 11th/12th centuries
- evolved from earlier:
 - cathedral schools (where bishops trained clergy in canon law) or
 - monastic schools (*trivium*, *quadrivium*, etc.)
- studied arts, law, medicine, theology
- teachings based on Latin translations of Greek knowledge: mainly Aristotle
- Scholasticism was the method of teaching
 - originated as debates in classroom
 - influenced by Averroes
 - two modes of scholasticism
 - commentary
 - question format
 - dealt with grand questions about nature, etc.
 - goal was to reconcile religion with ‘science’ (i.e., Greek thought)
- Scholasticism was the dominant form of intellectual inquiry in medieval universities from 1200 to mid-17th century
 - key figures: St. Thomas Aquinas, Peter Abelard, etc
- Limitations? read pp. 25-26