

Genesis

The Beginning

1 In the beginning God created the heavens and the earth. ²Now the earth was formless and empty, darkness was over the surface of the deep, and the Spirit of God was hovering over the waters.

³And God said, "Let there be light," and there was light. ⁴God saw that the light was good, and he separated the light from the darkness. ⁵God called the light "day" and the darkness he called "night." And there was evening, and there was morning—the first day.

⁶And God said, "Let there be an expanse between the waters to separate water from water." ⁷So God made the expanse and separated the water under the expanse from the water above it. And it was so. ⁸God called the expanse "sky." And there was evening, and there was morning—the second day.

⁹And God said, "Let the water under the sky be gathered to one place, and let dry ground appear." And it was so. ¹⁰God called the dry ground "land," and the gathered waters he called "seas." And God saw that it was good.

¹¹Then God said, "Let the land produce vegetation: seed-bearing plants and trees on the land that bear fruit with seed in it, according to their various kinds." And it was so. ¹²The land produced vegetation: plants bearing seed according to their kinds and trees bearing fruit with seed in it according to their kinds. And God saw that it was good. ¹³And there was evening, and there was morning—the third day.

¹⁴And God said, "Let there be lights in the expanse of the sky to separate the day from the night, and let them serve as signs to mark seasons and days and years, ¹⁵and let them be lights in the

expanse of the sky to give light on the earth." And it was so. ¹⁶God made two great lights—the greater light to govern the day and the lesser light to govern the night. He also made the stars. ¹⁷God set them in the expanse of the sky to give light on the earth, ¹⁸to govern the day and the night, and to separate light from darkness. And God saw that it was good.

¹⁹And there was evening, and there was morning—the fourth day.

²⁰And God said, "Let the water teem with living creatures, and let birds fly above the earth across the expanse of the sky."

²¹So God created the great creatures of the sea and every living and moving thing with which the water teems, according to their kinds, and every winged bird according to its kind. And God saw that it was good. ²²God blessed them and said, "Be fruitful and increase in number and fill the water in the seas, and let the birds increase on the earth."

²³And there was evening, and there was morning—the fifth day.

²⁴And God said, "Let the land produce living creatures according to their kinds: livestock, creatures that move along the ground, and wild animals, each according to its kind." And it was so.

²⁵God made the wild animals according to their kinds, the livestock according to their kinds, and all the creatures that move along the ground according to their kinds. And God saw that it was good.

²⁶Then God said, "Let us make man in our image, in our likeness, and let them rule over the fish of the sea and the birds of the air, over the livestock, over all the earth,^a and over all the creatures that move along the ground."

²⁷So God created man in his own image, in the image of God he created him; male and female he created them.

²⁸God blessed them and said to them, "Be fruitful and increase in number; fill the earth and subdue it. Rule over the fish of the sea and the birds of the air and over every living creature that moves on the ground."

²⁹Then God said, "I give you every seed-bearing plant on the face of the whole earth and every tree that has fruit with seed in it. They will be yours for food. ³⁰And to all the beasts of the earth and all the birds of the air and all the creatures that move on the ground—everything that has the breath of life in it—I give every green plant for food." And it was so.

³¹God saw all that he had made, and it was very good. And there was evening, and there was morning—the sixth day.

2 Thus the heavens and the earth were completed in all their vast array.

²By the seventh day God had finished the work he had been doing; so on the seventh day he rested from all his work.

³And God blessed the seventh day and made it holy, because on it he rested^a from all the work of creating that he had done.

^a Or possibly became

^{b26} Hebrew; Syriac all the wild animals

PSALM 104

¹Praise the LORD, O my soul.

O LORD my God, you are very great;
you are clothed with splendor and
majesty.

²He wraps himself in light as with a
garment;
he stretches out the heavens like a
tent

³and lays the beams of his upper
chambers on their waters.
He makes the clouds his chariot

and rides on the wings of the wind.

⁴He makes winds his messengers,
flames of fire his servants.

⁵He set the earth on its foundations;
it can never be moved.

⁶You covered it with the deep as with a
garment;
the waters stood above the
mountains.

⁷But at your rebuke the waters fled,
at the sound of your thunder they
took to flight;

⁸they flowed over the mountains,
they went down into the valleys,
to the place you assigned for them.

⁹You set a boundary they cannot cross;
never again will they cover the earth.

¹⁰He makes springs pour water into the
ravines;
it flows between the mountains.

¹¹They give water to all the beasts of the
field;
the wild donkeys quench their thirst.

¹²The birds of the air nest by the waters;
they sing among the branches.

¹³He waters the mountains from his upper
chambers;
the earth is satisfied by the fruit of
his work.

¹⁴He makes grass grow for the cattle,
and plants for man to cultivate—
bringing forth food from the earth:

¹⁵wine that gladdens the heart of man,
oil to make his face shine,

and bread that sustains his heart.

¹⁶The trees of the LORD are well watered,
the cedars of Lebanon that he
planted.

¹⁷There the birds make their nests;
the stork has its home in the pine
trees.

¹⁸The high mountains belong to the wild
goats;
the crags are a refuge for the coney.

¹⁹The moon marks off the seasons,
and the sun knows when to go down.

²⁰You bring darkness, it becomes night,
and all the beasts of the forest prowl.

²¹The lions roar for their prey
and seek their food from God.

²²The sun rises, and they steal away;
they return and lie down in their
dens.

²³Then man goes out to his work,
to his labor until evening.

²⁴How many are your works, O LORD!
In wisdom you made them all;
the earth is full of your creatures.

²⁵There is the sea, vast and spacious,

teeming with creatures beyond
number—

living things both large and small

²⁶There the ships go to and fro,
and the leviathan, which you ~~have~~
to frolic there.

²⁷These all look to you
to give them their food at the ~~proper~~
time.

²⁸When you give it to them,
they gather it up;
when you open your hand,
they are satisfied with good things.

²⁹When you hide your face,
they are terrified;
when you take away their breath,
they die and return to the dust.

³⁰When you send your Spirit,
they are created,
and you renew the face of the earth.

³¹May the glory of the LORD endure
forever;

may the LORD rejoice in his works.

³²He looks at the earth, and it trembles;
he touches the mountains, and they
smoke.

³³I will sing to the LORD all my life;
I will sing praise to my God as long
as I live.

³⁴May my meditation be pleasing to him,
as I rejoice in the LORD.

³⁵But may sinners vanish from the earth
and the wicked be no more.

Praise the LORD, O my soul.

Praise the LORD.

History of Science 423/523: Science and Religion

Lecture 2: Mediaeval Science and Theology

- I. Roman civilization in the second century: 'The happiest period of mankind's history' (Gibbon)
 - A. The creation of the Roman Empire and *Pax Romana* by Augustus (31 B.C.-A.D. 14)
 - B. The synthesis of Greek science and medicine: Galen and Ptolemy of Alexandria
 - C. The division of the Roman Empire in 395 and the fall of the Western Empire (by 493)
- II. The Dark Age (c. 500-c. 1000 A.D.): Europe reaches its lowest ebb
 - A. The devastation of population, lands, trade, and industry by Germanic invasions
 - B. The survival and continuation of the Eastern (Byzantine) Empire (395-1453)
 - C. Arab expansion in the Mediterranean and the decline of trade between East and West
- III. The rise and development of monasticism in Western Europe
 - A. The foundation of western monasticism by Benedict of Nursia (c. 480-c. 543); *ora et labora*
 - B. Cassiodorus' (retired 540) encouragement of monasteries as centres of learning
 - C. Monastic education: the Seven Liberal Arts (trivium and quadrivium)
- IV. Irish Christian culture
 - A. St. Patrick's (c. 389-c. 461) introduction of Christianity, the conversion of Ireland, and the Irish monks' dedication to learning
 - B. Ireland as the *insula sanctorum et doctorum* ('the island of saints and scholars'); the Golden Age of Irish literature (c. 500-c. 800)
 - C. The Irish *peregrini* ('wanderers') and their transmission of Latin culture to the Continent
 - D. The Viking raids on Ireland (beginning in 795) and the destruction of Irish civilisation
- V. Frankish influence on learning in Europe
 - A. Charlemagne (768-814) and the Carolingian Renaissance
 - B. John Scotus Eriugena (815-877): his first-hand knowledge of Greek science
- VI. The study of natural philosophy during the Dark Age: the preservation of classical knowledge
 - A. Boethius (480-524) and Cassiodorus
 - B. Isidore of Seville's (c. 560-636) *Etymologies* and Bede's (673-735) *De natura rerum*
 - C. Gerbert of Aurillac (c. 940-1003), who later became Pope Sylvester II: his interest in Aristotle's logic (the 'old logic') and mathematics
 - D. The transmission of classical learning to the Continent by fleeing Irish monks
- VII. The emergence of Europe from the Dark Age (c. 1000-1400)
 - A. The expulsion of the Arabs from the Mediterranean and the revival of trade with the East
 - B. The reappearance of towns in northern Italy, southern France, and Flanders
- VIII. The influence of urbanization on education
 - A. The development of cathedral schools and universities (c. 1200)
 - B. Aristotle's (384-322) influence on mediaeval knowledge and education ('the Master of them that know')
 1. His career; his classification and synthesis of knowledge
 2. His appeal for Christians attempting to synthesize faith (special revelation) and reason (general revelation)
 - C. Problems in Aristotle: his belief in the eternality of the universe, material and mortal souls, the existence of an Unmoved Mover; and in naturalism and determinism
 - D. Initial rejection of his natural philosophy at the University of Paris (1210, 1215); the papal order that his writings be purged (1231); mandated lectures on his writings (1255)
 - E. Albert the Great (c. 1200-1280) and Thomas Aquinas (c. 1224-1274): appropriation and synthesis of Aristotle's writings with Christianity
 - F. Siger of Barabant (c. 1240-1284): accepted Aristotle without qualification

- G. Etienne Tempier's condemnation of 13 (1270) and 219 (1277) propositions of Siger
- IX. Two mediaeval views of the providence of God in nature
- A. Voluntarism: *potentia Dei absoluta* (the absolute power of God): emphasizes God's will over his power; he can create any kind of universe that he wishes to create
- B. Intellectualism: *potentia Dei ordinata* (the ordained power of God): emphasizes God's intellect over his will; God can create freely but he not change what he has already created
- X. Reactions to the condemnations of 1277: arts masters were at liberty to explore views in natural science that lay outside Aristotle's physics, e.g., in thought experiments ('What if?')

Edward Gibbon	anchorites	Anastasius
Britain	Benedict's <i>Holy Rule</i>	Ostrogoths
Syria	Monte Cassino	Theodoric (493-526)
Black Sea	Benedictines	Vivarium
Sahara Desert	Scriptorium	<i>Ecclesiastical History</i>
Mediterranean Sea	Latin	Jarrow, Durham
provincial	Gaelic	polymath
<i>Civis Romanus sum</i>	Romance languages	Venice, Venetians
Galen (129-c. 210 A.D.)	Gauls, Gallic	Crusades
Ptolemy of Alexandria	Clonmacnois	Oxford, Cambridge
(fl. 120-150 A.D.)	Columban (Columbanus)	Burg
<i>Almagest, Geography</i>	St. Gall	Hamburg, Edinburgh
Columbus	Alamanni	Strasbourg
Constantine (312-337)	Norsemen, Danes	Pisa, Genoa, Milan
Constantinople (Istanbul)	Cork, Dublin, Limerick,	Plato's <i>Timaeus</i>
Germans	Waterford	arts masters
Franks, Gaul	Clovis	Socrates
Goths	Carolingian Renaissance	Philip II of Macedonia
Angles, Saxons, Jutes	Alcuin of York	Academy, Lyceum
Marseilles	Einhard	<i>Physics, Metaphysics</i>
Mohammed (d. 632)	Aachen	Gregory IX
Arabian peninsula	Palatine School	a priori, a posteriori
Iberian peninsula	Charles the Bald	necessity, contingency
Battle of Tours (732)	Thomas Cahill	