Late Medieval

Piero Scaruffi 2004
What the Middle Ages knew

Map of the world in 1200
What the Middle Ages knew

http://www.clearlight.com/~mhib/WVFossils/ice_ages.html
What the Middle Ages knew

• The Church
  – Western Christianity: The Church appoints kings, who are simply better warriors than others (Germanic tradition)
  – Eastern Christianity: The King is anointed directly by God (Hellenistic and Oriental tradition)
  – Benedectine monks: The liturgy is the process by which the monastery acts as intermediary between humans and God (monks don't need to work anymore)
What the Middle Ages knew

• A more humane Church
  – Change of mood about predestination: Man is not absolutely evil and God is absolutely just, thus a man’s deed do help towards salvation
  – The priest is God’s envoy and has divine powers, e.g. during sacraments (God bestows them on the Pope who bestows them on the bishops who bestow them on the priests)
  – God does not care for the daily problems of humans, but saints (who are semi-human) do and they can perform miracles too: worship of saints
  – The Virgin Mary is compassionate: worship of the Madonna
What the Middle Ages knew

• A more humane Church
  – 1215: Sinners must confess to a priest
  – The priest becomes the moral guardian of the community
  – Processions of flagellants (lay people who aim for monk-like spirituality)
  – Emphasis on purgatory and masses for the dead (Council of Florence of 1031, Pontifical definition of 1259)
What the Middle Ages knew

• A more political Church
  – Clunyan reform: only cardinals can elect the pope (1059)
  – Gregorian reform: primacy of the papacy over the empire, infallibility of the Church, right of the pope to depose emperors (1073)
  – There is a higher source of justice by which even the ruler has to abide. The Church is a parallel power. The power of the ruler is limited.
  – The Church destroys the Empire (Diet of Worms 1122, defense of Italian communes, crusades, collapse of the empire)
  – Donations of land to the Church peak in the 10th century (before the year 1,000)
What the Middle Ages knew

• A more political Church
  – Gregorian reform:
    • a unified world order,
    • social conscience (the Church to be on the side of the poor),
    • political conscience (the powerful are spiritually poor)
What the Middle Ages knew

• A more efficient Church
  – Celibacy of the priests to end nepotism (if a priest has children, he will try to pass on privileges to them)
  – Marriages between members of the same family are forbidden (to encourage donations to the Church by the surviving spouse)
What the Middle Ages knew

• A more political Church
  – Innocent III (1198):
    • Papal monarchy (the Pope is the supreme authority of all archbishops)
    • The Pope is the only interpreter of God on Earth
    • Kings are responsible to the Pope not directly to God
    • The Church becomes a secular power
    • Innocent III and French king Philippe Auguste defeat German emperor Otto IV and English king John at the battle of Bouvines (1214)
What the Middle Ages knew

• A more political Church
  – Innocent III (1198):
    • Fourth Lateran Council (1213)
      – Annual confession mandatory for all Christians
      – Seven sacraments that follow the life of a Christian from birth to death, including marriage
      – Economic and political power of the Church over the individual from birth to death
What the Middle Ages knew

• A more political Church
  – Innocent III (1198):
    • Recognition of Franciscan and Dominican orders, that provide a way for ordinary laymen to share in the spiritual experience without becoming priests
  – Urban IV (1261):
    • The Pope’s own law court (“Rota Romana”)
    • Extensive taxation of the clergy
    • Local appointments decided by Rome (and determined by Rome’s needs not local needs)
    • The Papacy becomes a vast bureaucratic institution
What the Middle Ages knew

• A more political Church
  – The Pope and not the Emperor is the leader of Christianity
  – The Church as the unifying element of Europe
  – The Church control education
  – The Church control the arts
  – Bishops control non-inheritable lands
  – Latin
What the Middle Ages knew

• A more political Church
  – Medieval synthesis: Church, Cities, Kings (clergy, bourgeoisie, nobility)
  – “The house of God is divided into three: one group prays, another fights and the other labors” (Bishop Adalbert of Laon, 1027)
What the Middle Ages knew

- A more political Church
  - Religious persecutions
    - Persecution of Jews and Muslims (Fourth Lateran Council of 1215)
    - Jews expelled from Britain (1290) and France (1306), massacred in Spain (1391)
What the Middle Ages knew

• Crusades (1099-1270)
  – Goal:
    • Defend Christian pilgrimage routes to Jerusalem
    • Retake Jerusalem from the Seljuk Turks
    • Unite a fragmented Christian world
    • Not a goal: invade the whole of the Islamic world
    • Not a goal: convert the Muslims
  – Causes:
    • A more powerful Church unites Europe
    • A more humane Church unites all social classes
    • Population boom throughout Europe
    • Control of lucrative trade routes
What the Middle Ages knew

- Crusades (1099-1270)
  - Crusade I: A popular movement with no leader
  - Crusade II: Two national armies
  - Crusade III: An alliance of the western powers
  - Crusade IV: Venezia/Venice loots Constantinople
What the Middle Ages knew

- Crusades (1099-1270)
  - Military religious orders
    - Knights of St. John of Jerusalem ("Hospitalers")
    - Poor Knights of Christ and of the Temple of Solomon ("Templars")
What the Middle Ages knew

• Crusades (1099-1270)
  – Consequences:
    • End of medieval isolation of Western Europe
    • Weakening of Constantinople
    • Rise of Italian cities
    • Strengthening of French and English monarchies
    • Exchange of ideas with the East
    • Revival of trade with the East
    • Religious persecution
What the Middle Ages knew

• Decline of the Church
  – 1000: The world does not end
  – Cities nurture new social classes (lawyers, teachers, clerks) that compete with priests and monks
  – The defeat of the German emperor shifts power to the French king
  – France does to the Church what the German emperor wanted to do: subjects it
  – Avignon 1309-78
What the Middle Ages knew

- Love
  - Idealized (Platonic) love
  - Spiritual element
  - Allegorical element
  - Conventions of love discourse and behavior
What the Middle Ages knew

• Chivalry (12th-14th c, originally northern France)
  – The stirrup increases the power of the knights and helps create feudalism
What the Middle Ages knew

• Chivalry (12th-14th c, originally northern France)
  – Importance of mounted warrior to fight Eastern barbarians and Muslims
  – Knighthood an expensive job (armor, horse, weapons)
  – Nobles grant land to mounted warriors in return for their services
  – Tournaments to train the knights
  – Knights/chevaliers form new caste of nobility
  – Initially (1000) they are feared like bandits by the Church, but slowly they devote an ever larger share of their wealth to the glory of God
What the Middle Ages knew

• Chivalry (12th-14th c)
  – Courtly love: devotion to a lady (mostly adulterous love)
  – Knights embrace poetry and music to romance their lady
  – Heroism and Love
  – Asceticism and Eroticism
  – Tournaments as proof of valor and devotion
What the Middle Ages knew

• Chivalry (12th-14th c)
  – Code of chivalry develops: Christian piety, social manners
  – The Peace of God forbids knights from attacking peasants, women, priests, merchants
  – The Truce of God forbids knights from waging war on sundays and holy days
  – Orders of the Knights
  – Code of chivalry inspired by the ideals of Christianity, i.e. transnational
What the Middle Ages knew

- Chivalry (12th-14th c)
  - Increasing popularity of pilgrimage
    - St Peter’s, Rome
    - Saint Sepulchrum, Jerusalem
    - Santiago de Campostela, Spain
  - The Church converts the knights into servants of God
  - Violence is bad, except when waged against non-christians
  - Knights protect the journey of pilgrims
  - Eventually, knights also become an offensive, not only defensive, army (crusades)
What the Middle Ages knew

• Chivalry (12th-14th c)
  – Military religious orders of the 12th c
  – Originally founded in Jerusalem to protect the crusader states and escort pilgrims
  – Poverty and chastity vows
  – Their strategic role leads to increased wealth and power
What the Middle Ages knew

- Chivalry (12th-14th c)
  - Hospitalers (the Knights of Saint John)
    - Originally founded (1091) to perform charitable functions near the Church of Saint John the Baptist in Jerusalem
    - Charter based on the monastic rule of Saint Augustine
    - Fortresses in Palestine (Krak des Chevaliers, Belvoir, Margat)
    - Muslim reconquer Palestine and Hospitalers move to Rhodes (1309)
    - Only Christian presence in the Eastern Mediterranean in 1453 (and Malta in 1530)
What the Middle Ages knew

• Chivalry (12th-14th c)
  – Knights Templar (the Poor Knights of Christ, Hugh de Payens, 1119)
    • Charter modeled on the Cistercian monks
    • Fortresses throughout Palestine
    • Banking system to move donations from Europe to Palestine
      – Complex systems for the transportation of wealth to and from the Holy Land
      – Cheques (safer than transporting large amounts of gold or silver)
    • Muslim reconquer Palestine and Templars' headquarters move to Cyprus (1291)
  • The Pope dissolves the order and transfers their property to the Hospitalers (1312)
What the Middle Ages knew

- Chivalry (12th-14th c)
  - Teutonic Knights (the Knights of Saint Mary's Hospital)
    - Founded at Acre in Palestine in 1190 to defend a hospital
    - Limited to German noblemen
    - Monastic rule of the Templars
    - Eastern Europe (Prussia in 1226, forcible conversion of the Slavs,
    - Resettlement of Germans into Prussia, rapid expansion to Livonia,
    - Providing protection to the Hanseatic League,
    - Defeated by Poland/Lithuania in 1410)
What the Middle Ages knew

• Decline of Chivalry
  – The Hundred Years' War (1337-1453) requires extensive army of professional mercenaries, not just knights
  – Battle of Crecy (1346)
  – Battle of Poitiers (1356)
  – Battle of Agincourt (1415)
  – Chivalry ideals are obsolete and even suicidal
What the Middle Ages knew

• Decline of Chivalry
  – Battle of Crecy in northern France during the "Hundred Years' War" (1346)
    • Superior “fire power” (longbows and cannons) allows Edward III's much smaller English army of 16,000 to defeat Philip VI's larger French army of 80,000 at the
    • Knights on horseback are defeated by infantry
    • Archers are more important than horses
    • Ever heavier armors become counterproductive (knights need help even to get up)
What the Middle Ages knew

- Decline of Chivalry
  - Gunpowder makes the armored knight irrelevant
  - Mercenaries trained on the battleground are more reliable warriors than knights trained in tournaments
  - Military importance of the knight declines, and the importance of chivalry rituals increases
  - Large financial burden implied by the rituals of knighthood
What the Middle Ages knew

• Decline of Chivalry
  – Knights in the nation-state era wage war for the glory of their nation
  – Exclusive social distinction
  – Orders of knights in England, France, Bourgogne, Iberia
  – Code of chivalry specific to each nation
What the Middle Ages knew

- Decline of Chivalry
  - Gunpowder helped destroy feudalism
Golden Century

• 13th century = Golden Century
  – Improved communications between Europe and Asia thanks to the Mongol Empire
  – Improved business techniques thanks to the Italian merchant colonies of the Crusader states
  – Silver, copper and gold mines of Bohemia, Carpathians and Transylvania for coin minting
  – Improved sea trade in the Northern Sea thanks to supremacy of the Hanseatic League
Golden Century

• 13th century = Golden Century
  – Commercial banking in Italy thanks to large trading companies
  – Rudimentary cheques (transfers of money by written order) and banknotes (promissory notes) fuel inter-European trade (Marco Polo describes Chinese banknotes, which are real banknotes)
  – Courier service thanks to branch offices (“scarsella” between Firenze, Genova and Avignon)
Golden Century

• 13th century = Golden Century
  – Agriculture improved by agronomy
    • Landlords still more consumers than producers
    • Deforestation of Europe
    • Labor-intensive one-crop grain cultivation
    • Land reclamation (both by free mountain peasants, castles, monasteries, city capitalists)
  – Textile improved by spinning wheel (first instance of belt transmission of power)
  – Silk culture in Italy thanks to the Crusade of 1204
Golden Century

• 13th century = Golden Century
  – Manufacturing improved by mills
  – Machines
Golden Century

• 13th century = Golden Century
  – Population boom
    • Population almost doubled between 1000 and 1300 (38 million to 74 million)
    • End of Viking, Magyar and Saracen raids
    • Decline of slavery
    • Expansion of arable land (deforestation)
    • Improved agricultural techniques
Golden Century

- Revival of the town
  - 5th-9th century: towns disappear in northern Europe but still exist in southern Europe
  - 11th-14th century: migration from the countryside increases the population of towns
  - The town is the "Frontier" that people aspire to
  - The countryside is still a feudal world. the town is increasingly autonomous (different laws even when under the same ruler)
  - The countryside is organized vertically (from the lord to the paesants), the town is organized horizontally (commerce)
Golden Century

• Revival of the town
  – The town is the paradise of the merchant (in China and in the Middle East towns existed but merchants were one of the lowest classes)
  – The aristocracy continues to thrive in the countryside, and only in Italy it builds palaces in towns
  – Downside: living conditions deteriorate and foster epidemics
Golden Century

- Birth of the money economy
  - The rise of the towns creates new opportunities for employment for the countryside serfs
  - Flight of serfs to the towns increases the value of labor
  - The lord has to pay serfs to work
  - At the same time agriculture becomes more profitable because demand for food increases due to towns that need to import their food
  - The plague further increases the negotiating power of laborers
Golden Century

• Birth of the money economy
  – Towns are not as self-sufficient as the manor is
  – Food, clothing, raw materials, construction materials
  – Wages and prices are determined by guild regulations, not by the market
Golden Century

• Money
  – Solidus: gold coin of the Romans (used until the 15th c)
  – Denarius: silver coin of the Franks (since 781 the most common coin of Western Europe but available in only one denomination)
  – 1192: Venezia mints the "grosso" (silver, multiples of the denarius), widely accepted in Asia
  – 1231: Friedrich of Sicily mints a golden coin
  – 1252: Firenze mints the golden "fiorino" (one pound of grossi), which becomes the money of international finance in the West
Golden Century

- Money
  - 1266: France (Louis IX) mints the "gros Tournois" (still silver)
  - 1284: Venezia mints the golden "ducato" (also one pound of grossi)
  - 1312: Castilla (Alfonso XI) mints gold coins
  - 1344: England (Edward II) mints gold coins
  - 1457: Portugal mints the “cruzado” (gold coin) using gold from Africa’s Gold Coast
  - 1472: Venezia mints the “lira tron” (silver coin) using silver from southern Germany
Golden Century

• Money
  – The Italians adopt gold coinage, ending a long period of monetary confusion
  – But this increases the value of gold
  – Two thirds of the gold imported by Europe is carried by Arabs via the caravan route from Timbuktu in Mali to the Moroccan coast until Portugal occupies the Gold Coast (1450s) and Spain occupies the Americas (1500s)
  – Rich deposits of silver discovered in Saxony and Tyrol (1450s)
What the Middle Ages knew

• Age of machines
  – Harnessing energy from water and wind
  – Building a large-scale economy not on human power (slaves, peasants) but on natural energy
  – Roman Empire relies on free labor (slaves); medieval society starts relying on machines to reduce the dependence on labor
  – First technology progress in Europe in 2,500 years
  – Catch: the energy of water and wind has to be exploited on the spot (cannot be transported like coal and oil)
  – A fragmented political landscape encouraged experimentation in multiple regions
  – Exploration and crusades bring Middle-eastern and Eastern technology to Europe
What the Middle Ages knew

• Age of machines
  – Horizontal water mill (Egypt, 2nd c. BC)
  – Vertical water mill (Vetruvius, 1st c. BC)
  – 10th c. AD: mills pervasive for grinding grain, fulling clothes, pressing olives and tanning (especially in the Islamic world)
  – Monasteries pioneer waterpower and windpower technology (esp Cistercians) predating the industrial revolution (eg to propel iron foundries)
  – The first water-powered iron mills (12th c) were Cistercian (Italy, Germany, England)
  – William the Conqueror’s “Domesday Book” (1086) lists 5,624 watermills
  – Dams on rivers to power waterwheels
What the Middle Ages knew

- Age of machines
  - Paper-mill (1255 Genoa, 1348 Troyes, 1390 Nuremberg)
  - First water-powered paper mill: Fabriano, 1276
  - End of 12th c: windmill (England, North Sea)
  - 14th c: the tower mill (in which only the top rotates)
  - The Arabs import Italian textiles that are cheap because made with water mills, a technology that the Arabs never mastered
  - Demand for church bells, nails and later firearms creates demand for smelt iron which leads to the “invention” of the blast furnace
What the Middle Ages knew

• Age of machines
  – Water powers papermaking, textile industry and iron forging
  – Mass production of paper stimulates book publishing, first in monasteries then in towns
  – Textile industry is an international trade that links sellers of raw materials and buyers of finished goods in different countries
  – Iron making is one of the first mass production industries
What the Middle Ages knew

• Age of machines
  – Water power used not only for grinding grain (as the Romans did) but also for the textile industry (oldest reference to a fulling mill: 1168) and for sawing
  – No generalized applications of wind/water power, and limited ability to transmit power
What the Middle Ages knew

- Age of machines

The great crane of Bruges
What the Middle Ages knew

• Age of machines
  – 9th c. AD: crank (China, I c. AD)
  – 1126: artesian well (invented by the Carthusians in Artois)
  – 12th c. AD: trebuchet (catapult)
  – 12th c. AD: paper (Spain, also from China via Arabs)
  – End of 12th c: windmill (England, North Sea, from Iran)
  – Paper-mill (1255 Genoa)
  – 13th c. AD: mechanical clock and planetarium
  – 13th c. AD: spinning wheel (first instance of belt transmission of power, from China)
  – 1285: spectacles (Italy)
  – 12th c: blast furnace (Sweden)
“Dominican” Frescoes (1352) by Tomaso da Modena in San Nicolo, Treviso (Italy): spectacles of Cardinal Ugo, lens of Niccolò da Rouen, sandglass of Cardinal William
What the Middle Ages knew

• Age of machines
  – Textiles (11th-12th c)
    • Linen (ancient western technology)
    • Wool (Flanders)
    • Cotton (Pianura Padana)
    • Silk (Sicily, but mostly imported)
What the Middle Ages knew

• Age of machines
  – Milano (12th c) center of military technology (weapons, armors)
  – Cannon (late 13th c)
    • Decline of the castle (15th c)
    • The first Portuguese ship in Guangzhou/Canton (1517) shocks the Chinese because of the cannons
  – Handguns (end of 14th c)
What the Middle Ages knew

• Age of machines
  – Horizontal loom of 1250 (manuscript at Trinity College, Cambridge)

(Frances and Joseph Gies)
What the Middle Ages knew

• Age of machines
  – Most tools are still made of wood because little is known of analytical chemistry
  – Beginning of iron casting in late medieval time
  – Water-powered blast furnace (13th-14th c)
What the Middle Ages knew

- Clocks

Miniature from 1250 Bible
Oxford Bodleian Library
What the Middle Ages knew

• Clocks
  – Escapement (end of 13th c)
  – Mechanical clock (13th c - 14th c)
  – First machine made entirely of metal
  – Initially to serve the need of astrologers (astronomical clocks) and made by blacksmiths
    • St Eustorgio (Milano, 1309)
    • Tower of Visconti palace chapel (Milano, 1335, first clock that struck automatically)
    • Giant clock of Strasbourg (1354)
  – First clockmakers (Jacopo di Dondi, who built the clock for the tower of the Carrara palace at Padua, 1344)
  – First household clocks: end of 13th c, made by goldsmiths/silversmiths, not by blacksmiths
What the Middle Ages knew

- Clocks
  - The earliest mechanical clocks could not replace waterclocks and sundials because they were a lot less accurate
  - Clocks were fashionable in the age of the machines
  - Clocks marked the passages of days, months and years, and the revolutions of planets (eg Dondi’s clock, 14th c) and only incidentally marked the hour
What the Middle Ages knew

- Clocks
  - Monumental water clocks from Arabs
  - Mechanical clocks develop the technology later applied to geared wheels (geared mills)
  - Timekeeping indirectly leads to power production and transmission
  - Mechanical clocks of Italy: Milano (1335), Modena (1343), Padova (1344), etc
  - Strasbourg (1352), Henri De Vick's (1370)
  - Until the 14th century the day is divided in variable hours because of liturgical chores
  - With the inventions of the mechanical clock the use of equal hours began to spread
  - Domestic clocks begin to spread in the 15th century from around Nuremberg
What the Middle Ages knew

- **Clocks**
  - Water automata: largely disappeared after the fall of Rome
  - On water automata: "The Book of Secrets about the Results of Thoughts" (11th c) published in Arab Spain
  - On water automata: "The Book of Knowledge of Ingenious Mechanical Devices" (1206) published in Arab Spain
  - Water clocks expensive to build and to maintain: mainly amusement for the courts
  - China: Su Sung's "Heavenly" water clock of 1092 with escapement
What the Middle Ages knew

• Clocks
  – Mechanical alarms for monks (12th C) - Dante's "tin tin sonando" (1315)
  – The "ornamenta" of a church (12th c) include: relics, incense, chalices, bells, and clocks
  – The church tower becomes a “clock” tower
  – Earliest known professional clock-maker: Hermann Josef (1200), sacristan from Steinfeld (Germany)
  – Around this time (13th c): Italian invention of the escapement, probably by monks
What the Middle Ages knew

• Clocks
  – Around 1330: 24 hours in a day, including the night, and the duration of an hour is the same in every place and in every season.
  – The clock forces ordinary people to think of the night as part of the day
  – The clock replaces the natural flow of time (the flow of individual experiences) with an abstract flow of time (the universal flow of clocks)
  – The clock begins a process of alienation of the individual from its natural environment
  – Before the invention of the clock, only monasteries valued routine daily behavior
What the Middle Ages knew

• Clocks
  – Boom of public clocks in Italy (early 14th c): Orvieto (1308), Modena (1310), Parma (1318), Ragusa (1322) but not clear what technology they used
  – Mechanical clock in the San Gottardo tower of Milano (1336): first tower clock
  – A galley from Venezia carries a mechanical clock for the sultan of Delhi (1338)
  – Tower clock for the City Hall of Padova (1344)
  – Parallel development: the sandglass
What the Middle Ages knew

- Clocks
  - Pope Urban V's "portable clock" of 1365: first portable clock, but requires a "clock carrier"
  - Boom of public clocks in the rest of Europe (late 14th c)
  - Regulation of working time (Cologne, 1374), town-hall meetings, markets, schools, preaching
  - Small portable clocks (15th c)
What the Middle Ages knew

• Clocks
  – Clocks cause people to doubt Aristoteles’ principle that nothing moves unless a force is applied: clocks do move because of a “vis impresa”
  – God is the perfect clockmaker (Nicole d’Orasme, 14th c)
What the Middle Ages knew

• Clocks
  – Clock tower
    • The bell of the church tower is the medium to broadcast information in the medieval town
    • Bells also tell the hours
    • The bell is the proud of the townfolks
    • Clocks of clock towers perform a mechanical show as they toll the hours
    • Strasbourg’s clock even provided medical advice to the townfolks
What the Middle Ages knew

• Clocks
  – Clock tower
    • The clocktower “secularizes” time (the first clocks were used in monasteries)
    • Ordinary lay people also acquire a schedule, just like monks had a schedule in monasteries
What the Middle Ages knew

• Age of machines
  – Theophilus Presbyter: “De Diversis Artibus” (13th c), Europe’s first technical manual
    • The art of the painter
    • The art of the glass worker
    • The art of the metal worker
  – Each village acquires its own carpenter and smith
What the Middle Ages knew

• Age of machines
  – Giovanni Tortelli’s “De Orthographia Dictionum” (145#) lists these new inventions: clocks, bells, portulan charts, compass, stirrups, watermill, cembalo, organ, spectacles
What the Middle Ages knew

• Age of machines
  – Compass (from China via the Arabs): increases seafaring commerce by making the Mediterranean an open sea regardless of weather and season
What the Middle Ages knew

• Age of machines
  – China had already invented most of the European inventions, but they did not spread throughout China the way they spread throughout Europe
  – Inventions spread in Europe thanks to catastrophes: wars, famines, religious persecutions…
What the Middle Ages knew

• Age of machines
  – Masonry Castle
    • Langeais, France (1000)
    • Hedingham, England (1140)
    • Krak des Chevaliers, Palestine (12th c)
  – Trebuchet (France, 12th c)
  – Crossbow (Italy, 11th c)
What the Middle Ages knew

• Age of machines
  – How to build a castle
What the Middle Ages knew

• Age of machines
  – How to build a castle
What the Middle Ages knew

• Age of machines
  – The Bridge as a meeting and business place
    • Pont St Esprit (1309): new technique of lower arch
    • London bridge (1176-1209): houses and shops
    • Paris’ Grand Pont
    • Venezia’s Rialto (1255)
    • Firenze's Ponte Vecchio (1333)
What the Middle Ages knew

• Age of machines
  – Deforestation
  – Draining the ocean
  – Reclaiming the marshlands of river valleys
What the Middle Ages knew

• Age of machines
  – The town hall
    • Broletto, Como (1215)
    • Palazzo Vecchio, Firenza (1314)
What the Middle Ages knew

• Firenze's Pontevecchio (1333)
What the Middle Ages knew

- Rouen’s Rue du Matelas

Destroyed in World War II
What the Middle Ages knew

• Alchemy
  – Elixir of eternal life
  – Transmutation of metals
Golden Century

• Markets of the Champagne
  – Six fairs a year, each lasting two months
  – Chief item: cloth
  – Largest customers: Italians
  – Money exchangers become bankers (12th c)
  – Often the cloth merchant is also a banker
  – Most bankers are Italian ("banco")
  – Decline of Champagne after annexation to France (1285) and opening of the Atlantic route from Italy to the Flanders (1297)
  – Final blows: the Black Death and industrialization of Italy itself that reduce trade with Northern Europe
Golden Century

• Wool 1200-1300
  – Transformation from farmhouse/domestic occupation to international industry
  – England, rich in land for large-scale sheep grazing, exports the greater part of its wool to the Flanders
  – The Flanders, rich in population but not in grazing land, specializes in production of high-quality cloth
  – First manufactured good since the Roman empire to be driven by a broad international market
  – The Flanders-Italian route becomes the main trading route of the 12th and 13th centuries
Golden Century

- Wool 1200-1300
  - Men replace women at the looms
  - Wool production shifts from the countryside to the towns
  - Several specialists participate in the production of cloth
  - Wealthy merchants drive the industry
  - Consequences: concentration of capital and specialization of labor
  - Italians buy cloth at the Champagne fairs (six times a year) and resell it throughout the Mediterranean
Golden Century

- Wool 1200-1300
  - Flanders & England to...
  - Firenze (200 companies in 1336, workday of 16 hours, workweek of 6 days) to...
  - other Italian cities (manufacturing, resale) to...
  - customers around the world
  - (Eventually both England and Firenze become cloth-making centers and compete with Flanders)
  - (Firenze has the advantages of the watermill and of the banking operations)
Golden Century

- Flanders’ cloth trade
  - Buys wool from England
  - Sells wool to local weaver
  - Buys cloth from local weaver
  - Sells cloth to local fuller
  - Buys finished cloth from local fuller
  - Sells cloth to local dyer
  - Buys dyed cloth from local dyer
  - Sells dyed cloth at Champagne or Flanders fair
  - Birth of a bourgeois class (drapers) and a proletarian class (the weavers)
Golden Century

• Main trading center in northern Europe:
  – 13th/14th centuries: Bruges (Flanders)
  – 15th/16th centuries: Antwerp (Flanders)
Golden Century

- Bruges
Golden Century

- The skilled worker
  - In 1230 Bologna grants citizenship, tax exemption, and interest-free loans to skilled wool and silk workers willing to relocate to the city
  - First worker in history to strike: the weaver (Douai, 1245)
Golden Century

- Effects of the technological revolution
  - Surplus of goods
  - Markets and revival of trade
  - Higher quality of life and population boom
Golden Century

• Land transportation
  – Bridges
    • Bridge-building boom of the 11th c
    • St Gothard Pass opens to pack animals thanks to bridges (1237)
  – Four-wheeled wagons prevail over two-wheeled carts
  – Comfort
    • “Chariots branlants” of the 14th c
    • Kocs (Hungary) capital of the one-horse, lightweight passenger vehicle
  – Land transport of goods faster (14-35 kms a day)
Golden Century

- Land transportation
  - Overland trade prevails over sea trade until 13th c
    - Route from Venezia/Venice to China is mostly overland
    - Routes from Italy to Northern Europe are overland until 1297 (when Genoa pioneers the route to the Flanders)
  - Peak of fairs: 13th c
  - Decline of fairs: 14th c
    - Itinerant (fair-oriented) trade replaced with permanent (commune-oriented) trade
    - Development of Firenze’s textile industry reduces motivation to trade with Flanders
Golden Century

• Revival of sea trade
  – Jews: most extensive trade network in the Mediterranean
  – Italian republics: triangular trade Byzantium-Arabs-Italy (the marketplace of three civilizations)
  – Arabs: only within the Muslim world
Golden Century

• Jewish trade
  – Jewish domination of long-range trade in the 10-11th c
  – Mediterranean world, Middle East, Northern Europe
  – Main bridge between Christian and Islamic worlds (a trusted neutral non-political intermediary)
  – A network of parasiting Jewish communities throughout the Mediterranean world
  – Education (writing, arithmetics, languages)
  – Little motivation for agriculture (frequent expulsions and land expropriations)
  – Venture capital
Golden Century

- Italian trade
  - City-states, and mostly republics, like ancient Greece and Sumeria
  - The marketplace of three civilizations: Byzantium, Arabs, Holy Roman Empire
  - Ruled by wealthy families and despots but defended by mercenary troops
  - Cultural leadership moves from France to Italy (Dante, Petrarca, Giotto)
Golden Century

• Italian trade
  – A state enterprise
  – Supported by a state that invests heavily in an navy
  – Supported by state-level alliances (Byzantium, Franks, Germans)

• 1015: Pisa + Genoa dislodge the Muslims from Sardinia and the Tirrenean stops being a Muslim sea

• 1082: Venice obtains favorable trade conditions from Byzantium in return for use of its navy

• 1088: Genoa+Amalfi+Pisa attack Al-Mahdiyya (Tunisia) and obtain favorable trade conditions

• 1091: The Normans conquer Sicily
  – Network of acquired/conquered trading posts, defended with military force
Golden Century

• Italian trade
  – Mediterranean world, Middle East, Far East, Northern Europe
  – Venture capital
  – Northern expansion (connecting the Mediterranean and the North Sea via sea)
    • Genoa: sea route to Flanders (Bruges) 1277
    • Genoa: sea route to England 1278
    • Venice: sea trade to Flanders and England by 1314
    • Genoese merchant Lanzaroto Malocello discovers the Canary islands 1312
Golden Century

• Italian trade
  – Eastern expansion
    • Crusades (eventually Venice raids Byzantium)
    • Mongol Empire (guarantees safe passage through Asia)
Golden Century

• Revival of sea trade/ Italy
  – High costs of sea trade: shares of investment ("carats")
  – Boom of 1150-1277
    • Multiplication of sea routes
    • Direct link between East and West Mediterranean
    • Direct link with the Flanders (1277) and England, causing the decline of Champagne fairs and land routes
Golden Century

• Revival of sea trade/ Italy
  – Population boom and rapid urbanization (by 1500 seven of the ten largest cities in western Europe are in Italy)
  – Emigration of Greek intellectuals to Italian city-states from Byzantium after 1354 when the Ottomans first cross into Europe (prodromes of humanism)
Golden Century

• Revival of sea trade/ Italy
  – Navigation instruments
    • Compass
    • Charts
    • Hourglass
  – Two trips a year between Venezia/Genova and Egypt or Asia Minor
Golden Century

• Revival of sea trade/Italian dominance
  – Textiles from northern Europe to Byzantium and Arabs
  – Wood and iron from northern Europe to the Arabs (illegal)
  – Spices, perfumes, cotton and silk from the East to northern Europe
  – Produce and raw materials from the East to Italy’s cities
  – Gold from Africa to Italian city-states
  – North-south imbalance: high added-value manufactured goods (England, Flanders, Northern Italy) for produce and raw materials (Arabs, Southern Europe)
  – Slaves from the Slavic countries to the East
Golden Century

• Revival of sea trade/ Italian dominance
  – The fourth crusade (1204) opens the eastern Mediterranean and Black Sea to colonization by the Italian cities and enables travel overland to the Far East (e.g., Polo brothers)
  – After Spain’s victory over the Muslims (Battle of Las Navas de Tolosa, 1212) the Italians have to compete with Spain to establish trading posts in Africa (gold, slaves, produce)
  – The Italian colonies in the Black Sea become laboratories for testing new forms of capitalism, world trade and large-scale operations
  – The Vivaldi brothers attempt the circumnavigation of Africa to obtain direct access to the spices of Asia (Genoa, 1291)
Golden Century

• Revival of sea trade/Italian dominance
  – Sicily under Frederick II is the wealthiest kingdom in Europe with an economy based on slavery and sugar production
  – Discovery, colonization and commercial expansion (as pioneered by the Italian cities) becomes the Western model
Golden Century

- Revival of sea trade/ Crisis (1291-1453)
  - Failure of Crusades (1291) caused Nautical Revolution
  - Goal: to increase productivity of maritime trade
  - New ship technology that would last till the steamship (combining lateen and square sails, navigational tools)
  - Piracy on the rise
  - The unity of the Mediterranean is shattered again by the fall of Constantinople (1453) and the emergence of the Ottoman empire
Golden Century

• Main drivers of East-West communications
  – Alexander and Hellenistic kingdoms (3rd c BC - 1st c BC)
  – Roman periplus (1st c BC - 5th c AD)
  – Jews of Byzantium, Arab world and western Europe (6th c - 9th c)
  – Venice (9th c - 14th c)
  – Ottomans (15th c)
Golden Century

• Travelogues
  – Marco Polo’s “Il Milione” (1266)
  – Plano Carpini’s “History of the Mongols” (13th c)
  – Ibn Battuta (14th c)
Golden Century

• Maps/ “mappa mundi”
  – Christianity encouraged geography because of the apostolic mission to convert “all nations”
  – But Christian maps had Biblical constraints
    • Jerusalem is the center of the world
    • Paradise is in the East which must be at the top of the map
    • Three continents as prescribed by the Bible
    • Mythological characters of the Bible (Magi) and monsters (especially in India)
  – 1409: Latin translation of Ptolemy’s “Geography”
World Map, Henry of Mainz, 111x. (oriented with East at the top)

Psalter mappamundi (1225), copy of the great mappa mundi at Westminster Palace (oriented with East at the top)

Portolan [nautical] Chart, Pietro Vesconte mappamundi, 132x (oriented with East at the top)

http://www.ethicalatheist.com/docs/flat_earth_myth_ch8.html
The head of Christ is depicted at the top of the map, with his hands on either side and his feet at the bottom. The Map is centered on Jerusalem with east on top of the map. It represents Rome in the shape of a lion. The map incorporates pagan as well as Biblical history.
Map of Asia, Catalan Atlas (1379)
Prodromes of the Renaissance

• Italian city-states
  – 12th c: Comune (Milano, Venezia, Genova, Firenze, etc)
    • Milano organizes a league that beats the Holy Roman Empire (1176)
    • Venezia conquers one-fourth of Byzantine Empire (1204)
  – 13th-15th c: Signoria (Medici in Firenze, Visconti in Milano, Gonzaga in Mantova, Montefeltro in Urbino, Estensi in Ferrara, etc)
  – 15th c-18th c: States (Ducato di Savoia, Repubblica di Genova, Repubblica di Venezia, etc)
Prodromes of the Renaissance

• Italian city-states

• 1300:
  – Milano 200,000
  – Venezia: 200,000
  – Genova: 100,000
  – Napoli: 100,000
  – Paris: 100,000
  – Firenze: 100,000
Prodromes of the Renaissance

- Italian city-states
  - Genova/Genoa
    - Dominates the Western Mediterranean trade
    - 1273: Costantinople grants Pera to Genova
    - Dominates the Central Asian trade via the Black Sea
    - 1284: defeats Pisa
    - 1293: defeats the Muslims that control Gibraltar
    - Dominates the Atlantic route to Bruges via Gibraltar
    - 1348: Black Death
    - 1381: defeated by Venezia
    - Mongol Empire disintegrates
    - Portugal and Spain challenge the Atlantic route
Prodromes of the Renaissance

- Italian city-states
  - Venezia/Venice
    - A republic, not a dynastic monarchy
    - A distributed sea-based economic empire like Athens
    - Dominates the eastern Mediterranean trade via Costantinople
    - Establishes a Latin Empire (1204–1261) on Costantinople (succeeds in invading the city that the Muslims had failed to invade for centuries)
Prodromes of the Renaissance

• Italian city-states
  – Venezia/Venice
    • Political and commercial ties with the Ottoman Empire (1453)
    • Trade agreements with Ottomans of 1479, 1503, 1522, 1540, 1575
    • Dominates the southeastern trade
Prodromes of the Renaissance

- Italy’s spheres of influence
  - North: Holy Roman Empire, i.e. German (951-1176)
  - Center: Pope till 1305
  - South: Arab (878), Norman (1091), German (1194), French (1264), Spanish (1442)
  - 14th-15th centuries: chaos
  - Guelfi (party of the Pope) and Ghibellini (party of the Emperor) split every city-state and keep it in permanent state of civil war
Prodromes of the Renaissance

- Mercantile cities 1300-1400
  - City-states of the North (Genoa, Venezia, Milano, Firenze)
  - Economic empires (affecting three continents)
  - Aristocracy of wealth (wealth rather than birth)
  - Decline of feudal system (communal system)
  - High political instability
  - Some of the suppliers and customers are the feudal aristocracy (that still owes the land and therefore its natural resources and that has the wealth to buy lucrative items)
Prodromes of the Renaissance

• Mercantile cities 1300-1400
  – Genoa: republic till 1378 (then Milano)
  – Venezia: republic (ruled by a hereditary aristocracy)
  – Milano: military dictatorship till 1499 (then French, German, Spanish and Austrian)
  – Firenze: hereditary republic (ruled by bankers)
  – Their wealth depends on external conditions
  – Roma: theocracy
  – South: feudal monarchy
Prodromes of the Renaissance

• Mercantile cities 1300-1400
  – Education
    • Geography
    • Accounting (double-entry book-keeping)
    • Paper (widespread in Italy)
    • Writing
      – Datini family: 120,000 letters between 1382 and 1410
• Technology
  – Caravel
  – Clock
• Universities
Prodromes of the Renaissance

• Mercantile cities 1300-1400
  – The Guilds (wool, carpenters, goldsmiths,...)
    • Membership into the guilds based on profession, not politics
    • Shopkeepers and workers not admitted
    • Male only
    • Membership in a guild a condition for citizenry in the commune (the guilds as the basis for the 1293 constitution of Firenze)
    • Firenze: only 40% of male adult population admitted to guilds
  – Nobility: landowners
Prodromes of the Renaissance

• Mercantile cities 1300-1400
  – The Guilds of the cities help escape from the system of the lords, and set the foundations for urban power
Prodromes of the Renaissance

• Mercantile cities 1300-1400
  – Venezia
    • Gateway to Constantinople/Byzantium
    • Eastern spice trade
    • Naval supremacy (technological advances that enabled long-distance and winter voyages)
    • Educational center in Padova
    • 190,000 people in 1422
    • Annexes Crete, Cyclades in Crusade (1204)
    • Annexes Cyprus (1489)
    • Army not of mercenaries but of loyal citizens
Prodromes of the Renaissance

• Mercantile cities 1300-1400
  – Venezia
    • Aldo Manuzio’s printing press (1490)
      – Adopts the Greek language
      – Hires Greek scholars
      – Prints Greek classics
      – Founds an academy of Hellenists
    • Before 1500 about 5,000 books are printed in Italy
      – 2835 in Venezia
      – 925 in Roma
      – 629 in Milano
      – 300 in Firenze
Prodromes of the Renaissance

• Mercantile cities 1300-1400
  – Venezia
  • The merchants of Venice who sell exotic commodities have never been in India or China themselves until the Mongols create a free trade and free movement area from the Middle East to China
Prodromes of the Renaissance

- Mercantile cities 1300-1400
  - Firenze
    - Banks and wool
    - Separation of capital and labor (capitalism)
    - Capital: rich European aristocracy
Prodromes of the Renaissance

• Mercantile cities 1300-1400
  – Firenze's new morality
    • Medieval society glorified the knight and the monk. Capitalist society glorifies the merchant and the banker.
    • Florentine merchant = Greek hero (titanic struggle/competition to excel, status symbol, eternal glory)
    • Florentine merchant = Feudal landlord (acquires status symbol not by birth but by his achievements)
    • No code of behavior for merchants and bankers like there was for knights and monks
    • New definition of “virtue”
Prodromes of the Renaissance

• Mercantile cities 1300-1400
  – Firenze's new morality
    • Conflict of value systems: Christian values of Church vs Economic values of Capitalism
    • Pagan ancient Rome and Greek provide the new reference model for the new republics and capitalists (1397: a Byzantine scholar is invited to Firenze to teach Greek)
  • Civic duty as the highest value
  • Slave Trade
Prodromes of the Renaissance

• Mercantile cities 1300-1400
  – Firenze's bourgeois values:
    • Efficiency not necessarily size (e.g., Medici’s bank is smaller than previous Florentine banks, but profits are higher)
    • Time is money
    • Income determines expenses (unlike the old feudal aristocracy: desires determine expenses)
    • Realpolitik (religion, ethnicity and ethics are secondary to self-interest)
Prodromes of the Renaissance

• Mercantile cities 1300-1400
  – Firenze's bourgeoisie: Dante Alighieri
    • Born of an impoverished aristocratic family
    • Secular studies in religious schools and Bologna (law)
    • City politics, love poetry and Aristotelian philosophy
Prodromes of the Renaissance

• Mercantile cities 1300-1400
  – Firenze - Demographics
    • 1200: 25,000 people
    • 1300: 95,000
    • 1350: 30,000 (plague)
    • 1427: 40,000
    • 1500: 50,000
    • 1600: 70,000
    • Highly urban society
    • 1427: average age 26, median age 22
Prodromes of the Renaissance

• Mercantile cities 1300-1400
  – Artisans must be able to read, write and compute
  – In 1338 literacy in Florence in the 5-14 age group was 40% (Carlo Cipolla)

Tomb of Cino, Pistoia Duomo, 14th c
Prodromes of the Renaissance

• Firenze - Economy (1500)
  – Industrial
    • 270 textile workshops
    • 84 wood-carving
    • 83 silk
    • 74 goldsmith
    • 54 stone
Prodromes of the Renaissance

• Firenze - Economy (1500)
  – Financial
    • Banks
    • Bardi (1209 branches in Europe and Asia Minor)
    • Peruzzi
    • Medici
    • Bankers of the Pope

• Trade
  – England
  – Black Sea
  – North Africa
  – Asia Minor
Prodromes of the Renaissance

• Mercantile cities 1300-1400
  – Tassis (Taxis) family courier service between the city-states (since 1290)
Prodromes of the Renaissance

- Mercantile cities 1300-1400
  - Inventions of public debt (unknown to Greece and Rome) to pay mercenaries and artillery
  - Firenze’s government default (1344) and banking collapse (1343-46) after the wars with Verona (1336-38) and Lucca (1341-43) and the funding of the failed English war against France (1337-1340)
Genoa
Venezia
1480

(Museo Correr)

(Museo di Pegli)

(Breydenbach, Bernhard von: Peregrinatio in Terram Sanctam, 1486)
Prodromes of the Renaissance

- Mercantile cities
  - Milano
    - GDP in 1423: Milano 12M florins, Venezia 11M, Firenze 4M
    - Population: 128,000 (1492)
    - Lodovico Sforza (1494)
    - Most splendid court in Europe
    - Second largest church in the world (Duomo)
    - Leonardo da Vinci (1482)
Prodromes of the Renaissance

• Feudalism, Urbanization and Capitalism
  – The town develops mainly in the regions that have weak central government: Italy, Holland, Northern Germany
  – Culture of risk is inherent in medieval society, transplanted into capitalism
  – The other place where capitalism will prevail is Japan, that also had a feudal age
  – Feudalism created a distributed system of weak power centers that allowed urbanization to grow that led to capitalism
  – Feudalism like capitalism does not like an absolute state
Prodromes of the Renaissance

• Capitalism and property rights
  – Medieval system of arbitrary expropriation by the lord
  – Feudal nobility cannot hide its wealth (land, crops, animals)
  – The English barons had to use force to obtain the Magna Charta (1215)
  – Merchants can hide their wealth
  – Commerce requires the right to own property without risking arbitrary confiscation
  – System of taxation at fixed rates regualr taxes at stimulated rates
  – Taxation instead of confiscation
  – Property rights (see Douglass North & Robert Thomas)
Prodromes of the Renaissance

• Capitalism and lawlessness
  – Smugglers crucial to undermining the anticapitalistic institutions of the Middle Ages
  – Armed revolts against absolutist power ("terrorism"?) crucial undermining the anticapitalistic institutions
Prodromes of the Renaissance

- Italian capitalism
  - Bills of exchange instead of cash
  - Minor merchants deposit funds with major merchants to use the major merchant's bill of exchange
  - Major merchant can buy bills of exchange at a discount, indirectly charging interest
  - The trade of bills of exchange circumvents the Church's prohibition of usury (of payment of interest)
  - Birth of a banking system
  - Bills of exchange also allow merchants to hide their wealth from the absolutist ruler
Prodromes of the Renaissance

- Italian capitalism
  - Insurance
    - Separation of insurance and financing
    - One entity absorbs market risks (the merchant), one entity absorbs maritime risks (the insurer)
Prodromes of the Renaissance

• Italian capitalism
  – Double-entry Book-keeping
    • The value of an enterprise is reflected in its "balance sheet"
Italy in 1494
Prodromes of the Renaissance

• 14th century = A Century of Disasters
  – Bankruptcies of Italian banks
  – Famine (1315-17) caused by overpopulation
  – Hundred-Years War (1337)
  – Black Death (1348)
Prodromes of the Renaissance

• The Black Death/ Plague (1348)
  – 25 million people die in 5 years
  – Caused by the urban revolution of the 11th-13th centuries
  – Caused by the revival of international trade (the “pax mongolica” indirectly facilitates the spread of pandemics)
  – The population of Europe (70-80 million) will not reach again the level of 1347 until 1600
  – It caused a social and economic transformation in the 14th-16th centuries
Prodromes of the Renaissance

- The spread of the Black Death
Prodromes of the Renaissance

• The spread of the Black Death
Prodromes of the Renaissance

• The spread of the Black Death
Prodromes of the Renaissance

• The Black Death/Plague (1348)
  – Lower population led to
    • Increased land per person led to
      – Higher living standards
      – Meat-based diet
    • Lower prices for agricultural goods led to
      – Lower profits for the estates of the nobles (higher wages and lower revenues)
      – Decline of the power of the landholding nobility
Prodromes of the Renaissance

• The Black Death/ Plague (1348)
  – Lower supply of labor led to
    • Higher urban and agricultural wages led to
      – Higher prices for manufactured goods
      – Higher living standards in cities
      – Higher social status of workers and peasants
      – Power shift from nobility to trade guilds
      – Investing in technological innovation
    • Decline of nobility led to
      – Stronger central power of the king
Prodromes of the Renaissance

• The Black Death/ Plague (1348)
  – More bequests from wealthy people led to
    • Creation of national universities which led to
      – Demand for books which led to
        » Printing press
  – Scarcity of educated people led to
    • Adoption of vernacular languages instead of Latin in the universities
Prodromes of the Renaissance

- Death before the plague
  - Triumph of Death at Pisa’s Camposanto (1330)
Prodromes of the Renaissance

- Death after the plague
  - Danse Macabre (Jean LeFevre: “Je fis de macabre la dance”, 1376)
  - Trionfo della Morte (Camposanto of Pisa, 1350)
  - The Art of Dying (Germany, 1400)
Prodromes of the Renaissance

• Death
  – Dance of Death
    • Cimetières des Innocents in Paris (1424, lost)
    • St-Paul's in London (1430, lost)
    • St Mary's in Lübeck (1463)
Prodromes of the Renaissance

• Death
  – Death and the Maiden
    • Hans Baldung Grien (1517)
Prodromes of the Renaissance

• Black Death
  – Winners:
    • Hanseatic League reaches its peak in the 15th century
    • Portugal becomes a world power in the 15th century
    • Lombardy becomes an economic power
    • The working class
Prodromes of the Renaissance

• Population
  – 1000: 35 million in Europe (including Russia)
  – High child mortality rate: (Bianca of Castilla loses 7 children in the 13th century)
  – 1300: Many regions of Italy reach a population density that won't be reached again until the 20th century
  – 1348: The plague kills 25 million people
  – 1337-1453 Hundred Years War
  – 1350: 80 million
  – Epidemics, wars, famines (war is the least murderous of the three but frequently causes the other two)
  – 1500: 80 million
Prodromes of the Renaissance

- Population
  - 1500: 80 million
  - Some more epidemics
  - 1600: 100 million
  - 1618-48 Thirty Years War
  - 1668: The last plague epidemics
  - A young population
Prodromes of the Renaissance

- **Transportation**
  - Jean II of France’s journey by sea from Bordeaux to London takes 12 days in 1357
Prodromes of the Renaissance

• Transportation
  – Atlantic Ocean: winds always blow in the same direction (as opposed to the reversing seasonal monsoons of the Indian Ocean)
Prodromes of the Renaissance

• Transportation
  – 1418: Prince Henrique/Henry (“the Navigator”) of Portugal sets up at Sagres a community of astronomers, sailors, cartographers and ship builders to expand Atlantic exploration (the equivalent of a research lab)
  – 1424: First expedition to Africa
  – 1434: Gil Eanes reaches the Cape and explores the western coast of Africa
  – 1436: Afonso de Baldaya reaches Rio de Oro in Africa
World Economy

(Janet Abu-Lughod)
What the Middle Ages knew

• World Economy
  – From northwestern Europe to China
  – Fostered by Crusades, that introduce (and create demand for) Middle Eastern goods to Europe (silk, spices, etc)
  – The demand remains even after the Crusaders are expelled from the Middle East
  – No single hegemonic power
  – Multilingual: Latin, Arabic, Greek, Mandarin
  – Incompatible currencies: silver in Europe, gold in the Middle East (Byzantium, Egypt), copper (and paper money) in China
  – Security provided by the Mongols (religiously neutral)
What the Middle Ages knew

• World Economy
  – Capitalism develops in all regions: credit and banking develops first in the Middle East, paper money in China (backed by the central government), partnerships in the Middle East
  – Effect on Europe: Europe has nothing to sell to the Arabs and Chinese except for wool and silver, so it industrializes its textile industry and its mining industry
  – Italians learn banking and accounting from the Muslims
  – 1386: The Mongols lose China and start a chain reaction along the overland route that used to connect Italy to China
What the Middle Ages knew

( Janet Abu Lughod)

1258: Ilkhan moves the capital to Tabriz
1291: Muslims regain Acre
1295: Ilkhan converts Christians avoid Islamic lands except Egypt
What the Middle Ages knew

- World Economy
  - Effects of the Black Death
    - Disruption of the ancient trade routes (eg Silk Road)
    - Emergence of England (less affected than continental Europe)
What the Middle Ages knew

• An alternative history of the Rise of the West
  – The Crusades create demand for Eastern goods
  – Europe can only offer woolen textiles in exchange
  – This causes the first wave of industrialization
  – Wool comes mainly from northern Europe
  – Italian cities open the Atlantic route to the Flanders to avoid France
  – This inaugurates the age of long-distance shipping
What the Middle Ages knew

- Papacy
  - Gregorio VII (1073) to Bonifacio VIII (1294) attempt to create a European world state
  - Theocratic federalism fails against national monarchies and republican city-states
Prodromes of the Renaissance

• Papacy
  – Crisis of the Church
    • With the decline of the German emperor (1250), the Church loses its symbolic role as the leader of anti-imperial resistance in Italy
    • Popular support for the Pope declines as the Church became a bureaucratic institution in the hands of noble families
    • Loss of popular support during the Avignon captivity (1305-77) and the schism (1378-1415 – France, Spain and Scotland vs England, Holland and Germany)
    • Decimation of the clergy by the Black Death (1348)
Prodromes of the Renaissance

• Papacy
  – Rise of anticlericalism
    • Dante: the Papacy is the cause of Italy’s divisions
    • Jean de Meung’s “Romance of the Rose” (satire of the Church)
    • William Langland’s “Piers Plowman” (scathing indictment of the Church’s amorality)
    • Geoffrey Chaucer’s “Canterbury Tales” (satire)
    • John Wycliffe’s repudiation of the Pope’s authority (14th c)
    • Jan Hus’ revolt in Bohemia (1419)
Prodromes of the Renaissance

• Papacy
  – The Papal monarchy
    • 1420: A city in ruin after the Western schism
    • 1447: Nicholas V turns the Pope into an absolute monarch
      – Rebuilds Rome (Leon Battista Alberti)
      – The jubilee of 1450 turns Rome into the richest government if Italy
      – A humanist who assembles Greek and Latin classics to build the largest library in the Christian world
    • Innocent VIII (1484): Moral and political chaos
Prodromes of the Renaissance

• Papacy
  – The Papal monarchy
    • Alexander VI (1492) finances Church by selling cardinal appointments, seizing dead cardinal’s fortunes, restoring Church’s state via a powerful army (led by his son Cesare Borgia)
    • 1750: The Church still owns about 50% of southern Italy
Prodromes of the Renaissance

• Ordinary Life
  – “Le Ménagier De Paris/ The Goodman of Paris”, A Treatise on Moral and Domestic Economy by a Citizen of Paris (c. 1393)
    • Wife’s chores
    • Gardening
    • Cooking
Prodromes of the Renaissance

• Furniture
  – Chair, Palazzo Strozzi (1489)
  – Bed, Christine de Pizan's "The Queen’s Manuscript" (1411)
  – Loom, French translation of Boccaccio's "De mulieribus claris" 1401, "Des femmes nobles et renommées"
  – Desk, Ludolf of Saxony's "Vita Christi" (1374) - Vol. 3, folio 47v
Prodromes of the Renaissance

• Decline of the Italian city-states
  – The rich Italian city-states fail to scale up
  – 1453: Fall of Constantinople to the Ottomans
  – 1492: Discovery of America
  – 1494-1530: Italian wars (France, Aragon and the German emperor invade and split Italy)
  – 1527: German mercenaries sack Rome
  – Italy becomes a battleground in the dynastic wars
Prodromes of the Renaissance

• Decline of the Italian city-states
  – Venezia
    • Wars with Milano (1425-54)
    • Decline of Eastern trade due to the Ottoman conquests
    • Wars with the Ottomans (1463-79)
    • League of Cambrai (1508)
    • Venezia loses naval supremacy
Prodromes of the Renaissance

• Decline of the Italian city-states
  – Firenze
    • Italian wars end with annexation of Firenze by the German empire (1530)
  – Milano
    • Italian wars end with annexation of Milano by France (1499)
Prodromes of the Renaissance

• Decline of the Italian city-states
  – However, the political decline coincides with a cultural boom
    • Humanism
    • Platonic school of Firenze (15th c)
    • Greek scholars flock to Firenze after 1453 (when the Ottomans capture Byzantium)
Prodromes of the Renaissance

• The city state
  – Zeniths of civilization frequently rest upon the city state
    • Sumeria
    • Greece
    • Rinascimento in Italy
Prodromes of the Renaissance

• Southern Germany
  – Silver mines in Saxony and Tyrol (1450s)
  – Emergence of bankers (Fugger, weavers of Augsburg, become the most influential bankers of the 16th century)
  – Exports of clocks and cannons
Prodromes of the Renaissance

• Germanic expansion
  – Germans expand east into Slavic lands
    • Saxony’s Wendish (Slavic) Crusade (1147)
    • Albert Ascanian establishes the margraviate of Brandenburg (1157) and invites Dutch and German colonists
    • The Baltic Crusade led by Hartwig II, archbishop of Bremen (1186-1236)
    • Teutonic Knights’ conquest of Eastern Prussia (1231-34)
    • Founding of Berlin (1237) and new Brandenburg (1248)
Prodromes of the Renaissance

• Germanic expansion
  – Germans expand east into Slavic lands
    • German immigrants bring superior technology (e.g. the heavy plow) into Slavic lands
    • New German cities already export grain within a generation
  • 1415: Frederick I of the House of Hohenzollern becomes margrave of Brandenburg and moves the capital to Berlin
Prodromes of the Renaissance

• Germanic expansion
  – Hanseatic League
    • 1159: Heinrich of the Welf house, Duke of Saxony and Bavaria, builds new Lübeck
    • Northern German merchants specializing in Baltic trade (timber, wax, amber, resins, furs, rye, wheat) form “hansa” (guilds)
    • 1267: The term “hanse” is used in a document
    • 1241: Lübeck and Hamburg ally
    • 1260: Koln joins Lubeck and Hamburg
    • Trade with Flanders and England: cloth
    • 1356: The first Hanseatic Diet is held
Prodromes of the Renaissance

- Muscovite Russia (1380-1480)
  - Muscovy in 1462
Prodromes of the Renaissance

- Muscovite Russia (1380-1480)
  - Local agrarian economy
  - Minimal role of traders
  - Rise of the Church (25% of all agricultural land, 1589 split from Byzantium)
  - St Sergius (14\textsuperscript{th} c) monasticism
  - The Church is based in Moscow and Moscow becomes the most important city
  - Moscow as the “third Rome”
  - Absolutism (first czar) instead of Kiev’s feudalism
Prodromes of the Renaissance

- **Muscovite Russia (1380-1480)**
  - Wooden churches in Kizhi
The Growth of Russia: 1300 - 1796

Muscovite Russia (1380 - 1480)
- Eastern Europe in 1550

Principally of Moscow - 1300
Grand Principally of Moscow (1462)

Ivan III (1462 - 1505)
Vasily III (1505 - 1633)
Ivan IV (1633 - 1684)
Boris Godunov (1584-1605)
Michael Romanov (1613-45)
Anna (1730-40)
Elizabeth (1741-62)
Alexis (1645-76)
Catherine II (1762 - 1796)
Prodromes of the Renaissance

• Muscovite Russia (1380-1480)
  – Eastern Europe in 1550
Prodromes of the Renaissance

• Voynich Manuscript (made between 1404 and 1438)
  – Script and language unknown
  – Purchased by Emperor Rudolf II (early 17th century)
  – Donated to Jacobus Horcicky de Tepenecz, head of Rudolf's botanical gardens
  – Purchased by Georg Baresch, alchemist in Prague
  – Bequeathed to Jan Marek (Johannes Marcus) Marci, rector of Charles University in Prague
  – Donated to Athanasius Kircher at the Collegio Romano in 1666
  – Stored in the library of the Collegio Romano
  – Book dealer Wilfrid Voynich purchased it in 1912
  – Donated to Yale University in 1969
Prodromes of the Renaissance

- Voynich Manuscript
Russian Expansion 1533 - 1894

- 1533
- 1533 - 1689
- 1689 - 1801
- Alexander I (1801 - 1825)
- Nicholas I (1825 - 1855)
- Alexander II (1855 - 1881)
- Alexander III (1881 - 1894)