

## Medieval Architecture and Technology

### Towns

- Most towns: a few thousand people
- Towns were often defined legally (through charters that regulated life)
- Population included:
  - Merchants
  - Servants
  - Artisans: skilled workers
    - wool
  - Urban poor
- Guilds: professional associations



- **Peasant Life**
- peasant architecture differed based on where
  - climate
- warm climate: relatively simple
- cold climate (e.g. Germany): had to be more robust
- made out of wooden posts
  - *wattle & daub*
  - woven lattice of strips (wattle) dipped in sticky material (soil, clay, dung, etc.)
- made additions as families grew
- in later Middle Ages, instead of building on the ground, used stone slabs
- allowed movement to frame-build construction



**German medieval peasant household**

Source: unknown

## The Chimney

- developed as a response to drop in temperatures in the early 12<sup>th</sup> century
- prior to invention of chimney, single fire in the main room provided heat
- smoke escaped through hole in the roof (but filled the room first)
- chimneys isolated fire
- social ramifications?
  - less people congregating in big halls
  - division into smaller rooms
  - division of household into functional spaces
  - privacy

## Churches

- Two major types of architecture
- Romanesque (late 10<sup>th</sup> century)
- Gothic (12<sup>th</sup> century)

## Romanesque Architecture

- Based on Roman imperial style
  - Stone vaulting – roofs
  - characterized by semi-circular arches
  - often called “Norman Architecture” in England
  - combined features of
    - ancient Roman, Byzantine buildings
  - mostly castles and churches
- Ceremonies of dedication
  - Enthusiasm for church construction
    - Penitential act
    - Thanksgiving



*Cathedral of Santa Maria d'Urgell, c. 1116, Spain*

## Church of St. Philibert, Tournus, c. 950

- Thanksgiving for escape from Vikings
- Typical Romanesque



### Gothic Architecture

- mid-12<sup>th</sup> century
- example: St. Denis Abbey near Paris (built between 1140-1144)
- three major features
  - pointed arch
  - the rib vault
  - flying buttresses
    - took on the weight of the vaulting and the roof, enabling masons to build thin, high walls, filled with stained glass
- how were they built?
  - bay by bay
  - tested new idea on one ‘bay’
  - observed cracks
  - “constructive geometry”
  - read Long, p. 56
- Huge! (at least 300 feet long)
- who was in charge?
  - master mason

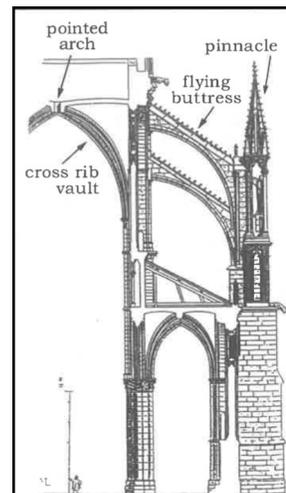


Figure 33. Pinnacle, buttresses, and cross-rib vault of Reims Cathedral. From Eugène-Emmanuel Viollet-Le-Duc, *Dictionnaire raisonné de l'architecture française du XI<sup>e</sup> au XVI<sup>e</sup> siècle*, 10 vols. (Paris: B. Bance, 1858-68), article "Cathédrale," vol. 4, page 318, fig. 14.

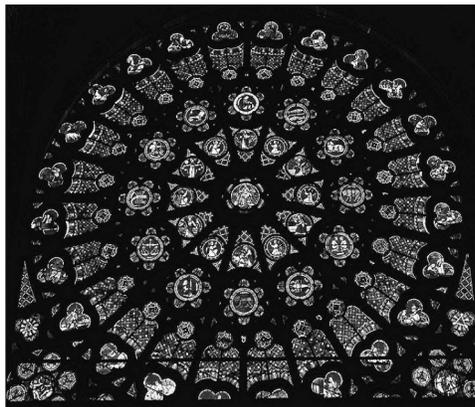
## Church at St. Denis

- Two techniques:
  - Crossribs
  - Pointed arches
- Effects



Ambulatory at St Denis

## Stained Glass



Basilica of St Denis



**David Macaulay – PBS Castle**

- early castles were Motte and Bailey castles
- then late 13<sup>th</sup> century
  - imported some Arab ideas about castles
  - plus local innovations
- made of stone masonry
  - very expensive!!
- King Edward I's castle in Wales
  - ruled 1239-1307
  - Caernarfon Castle
    - medieval fortress
    - castle besieged several times in 13<sup>th</sup> century, 15<sup>th</sup> century
    - fell into disrepair in 15<sup>th</sup> century
- how did they recruit workers?
  - diggers from other location
  - blacksmith: what was his incentive?
    - to become a master, without paying guild fee
    - John of Gloucester
- how did they build the wall? [11:00 – 13:00]
  - stone faces bound together with mortar (made of sand and lime)
  - as it grows, space in between filled with rubble
  - materials carried up
- materials carried up by planks set in scaffolding
  - also hoists and pulleys for lighter materials



- How did they build in different climates?
- Cold winter: covered in straw to prevent cracking
- how was it financed?
- A castle was really a “military machine”
- crenellations
  - archer could shoot in two directions
  - arrow-slit or arrow loop
- gate-houses:
  - timber portcullis + wooden doors
- all sorts of defenses [20:00-21:00 ] [38:00-41:00]

