1 Good Works
2 Alchemy
   ▶ An Arabic word
   ▶ Different from chemistry
   ▶ Mystical
   ▶ Technological elements
3 Technological elements:
   ▶ distillation
   ▶ acids & bases
   ▶ metallurgy
4 Medicine & Physiology
   ▶ from Galen (129-200 AD)
   ▶ Aristotelian principles
   ▶ Based on Spirits and Humors
5 Spirits:
   ▶ natural (liver)
   ▶ vital (heart)
   ▶ animal (brain)
6 Humors:
   ▶ blood
   ▶ phlegm
   ▶ black bile
   ▶ yellow bile
7 Galenic physiology was the authority until the 17th century
8 The Cathedrals
   ▶ Gothic architecture emerged from Romanesque--11th/12th centuries
9 Durham
10 Durham
11 Durham
12 Durham
13 Three key technical innovations:
   ▶ ribbed vaults
   ▶ pointed arches
flying buttresses

14 □ Ribbed vaults
15 □ Pointed arches
16 □ Flying Buttresses
17 □ Amiens
18 □ Amiens
19 □ Rouen
20 □ Ste. Chapelle
21 □ Three key goals of these innovations:
   ▶ space
   ▶ height
   ▶ Light

22 □ **Question**
   ▶ How does medieval architecture demonstrate the importance of non-economic factors in technological innovation?