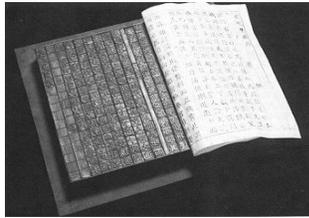


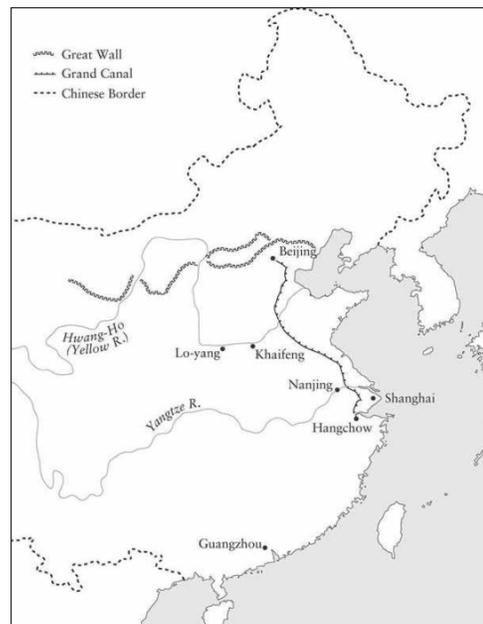
Ancient China: Technology and Empire

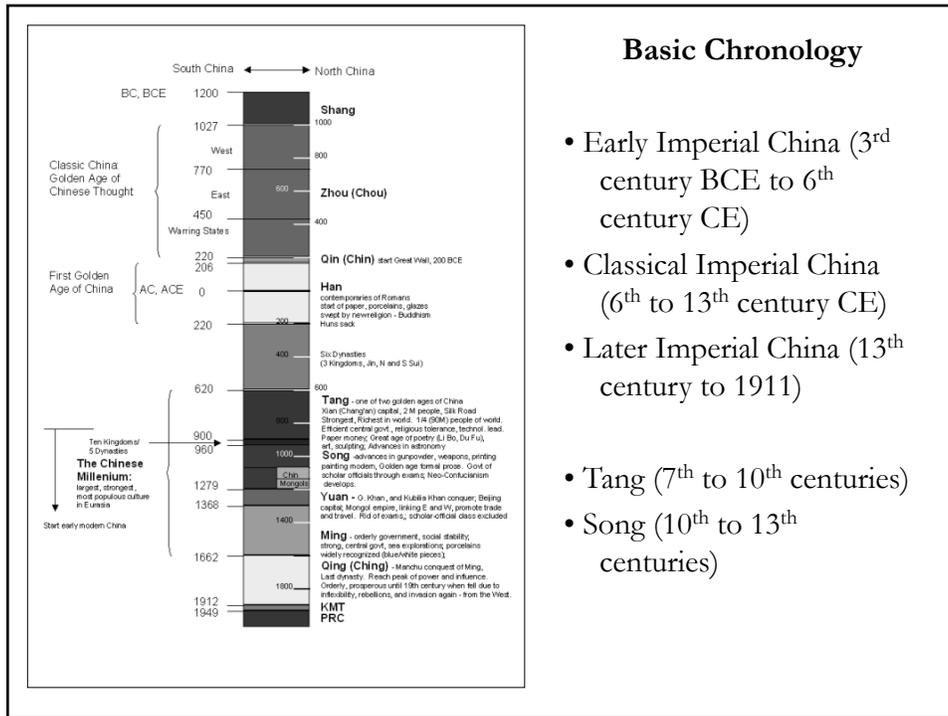


Early Chinese Civilization
Approx. 3rd Century BCE

Key Factors

- geography isolated China
- earliest Chinese civilizations arose along the Hwang-Ho (Yellow River)
- China was another hydraulic civilization





Song Dynasty (960-1279)

- some key features
- massive population growth
 - early ripening rice
 - urbanization
- centralization of bureaucracy
- vibrant social life
 - rise of elite class of ‘scholars’
 - rise of lower class craftsmen
 - rise of middle class with leisure time
- rationalized economy
 - first government to issue paper banknotes
- key technologies
 - compass
 - movable type
 - military technologies
 - gunpowder

Scholar in a Meadow (11th Century)

- Song Dynasty

An Elegant Party

A painting from the Early 12th Century showing a small Chinese banquet hosted by the emperor (Huizong)



Key technologies to allow dominance

- writing
 - emerged in the Shang Dynasty (1600-1046 BCE)
 - became highly developed by 9th century BCE
 - combination of pictographs & ideographs
- paper money
 - first issued in 1024 by Song Dynasty
 - known as *jiaozhi*
 - emerged as state became centralized and depended on income from:
 - mercantilist practices
 - taxes

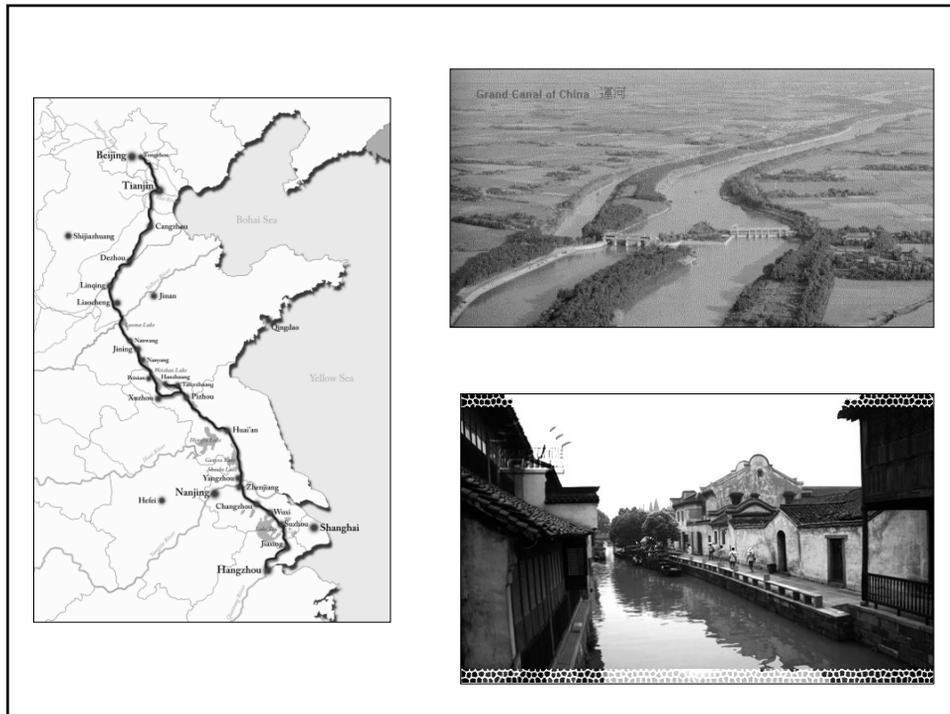




- Ming Dynasty
200 cash note of
Emperor T'ai
Tsu (1368-1398)

Hydraulic Engineering

- built an empire-wide canal system
- by 12th century, China had > 31,000 miles of artificial waterways and canals
- the Grand Canal stretched 1,100 miles (0.30-4.50)
- Canal as a “technological system”
 - required constant maintenance
 - had “technological momentum”



Printing

- Chinese produced world's first print culture
- used woodblock printing from about 9th century CE
- used for printing money, decrees, handbooks (useful for medicine)
 - handbooks provided to civil servants, bureaucracy
- movable type appeared in 11th century, but not suited so much to Chinese script
 - Bi Sheng



Diamond Sutra (868 CE)

Gunpowder

- discovered in 9th century by Chinese alchemists who were searching for an elixir of immortality
- fireworks invented in 12th century to scare away evil spirits
- Chinese invented **the rocket**: first used in battle in the 13th century against the Mongols



- First manned rocket
- Wan Hu (16th century)

