What caused the Industrial Revolution?

0. Administrative: crashing; all in? Section visits; Clickers/books?; extra cred. film Wed. 6pm, MCC
1. Theory: Causes of World-Historical Change - for example: Industrial "Revolution"
2. Atlantic Slavery 1

Recap: Haitian Revolution Causes
1. Ideology of French Rev: liberty, equality
2. Planters & mulattos revolt (elites--divided)
   - Why? Want economic freedom (tariffs, exclusif)
3. Imperial warfare: France vs. Britain, Spain
4. Abolitionist Commissioner
5. “Militarily organized slave rebellion” -> angry slaves with capable leadership & ideology

The Uses of Theory
Béla Balázs (Hungarian film critic), 1925:
Theory is not "gray."
It is … a roadmap that shows new ways of doing old things, and new places to go. …
Theory breaks the ruts of coincidence and gives us the courage to undertake voyages of discovery. …
Theory does not have to be true to inspire great works--most great discoveries were based on false hypotheses!

Recap: French Revolution Causes
1. Bad harvests, need to raise taxes (econ/env)
2. International
   - Wars bankrupted (econ.); radicalized (fear/belief)
3. Elites (not siding w/ king), Leaders (who?)
4. Ideology (Enlightenment, natural rights)
   - Haiti (p.654): rather African land use patterns
5. “Masses” (women of Paris, sans culottes)
6. Institutions (Estates general, monarchy)

Theory
- Models can be applied to other situations
- Inductive vs. Deductive

Model of Causes in History (EIEIO)
Economics/Environment
Opposition (peOple)
Int'l Situation
Eldes/Leaders
Ideology/Information (media)
Culture/Institutions
### Ind. Rev.: Preconditions vs. Causes

<table>
<thead>
<tr>
<th>1. natural resources</th>
<th>1. demographic &quot;revolution&quot; (labor)</th>
<th>2. fuel crisis (energy)</th>
<th>3. surplus money</th>
<th>4. organizational innovations (banking)</th>
<th>5. new mindset</th>
<th>6. technological innovations</th>
<th>7. infrastructure (transportation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(coal, rivers, harbors, canals)</td>
<td>Surplus population: due to drop in death rate -- why? (causes...)</td>
<td>30 years of top harvests: surplus food</td>
<td>no need to slaughter animals each winter</td>
<td>more fertilizer - more intensive agriculture possibility of breeding animals</td>
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<tr>
<td>3. availability of capital (surplus not consumed)</td>
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<td>4. availability of markets</td>
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<td>5. favorable government (landholding-canals; patent law-innovations; no taxes on profits)</td>
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#### 1. Demographic "revolution"
- Surplus population: due to drop in death rate -- why? (causes...)
- 1720-1750 in England:
  - 30 years of top harvests: surplus food
  - no need to slaughter animals each winter
  - more fertilizer - more intensive agriculture possibility of breeding animals
- Innovations in agriculture
  - crop rotation, enclosure, water meadows

#### 2. Fuel crisis (energy)
- More people -> wood shortage
- Switch to coal
  - allows for higher quality iron
  - need tools to mine more
- Smelt iron (use coke=purified coal)
  - need to mine even more coal
  - need better tools (iron ones, machines)

#### 4. Organizational innovations
- Cottage industry vs. factory system
  - workers dispersed vs. under one roof
  - classes: capitalists supply goods
  - family routine vs. pace set by machines

#### 5. Information (knowledge/technology)
- Abraham Darby (1678-1717)
  - 1708 coke to smelt copper, then iron
  - Coalbrookdale (near low-sulphur coal)
  - 1729 wheels, 1767 rails, 1779 bridge
- 1712 Newcomen engine; 1764 James Watt
  - by 1758: 100, used to pump water out of mines
- Textiles: basic consumer staple
  - Arkwright: 1764 jenny & 1769 water frame
  - Crompton: 1775 mule; Cartwright: 1784 pwr.loom
- Josiah Wedgewood (1730-1795)
  - pottery; catalog distribution -> marketing

#### 5. New mindset (Ideology)
- "Dissenters" (new religions)
  - Quakers, Congregationalists, Unitarians, Baptists, Presbyterians
  - prosperity=sign of God’s grace (not a sin)
  - living for the here and now -> education in practical things
  - work ethic
  - do not consume all

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Key Inventions ...

- Steam engine
- Water frame
- Spinning jenny
- Textile factory

Ind. Rev.: Confluence of factors

- Demographic revolution (climate, resources)
- more people: urbanization
- trade colonies slavery
- Innovators bankers planters

More people: urbanization

New mindset: here & now (rights vs. racism) inventions

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Not lecture, but midterm...

- Textbook pp. 672-6: New Ideas & Ideologies
  A. Liberalism and Socialism
     1. Liberalism: political and economic freedom
     2. Socialism: political, social, & economic equality
     3. Utopian socialism, Karl Marx, Communism
  B. Nationalism and Romanticism
     1. 18th c. roots of 19th c. nationalism
     2. Romanticism: the reaction against rationalism

Comic of the Day: Hard Work

FRAZET by 

Clicker Q 1: Slavery Forms

- In Islamic lands the most common form of slavery was
  A. plantation worker
  B. miner
  C. forced military enlistment
  D. domestic servitude.

Clicker Q2: Numbers of Slaves

The Atlantic slave trade peaked at ________ captives shipped from 1700 to 1800.

- 500,000
- 20 million
- 1 million
- 6 million

[Most people got this right]
**Slavery Facts**

- Existed since dawn of recorded history
  - e.g. construction in ancient Egypt (pyramids)
- Etymology
  - Latin "servus" (serf)
  - 10th century (900s): Slavs/sclavus=slaves of east/central Europe
- Types:
  - Domestic/reproductive vs. productive
  - Slavery as status vs. chattel slavery
- Timeline European – African slavery:
  - ancient Rome had slaves; medieval feudal system: serfs bound to land
  - Portuguese: 1441 from Africa to Lisbon
  - Spanish: 1505/19 for agriculture in Hispaniola
  - British colonies: 1619 to Jamestown settlement (tobacco on plantations)

**Changing magnitude of slave trade**

**Slavery Stats**

[see Equiano, 227ff]

- 1519-1880s: 9,300,000 total [8.5-12 million]
  - 1700-1800: 6+ mio.=2/3 of total
  - the worst century
  - 50,000-90,000 per year (170-300/day for 300 days/yr)
    - 1760s: 63,500
    - 1770s: 58,000
    - 1780s: 89,000
    - 1790s: 76,000 (why did the number drop?)
  - In 1780s & 90s: 50% in British ships