Outline

Main Themes

Simple Agrarian Societies

Advanced Agrarian Societies
Main Themes

▶ invention of wheel, use of the plow, animal traction, and other technologies bring about momentous social transformations
▶ expansion of surplus brings about trends of
  ▶ increasing differentiation
  ▶ urbanization
  ▶ inequality
  ▶ size of societies
  ▶ emergence of universal faiths
  ▶ etc …
Simple Agrarian Societies

First Simple Agrarian Societies = First Civilizations

Mesoamerican & Peruvian civilizations are considered "horticultural" with respect to Lenski's typology as they do not use the plow.

The First Agrarian State Civilizations With Approximate Dates of Origin.
Emergence of *agriculture*

- from Latin *ager* “field”
- marked by use of the plow (perhaps as early as 6th millenium BC)
- first agrarian *civilization* about 3,500 BC in Mesopotamia

Plow permits

- better control of weeds
- bringing back leached nutrients to the surface
- harnessing animal power (oxen), from which . . .
- manure is produced, which can be used as fertilizer

Plow literally “changes the landscape”.

Simple Agrarian Societies
Technology – Plow & Animal Traction Complex
Simple Agrarian Societies

Technology – Early Egyptian ox-drawn plow

**FIGURE 7.1** Early Egyptian ox-drawn plow (about 2700 B.C.). Note the primitive and inefficient method of harnessing the animals—a simple bar attached to the horns.
Simple Agrarian Societies
Technology – Peasant Using Traditional Plow in Iran

Peasant using traditional plow, Iran.
True rotary motion: the potter’s wooden wheel, resting on a pebble bearing (a), can rotate continuously in the same direction. The rotation allows the potter to model the clay into a symmetrical container (b) swiftly, rather than building the pot with a series of clay “snakes.” No one is sure whether the potter’s wheel or the vehicular wheel came first, or were simultaneous inventions. It is clear, however, that pottery manufacture became a man’s mass-production activity after the potter’s wheel came into use early in the Age of Metals.
Simple Agrarian Societies
Technology – How to make a wheel out of a log

- Wheel first used as potter’s wheel
- Originates in ancient Sumer, Mesopotamia ca 4,500 BC
- Wagon wheel made from slice of log does not work
- Must be made with planks like so . . .
- Made possible by metal saw
Simple Agrarian Societies

Technology – Wheeled Vehicles

Can you see the wagon on the Bronocice pot?

Funnel Beaker culture, southern Poland ca 4,500–3,500 BC

oldest evidence for wagon use

Was wagon invented in Europe?
Simple Agrarian Societies

Technology – Wheeled Vehicles (other evidence)

- onager-drawn wagons on *Standard of Ur*, ca 2,600 BC
- graves with people in wagons in northern Caucasus, ca 3,700 BC
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Technology – Expansion of the Surplus

- adoption of the plow & associated technologies (wheel, animal traction)
- → increased productivity of labor
- → tremendous expansion of surplus (=production in excess of what is needed to keep farmers alive and productive)
- → momentous social consequences...
Simple Agrarian Societies

Ideology – Temple-Centered Religion

- e.g. religions of Sumer & Egypt
- justify exploitation of surplus
- through obligation of sacrifices & tributes to gods
- temples serving as “warehouses”
- temple-centered religion → invention of writing
- originally used for temple accounting
Simple Agrarian Societies

Ideology – Temple-Centered Religion (Luxor, Egypt ca 1400 BC)

The temple of Luxor, Egypt, built about 1400 B.C.
Simple Agrarian Societies
Population – Growth Through Conquest

- Egyptian soldiers attacking a fortress ca. 1940 BC
- communities & societies grow in size
- often through conquest
Simple Agrarian Societies
Polity – Trends in the Polity

- growth of the *State* because
  - societies larger & more complex
  - → kinship ties no longer sufficient as organizing principle
- emergence of government *bureaucracies* staffed by scribes
- emergence of *professional armies* because
  - men now cultivate (plow) the fields
  - societies larger → wars longer (see next exhibit)
  - larger surplus can support specialized (non-productive) class of soldier
- emergence of formal legal systems (replacing blood revenge by relatives)
  - used to incorporate diverse population resulting from conquest
  - e.g. *Code of Hammurabi*, Babylon ca 1,700 BC
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Polity – State Bureaucracy: Organizational Chart of Government of Egypt
Simple Agrarian Societies

Polity – How Larger Size of Societies Entails Longer Wars

- Large territory: 6 months to engage enemy – need for professional army
- Small territory: 1 month to engage enemy
Simple Agrarian Societies
Polity – Professional Armies

▶ Q – Which modern “state” still has a (foreign) professional army?

▶ A – The Vatican (Swiss Guard) Dan Brown's novel Angels & Demons features the Swiss Guard
Simple Agrarian Societies
Polity – Professional Armies

▶ Q – Which modern “state” still has a (foreign) professional army?
▶ A – The Vatican (Swiss Guard)
▶ Dan Brown’s novel *Angels & Demons* features the Swiss Guard
Simple Agrarian Societies
Economy – Trends in the Economy

- emergence of *monetary systems* (= standard medium of exchange)
  - first based on grain (but bulky)
  - later based on metallic currencies

→ *expansion of trade*
  - Q – Why is exchange based on money more efficient than barter?

- consequences of expansion of trade
  - emergence of merchant class
  - increased complexity of division of labor
  - increase in individualism?
Simple Agrarian Societies
Stratification – Trends in Social Stratification

- larger surplus → greater inequality
- stratification system characterized by 3 coinciding contrasts
  - governing class vs. the mass
  - urban minority vs. peasant majority
  - literate minority vs. illiterate majority
- resulting in
  - two distinct *subcultures* (urban elite vs. the peasant mass)
  - cultural differences *within* agrarian societies greater than differences *between* them
Simple Agrarian Societies
Slowdown in Rate of Technological Innovation – V. Gordon Childe’s Thesis

Before the [agrarian] revolution comparatively poor and illiterate communities had made an impressive series of contributions to man’s progress. The two millennia immediately preceding 3,000 B.C. had witnessed discoveries in applied science that directly or indirectly affected the prosperity of millions of [people] and demonstrably furthered the biological welfare of our species by facilitating its multiplication. We have mentioned the following applications of science: artificial irrigation using canals and ditches; the plow; the harnessing of animal motive-power; the sailboat; wheeled vehicles; orchard husbandry; fermentation; the production and use of copper; bricks; the arch; glazing; the seal; and—in the earliest stages of the revolution—a solar calendar, writing, numerical notation, and bronze.

The two thousand years after the revolution—say from 2,600 to 600 B.C.—produced few contributions of anything like comparable importance to human progress. Perhaps only four achievements deserve to be put in the same category as the fifteen just enumerated. They are: the “decimal notation” of Babylonia (about 2,000 B.C.); an economical method for smelting iron on an industrial scale (1,400 B.C.); a truly alphabetic script (1,300 B.C.); aqueducts for supplying water to cities (700 B.C.).

▶ slowdown in technological innovation ca 2,600 to 600 BC
▶ due to high level of social inequality?
High levels of exploitation and inequality, so that
- peasants – have expertise; no incentive for innovation as benefit exploited away
- elites – no expertise; prefer conquest for increasing wealth
Simple Agrarian Societies

Review Questions

Q – Which of the following trends are consequences of the shift from horticulture to agriculture?

- greater involvement of men in farming
- fields kept continuously under cultivation
- the growth of urban population
- expansion of the surplus

Q – Did the slowdown in the rate of technological innovation during the agrarian era originate in

- declining trade?
- declining birth rates among the elite?
- an increasing store of cultural information?
- the nature of the stratification system?
- increasing birth rates among the peasants?
Advanced Agrarian Societies

Technology – Iron Smelting

- *advanced agrarian* societies marked by iron metallurgy
- e.g. ancient Rome, Western European societies until ca 1750, colonial America
- iron smelting
  - ca 1,400 BC – developed by Hittites of Asia Minor
  - ca 1,200 BC – diffusion of technique begins
  - ca 800 BC – iron used for common tools
- Q – Why did iron technology emerge so late?
- A – One reason is difficult chemistry of iron
  - cast iron (2.5% to 3.5% carbon) too brittle
  - wrought iron (no carbon) too soft
  - steel (putting back .25% to 1.25% carbon) just fine for making “cutting, chopping, piercing, or slashing” tools
- quenching (dipping hot steel in cold water or oil)
  additional refinement
Advanced Agrarian Societies

Technology – Iron Smelting

- early ore smelter (for copper/bronze or iron)
- model will not work as shown! (check the blower)
Advanced Agrarian Societies
Population – Population Trends

Simple agrarian population trends continue

- size of societies & cities increases (from improved productivity & empire building)
- high birth rate – ca 40 birth per 1,000 population per year (due to value of children as assets)
- high death rate – ca 40 deaths per 1,000 population per year because of
  - unsanitary towns (no sewers, contaminated wells)
  - plagues, e.g. *Black Plague* ca 1350 killed 1/4 to 1/2 of population of Europe
  - famines, often local/regional because
    - relatively inefficient transportation technology (next slide)
    - food cannot easily be brought in from outside
Advanced Agrarian Societies
Population – High Cost of Agrarian Transportation Technologies

Table: Cost of Moving 1 Ton of Goods 1 Mile in China After World War II (U.S. cents)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Cost (U.S. cents)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steamboat</td>
<td>2.4</td>
</tr>
<tr>
<td>Railroad</td>
<td>2.7</td>
</tr>
<tr>
<td>Junk</td>
<td>12.0</td>
</tr>
<tr>
<td>Animal-drawn cart</td>
<td>13.0</td>
</tr>
<tr>
<td>Pack mule</td>
<td>17.0</td>
</tr>
<tr>
<td>Wheelbarrow</td>
<td>20.0</td>
</tr>
<tr>
<td>Pack donkey</td>
<td>24.0</td>
</tr>
<tr>
<td>Carrying by pole</td>
<td>48.0</td>
</tr>
</tbody>
</table>

- China after WWII provides a “natural experiment”, as transportation technologies from traditional to modern coexist
- → one can compare their relative costs (table)
- industrial technologies (steamboat, railroad) are least expensive
Advanced Agrarian Societies

Economy

- trend of increasing *differentiation*
- major contrast between *rural* & *urban* sectors
- rural sector
  - characterized as a *command economy*
  - high degree of inequality, e.g. feudalism
- urban sector
  - rarely more than 10% of population
  - increasing division of labor & specialization
**Advanced Agrarian Societies**

Economy – Structure of Rural Exploitation

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**FIGURE 7.4** As the arrows indicate, goods and resources extracted from villages flowed to regional centers and then on to the national capital, with each level keeping what it could.
Advanced Agrarian Societies

Economy – Differentiation in Urban Sector

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### Occupations of Householders in Two Sections of Barcelona in 1385 A.D.

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Section 1</th>
<th>Section 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sailors</td>
<td>227</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merchants</td>
<td>151</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shoemakers</td>
<td>108</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tailors</td>
<td>96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishermen</td>
<td>94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seamen</td>
<td>73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wooldressers</td>
<td>70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weavers</td>
<td>63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tanners</td>
<td>61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longshoremen</td>
<td></td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Innkeepers</td>
<td></td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>Brokers</td>
<td></td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Carpenters</td>
<td></td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Bakers</td>
<td></td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Janitors</td>
<td></td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Hucksters</td>
<td></td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Butchers</td>
<td></td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Scriveners</td>
<td></td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Silversmiths</td>
<td></td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Curriers</td>
<td></td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Notaries</td>
<td></td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Tavern-keepers</td>
<td></td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Spicers</td>
<td></td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Bargemen</td>
<td></td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>76 other occupations</td>
<td></td>
<td>525</td>
<td></td>
</tr>
</tbody>
</table>

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- Do you known what
  - a huckster
  - a scrivener
  - a currier (not courier)

does?
Advanced Agrarian Societies

Polity – Trends in the Polity

- development of the State
- monarchy based on proprietary theory of the State
  - State viewed as personal property of ruler
- high concentration of income – in most agrarian societies ruler + governing class
  - represent less than 2% population
  - receive 50% of income or more
- high level of conflict within elite; e.g. of 79 Roman emperors
  - 31 were murdered
  - 6 driven to suicide
  - 4 deposed forcibly
- Q – Who said “L’état, c’est moi”, and what does it mean?
Advanced Agrarian Societies

Religion – Emergence of Universal Faiths

The Major Agrarian Civilizations in About 1500 A.D.
Advanced Agrarian Societies

Religion – Emergence of Universal Faiths

- during advanced agrarian era emergence of
  - Buddhism (5th c. BC)
  - Christianity (Catholicism)
  - Islam (622 AD)
- Why do universal faiths emerge in advanced agrarian era?
- clues from Catholicism
  - etymology of Catholicism from Greek
    - *kata* “for”, “over”
    - *holos* “the whole”
  - Emperor Constantine’s motto *In hoc signo vinces*
  - competition among cults in Roman Empire, e.g. cult of Mithra (next slide)
Advanced Agrarian Societies
Religion – Competition of Cults in Roman Empire

- cult of Mithra of Persian origin
- universal faith but restricted to men
- competed for members with early Christianity
- as seen in (imaginary) cross-section of Italian church

Imaginary Italian church built on top of earlier temple to Mithra
Advanced Agrarian Societies

Religion – Spread of a Universal Faith: Christianization of Europe
Advanced Agrarian Societies
Religion – Spread of Universal Faiths

- factors favoring spread of universal faiths
  - broader outlook from expanding trade relations & empires
    - e.g. *Temple to the Unknown God* in ancient Rome
  - role of universal faith in unifying diverse populations
    - e.g. Constantine’s conversion

- despite spread of universal faiths, persistence of
  - belief in magic
  - fatalism & preoccupation with death
Advanced Agrarian Societies

Arts & Leisure – Recreation Often Brutal & Violent

► parallel to social control based on fear of torture & death
Advanced Agrarian Societies
Social Stratification – Trends in Stratification System

- growing complexity, manifested as
  - more intermediate-status occupations, e.g. merchants, artisans
  - more overlap in rankings according to wealth/property, e.g. some merchants wealthier than some members of governing class
- high degree of inequality
  - class of expendables
- Q – What is a retainer?
Advanced Agrarian Societies

Variation Among Advanced Agrarian Societies

- among simpler societies, differences mostly related to biophysical environment
- among advanced agrarian societies, differences mostly related to social environment
  - proximity to trade routes favors development, e.g.
    - Middle East during most of Agrarian Era
    - later Western Europe
  - frontier societies created by expansion into sparsely inhabited lands have distinct characteristics
    - land abundant
    - people scarce (no expendables)
    - → frontier societies at first more egalitarian than other agrarian societies
- e.g. early North America egalitarian frontier society, but
  - typical “agrarian” pattern of high inequality later developed, especially in South
  - only prevented by onset of industrialization in late 19th c.
Advanced Agrarian Societies

Variation Among Advanced Agrarian Societies – Early Modern Political Systems

Principles of democracy
- Rule by the people through representative institutions and elected officials.
- Succession by contract between ruler-elect and the people.

Rule by code of law (constitutional government) which limits the powers of all, including the ruler.
- Rights and freedoms of citizens stressed against those of the ruler or the state.
- Tendency to decentralization of power, and growth of regional and local institutions.
- Ancient models: Athens, Roman Republic.

Principles of monarchy
- Rule by one man (monarch, despot, autocrat) through appointed officials.
- Succession by Divine Right, or self-nomination: the hereditary principle.
- Ruler’s will is supreme. ‘Law’ is equivalent to the ‘ruler’s decree’.
- Rights of ruler stressed over those of the ruled.
- Tendency to centralization of power and atrophy of regional and local authorities.
- Ancient models: Sparta, Persia, Roman Empire.
Advanced Agrarian Societies

Review Questions

Q – Which of the following are innovations of agrarian societies?
   - bureaucratic religious and government organizations
   - warfare
   - universal religions
   - legal codes
   - professional armies
   - slavery
   - monetary systems

Q – In what ways did frontier societies of the agrarian era differ from more typical agrarian societies?