

Social evolution: Origins of agriculture and states

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- Social evolution concepts
 - **Unilineal cultural evolution:** the idea that societies have evolved along a single path from primitive to advanced
 - This idea is now discredited
 - societies have evolved along many different paths
 - social evolution has involved getting simpler as well as getting more complex: it does not go in just one direction
 - the concepts of “primitive” and “advanced” are ethnocentric and largely value judgments
 - we value “hard” technological tools over “soft” knowledge of techniques – but why?
 - **ethnocentrism:** belief that one’s own culture is the best, most natural, normal, etc.
 - **Historical particularism:** view that cultures, events, etc. are the result of the specific events and conditions that led to them; each case is unique
 - **Cultural evolutionary approach:** view that cultural change generally responds to broad processes, not just random historical accidents
 - every culture evolves a bit differently
 - historical particulars (circumstances) are still important
 - but broad processes within those circumstances...
 - like population growth, shifts in food production, warfare, etc.
 - are probably the major factors in cultural change
 - this is part of the processual paradigm: explanations may be based on recurring, understandable processes
- Types of **subsistence strategies**
 - **Foraging = Hunting and gathering**
 - **Agriculture = Farming**
 - **Fallow:** resting period for land between growing seasons
 - **Intensification:** putting more labor into a plot of land to get more product out
 - any farming is more intensive than foraging
 - farming can be simple and low intensity
 - can be intensified by weeding, irrigating, fertilizing, fencing...
 - shortening or eliminating fallow periods
 - using such methods is often called “intensive agriculture”
 - **Pastoralism = Herding**
 - **Agropastoralism** = Agriculture + pastoralism
- A big question: How and why did people begin practicing agriculture?
 - First the basic facts: When and where was agriculture adopted?
 - determined by a huge number of archaeological projects all around the world
 - Independently in many places
 - with different plants, in different environments, at different times
 - but all after the end of the Pleistocene (Ice Age)

- 10,000 - 8,500 BC: the Levant (Jordan valley of Palestine and Israel, nearby areas; the western part of the Fertile Crescent)
 - wheat, barley, rye, lentils, peas, etc.
- 8,500 - 7,700 BC: crops domesticated mostly in the Levant spread throughout the rest of southwest Asia (Anatolia, Egypt, the rest of the Fertile Crescent, reaching east across Iran towards India)
 - animals began to be domesticated too, adding to the food production system
 - sheep, goats, pigs, cattle
- 10,000? - 6,500 BC: southern China, southeast Asia
 - yams maybe earliest; rice
 - water buffalo, pigs
- 6,500 - 5,000 BC: north-central China
 - millet (a grain), etc.
 - pigs
- 9,000 - 3,000 BC: Andean South America (especially Peru, some of Ecuador)
 - beans, peppers, squash, quinoa (a grain-like plant that produces lots of tiny edible seeds), potatoes, gourds, cotton
 - guinea pigs (for food), llamas / alpacas
 - many apparently fairly independent processes of domestication of different plants at different times in different places in a highly variable, patchy environment
 - generally an even more gradual shift to agriculture than elsewhere, with long periods of mixed foraging and agricultural adaptations
- 7,000 - 4,000 BC: Papua New Guinea
 - tubers such as yams or taro
- 5,000 - 3000 BC: Mexico
 - maize (corn), beans, squash, peppers, gourds
 - not quite as early as Eurasia and New Guinea
 - but the “triumvirate” of corn, beans, and squash has plenty of protein and generally all the necessary nutrients for a balanced diet
 - the only suite of early agricultural crops that actually yields and fairly complete, healthy diet
 - turkeys, dogs
- after 2000 BC: Sub-Saharan Africa
 - rice, sorghum (a grain), millet (another grain)
- by 1000 BC: Midwest North America
 - marsh elder (small, oily, edible seeds), sunflower, goosefoot (close relative of quinoa)
 - once thought that beans and squash were adopted later from Central America, but now looks like they may have been independently domesticated in North America, too
 - corn was adopted from Mexico much later, maybe when a variety that was more tolerant of North American conditions had evolved
- Why start farming?
 - Foragers get all the food they want with less labor than farmers
 - !Kung or Ju/'hansi example
 - So why start farming?

- **Population pressure:** the need to change behavior due to demand for food or other resources approaching the amount available using current methods
 - **carrying capacity:** the population that a region can support with given methods of subsistence
 - farming produces more food per acre, but less per hour
 - if population gets too high for foraging to produce enough food, then people have to do something else: farm
- The earliest well-documented case: the Natufians of the Levant
 - the best example: Tell Abu Hureyra, in Syria
 - The Levant was wetter and warmer than it is now from about 12,500 to 10,800 BCE
 - patchy oak and pistachio woodland and natural stands of wild grains and legumes
 - this allowed some foragers to settle in permanent villages around 12,500 BCE
 - These people are called Natufians
 - they were highly specialized grain foragers
 - intensively harvested wild grains
 - as shown by abundant grinding stones
 - sickles with sickle gloss
 - they harvested lots of wild wheat and barley, also some rye
 - also used wild legumes including lentils, peas, chickpeas (garbanzo beans), and vetch (a relative of peas and beans),
 - also collected nuts such as almond, pistachio, acorn
 - also hunted herds of gazelles that migrated through the region seasonally
 - The resources were so rich that they could be semi-sedentary or even fully sedentary
 - as indicated by hamlets of circular houses with stone foundations
 - they stored the cereals and nuts in pits
 - storage is a necessary part of this specialization
 - since the cereal seeds and nuts are only available seasonally
 - so they had to collect large quantities and store them for the rest of the year
 - each house had its own storage pits, grinding stones, and so on
 - suggesting that each family harvested, stored, and processed its own grain and looked after its own needs
 - so economically, these sedentary Natufians were organized similarly to mobile foragers
 - Tell Abu Hureyra
 - Natufians settled there around 11,400 cal BCE
 - **Younger Dryas:** cooler, dryer ~ 10,800 cal BCE
 - Woodland retreated to 60 miles away
 - Plants that needed more water dropped out of diet
 - But wheat remained
 - they must have started cultivating it!
 - farming was a way to maintain their existing lifestyle based on specialized focus on wild grains
 - rye was first to show domestication (genetic change)

- almost instantly: 14C dates from 11,100 to 10,600 cal BCE
 - experiments show domestication in 300, maybe just 25, years
 - Lentils and other legumes returned later - farmed
 - Within centuries, dependent on farmed crops
 - but still collected wild plants and hunted gazelle
 - Sheep & goats domesticated later, by 8100 BCE
 - but still mostly hunted gazelle
 - Around 7300 BCE
 - abrupt drop in gazelle and rise in sheep and goat bones
 - switched to dependence on herding in one or two generations
 - maybe they finally depleted the gazelle herds?
- This has been an example of
 - a “big question”
 - testing of many hypotheses: scientific method
 - explanation in the processual paradigm
 - what might a post-processual hypothesis be?
- Another big question: How and why did societies get complexly organized into states?
 - First: Elman Service’s typology of societies
 - **Band**: small, mobile, egalitarian, usually foragers
 - **Tribe**: larger, segmentary, some inequality (big men), usually food producers
 - **Chiefdom**: larger, hereditary chiefs, hierarchy, usually food producers
 - **Archaic state**: larger, institutionalized hierarchy, power, food producers
 - More features of each type on page 320 of the textbook
 - These are generalized, artificial categories for discussion, not absolute and real
 - Point: many features of societies seem to covary
 - Small population -> very large population
 - Foraging -> highly intensified food production
 - Mobile -> sedentary
 - Simple division of labor -> extreme division of labor
 - Egalitarian -> wide range of wealth and power (elites)
 - Minimal organization -> highly structured, many levels
 - No control of violence -> state monopoly of force
 - No conflict resolution system -> laws, judges, police
 - Individualistic religion -> institutional, hierarchical religion
- Why get more complex?
 - 1. mobile foragers become sedentary food producers
 - 2. sedentism and food production make population rise
 - many reasons why both increase fertility
 - and rising population encourages more food production
 - which encourages people to remain sedentary
 - to tend and defend fields
 - to live on stored food between harvests (hard to carry it!)

- Together, sedentism, food production, and population growth all encourage greater social complexity
 - empirically shown: we consistently find them preceding the development of social complexity
 - the reasons why are suggested by a variety of theories
- A few example theories that have been tested by archaeologists
 - The Hydraulic Hypothesis (Karl Wittfogel)
 - small-scale farmers submit to a leader to build and maintain large hydraulic works
 - canals
 - and/or flood control projects like levees
 - they agree because it is to their benefit
 - the projects require strong leaders and organization
 - with enforcement power
 - creating a legitimate hierarchy
 - the farmers are then dependent on the project
 - which gives the leaders absolute power over them
 - leaders use the hierarchy and power to do other things
 - build palaces, raise armies, make goods for exchange, etc.
 - The Circumscription theory (Robert Carneiro)
 - Rising population
 - leads to competition for land, water, etc.
 - leads to warfare
 - if the region is “circumscribed”
 - by geography, like deserts, mountains, etc.
 - or socially, by other people living all around
 - then defeated groups cannot just move away
 - they remain in place, subject to the victors’ demands for tribute, etc.
 - the victors become the upper class, the losers the lower
 - rapidly creating a hierarchical, class society
 - A combination theory based on population growth (Allen Johnson and Timothy Earle)
 - Populations rise
 - Requiring intensification of production
 - Intensifying production has four general results
 - each of the four creates a reason to need a more highly integrated (organized) society
 - and each form of integration (organization) creates opportunities for elites to increase their economic control of resources
 - 1: Increased risk of insufficient production
 - Response: risk-minimizing strategies like redistribution
 - 2: Increased competition
 - Response: form alliances, organize defense, build walls, etc.
 - 3: Increased demand for capital investments like canals
 - Response: organize and submit to leadership
 - 4: Increased need for exotic materials (trade)

- Response: organize for long-distance trade, concentrate capital
 - Any or all of these responses to population growth push towards complexity
- There are many other theories
 - although Johnson and Earle have included most of the popular factors in their general model
 - with the exception of ideology
 - is it just a tool, used in responding to the driving processes?
 - or does ideology sometimes play a causal role apart from materialist causes?
- Archaeological explanations of social evolution
 - Kelly and Thomas suggest that
 - the specific processes are different in each case
 - but the general conditions tend to be consistent
 - what works best is an explanatory toolbox of processes that may come into play when the conditions are right
 - irrigation
 - storage
 - warfare
 - trade, etc.
 - Our task is to reconstruct the historical sequence of events in each case of a certain cultural evolutionary change
 - and then to explain those sequences
 - look at many cases of the same change
 - note what conditions are usually there
 - these may be the necessary and sufficient causes (induction)
 - use that insight to reason from the starting conditions to logical results (deduction)
 - express that logical sequence as a hypothesis
 - and test it

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