complex societies
- Urbanism =
- State =
- social complexity =
- energy limited
- archaeology of CS’s
  - traits of cities & states
  - can cities exist without states, or vice versa?
- city/state formation
- multivariate models

“Urban Revolution”
- systems theory
- single mechanisms
  - irrigation; trade; warfare
- social theories
  - why give up autonomy?
- Marx & power
  - economic =
  - ideological =
  - political =

urbanism = large and relatively dense settlements & population size >1000?

Çatalhöyük, Turkey, 9 ka
1000 rooms, 10,000 people, 2000 families

urbanism = city life
1. large and relatively dense settlements & pop size >1000
  - population aggregation IS NOT sufficient to define a city
2. specialization of activities within city; development of interdependencies within AND between city and “hinterland”
  - support of non-food producing specialists
3. development of “centralized” institutions to regulate the differentiated functions of the city
  - substantial overlap with the notion of state authority; is it necessary?

Think like a biologist…

algal mat: aggregation

jellyfish: aggregation & ???
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state =
comprehensive: a body of people occupying a defined territory and organized under a ruling body that directs the affairs of the state
societies based on cities
economies based on centralized accumulation of resources (including power) and monopolies of trading activity

state =
societies that support of large groups of non-food producing specialists (including religious specialists)
societies based on writing systems and record keeping

Sumerian cuneiform token, 6000-3000 BP (4000-1000 BC)
(social) complexity =
1. unpredictable = future states of the system are not predictable from observation of current states of the system (i.e., mathematical chaos)
2. organizational = many functionally distinct parts closely interrelated or interdependent in highly patterned ways (the opposite of entropy or randomness)
3. stratified = hierarchical social organization based on economic, ideological or political differentiation

Chiefdom =
- “degree” of social ranking
- chief (“Big Man”) with some control over access to resources
- some political and economic authority
- some heritable inequality

State =
- institutionalized hierarchy for decision making & control
- political power from ability to control economy
  - ability command people and extract compliance
- power often inherited

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geographically restricted development of civilizations

WHY?

complexity requires so much energy that there are limits to development

simple hunter-gatherers
agricultural adaptations

archaeology of urbanism

1. large settlements
2. a “degree” of internal planning
3. public architecture (e.g., plazas)
4. at top of settlement (size) hierarchy
5. encircled by defensive features
6. craft specialization
7. long-distance trade
8. subsistence strategy that raises K

All are features also common to some degree in Neolithic. A quantitative, not qualitative shift?

inferring state organization

1. large settlements
2. a “degree” of internal planning
3. public architecture (e.g., monuments, palaces)
4. organized settlement hierarchy
5. investment in defensive features
6. some form of writing
7. craft specialization and specialization in warfare
8. (extremely) long-distance trade
9. subsistence strategy that raises K
10. large population size
11. more than two levels in social hierarchy (e.g., bureaucracy)
rise of complex societies
- Urbanism = State =
- social complexity = energy limited

archaeology CS’s
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city/state formation

multivariate models
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multivariate models…

V. Gordon Childe’s “Urban Revolution”
- emergence of metallurgy & craft specialists
  - shift to life in cities
  - shift to irrigation agriculture to support growing population
  - movement of food from “hinterland” to city
  - development of resource surpluses
  - cities “funded” through taxation and tribute
  - writing & religion
  - specialized military

single mechanisms…

Robert McC. Adams and Kent Flannery
- systems theory
  - emphasized feedback between many variables as mutually causal of state formation

multivariate models…

Wittfogel’s “hydraulic hypothesis”
- canals, dykes, reservoirs, levees controlled by despotic bureaucracies
- BUT: small-scale irrigation common from early Neolithic in places
- BUT: large-scale irrigation followed the appearance of states

multivariate models…
- technological determinism
favorited mechanisms…
- trade
  - interdependencies between centers and peripheries based on trade goods
  - monopolies of “necessary” resources
  - monopolies of “prestige” goods
    - the “De Beers” phenomenon

warfare = coercive mechanism
- autonomous farming villages
- population growth and competition over land
- escalation of conflict until regions come under control of single warlords
- warlord expansion to neighboring regions
- state ends where boundaries too far to be guarded

How and Why do people relinquish control over their lives and livelihoods in service to the state?

Karl Marx in 1875
- **the power of the state**
  - **economic** = control “means of production”
    - loss of ability to produce food or necessary commodities independent of the state
  - **ideological** = control means of producing, distributing and consuming powerful cultural/political symbols
    - loss of...
  - **political** = control of the means to make war
    - loss of...

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