Conceptualising social complexity and inequality in urban networks.

TAG 2019 – S22: Archaeology of Inequality – Themes, Debates, Methodologies

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Greater post–Neolithic wealth disparities in Eurasia than in North America and Mesoamerica

1. Small differences in initial conditions
2. Positive feedback loops
3. Pathways of development
The farming-inequality nexus: new insights from ancient Western Eurasia

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This article advances the hypothesis that the transformation of farming from a labour-limited form to a land-limited form facilitated the emergence of substantial and sustained wealth inequalities in many ancient agricultural societies. Using bioarchaeological and other relevant evidence for the nature of ancient agro-systems, the authors characterise 90 Western Eurasian site-phases as labour- vs land-limited. Their estimates of wealth inequality (the Gini coefficient), which incorporate data on house and household storage size and individual grave goods—adjusted for comparability using new methods—indicate that land-limited farming systems were significantly more unequal than labour-limited ones.

Keywords: Eurasia, wealth inequality, farming, labour, land, traction
Social complexity and inequality

- (Implicit) assumption of correspondence between complexity and inequality
- Different forms of inequality
  - Social, economic, political,…
- Different scales of inequality
  - Individual, groups, societal,…
- Different mechanisms of inequality
  - Status, division of labour, inheritance,…
Social complexity and complex systems

1) Temporal, spatial and social structuration
2) Archaeological reflection: Material expression of social interactions, practices and institutions
Social complexity trajectories

- How did social complexity develop through decision-making strategies?
- Dual loop of signal detection, information-processing, and problem-solving strategies:
  - ‘Fast’ process of decision-making processes
  - ‘Slow’ process of socio-political complexity
Complexity and inequality in cities: social entropy

- Overload in high-information environments
- Uncertainty in transition from individual to collective systems of interaction
- Selection of interaction
  - Influencing probabilities of interaction
- Development of inequality inevitable
- What information selected and why?
- Purpose? Or emergent coordination of actions between agents with differing goals?

Complexity and inequality in cities: social structuration

• Recurrent needs and goals requiring recurrent actions creates order
• Structuration = increasing complexity & reduction of entropy
• Use of space and material environment
  • Create difference
  • Shape interaction possibilities

Cities as mechanisms of structuration

Düzen Tepe

Sagalassos
Cities as information amplifiers

- Cities as pockets of social interaction and information exchange
- Positive and negative effects of growing communities and increasing interactions
- Intra-community (settlement)
- Inter-community (settlement pattern)

Diagrams:
- Population growth & population density
- Aggregation & urbanization
- Increased face-to-face interaction (energized crowding)
- Scalar stress
- Community formation
- Economic growth

Bettencourt (2013) The Origins of Scaling in Cities
Cities as information amplifiers: Central place formation

- Settlement patterns as material and informational expressions of information systems
- Manifestation of inequality on an inter-community level
- Urban formation:
  - New forms of social organization, socio-political structures and institutions
  - Development of social, political and economic elite
  - Territorialisation
  - New forms of material culture and monumental architecture

Bintliff et al. (2007) Emergent complexity in settlement systems and urban transformations.
Conclusion: Model of social complexity trajectories

Population aggregation → Energized crowding → Community formation

Scalar stress → Community fusion

Central place formation → Community fission

Intra-community dynamics

Inter-community dynamics

Thank you for your attention!

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