

Introduction to Archaeology: Notes 3  
**Theory and paradigms of archaeology**  
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- A little more on what archaeology is
- Archaeology is generally defined either by its data or by its goals
  - Defined by data: Archaeology is the study of the material remains of past human activities.
    - artifacts, buildings, garbage, burials, etc.
    - How is this different from antiquarianism or art history?
      - archaeologists emphasize studying these material remains *in context*
    - Context or association: the relationships between objects, and between objects and their surroundings
    - Many types of context
      - stratigraphic (layers of soil):
        - what is found together in the same layer?
        - in a layer above, or below?
      - spatial or geographic distribution
        - what is found in hilltop sites, and what in valley bottom sites?
        - what is found in the Moquegua valley, versus in the Majes valley?
      - functional context:
        - what is found in burials, versus on house floors, vs. between houses?
      - etc..
  - Defined by goals: Archaeology (in the Americas, at least) is the study of anthropological questions
    - that we cannot address by direct observation
      - because they involve people in the past
    - or using written sources
      - because the needed information was not recorded
  - So, what are anthropological questions?
    - First, what is anthropology?
      - the study of people and societies
      - a rather broad definition...
      - Kelly & Thomas say that what all anthropologists have in common is that they believe in a global, comparative, holistic approach
      - that may be true, but it is not too much help, either
      - I'll add some other features typical of anthropology
  - The anthropological approach
    - 4 generally recognized subfields of anthropology:
      - biological (or physical)
      - cultural
      - linguistic
      - archaeological
    - features of the anthropological approach

- **holistic**: to understand humans and society, you must consider many different aspects that all interact with each other
  - biology (physical needs and abilities, evolved tendencies, etc.)
  - ecology (how humans affect and are affected by the environment)
  - culture (what's that??)
  - language
  - economics
  - politics, etc.
- emphasizes "**culture**" as a key to understanding people and society
  - there are many different definitions of culture
  - one definition that I like:
    - “the learned, shared values, beliefs, and rules that structure people's thinking and behavior”
  - a slightly more complete definition: Culture is
    - Learned
    - Shared
    - Symbolic: involves assigning meanings to things
      - what is edible food, and what is not
      - what the gods like as offerings, and what they don't
      - words are symbols for things
      - ideas are made up of words, or at least word-like categories and concepts
        - so ideas about how the world works, how to do things, or anything else, are symbolic, too
    - Integrated: all parts affect all other parts
    - Practical (often said as “adaptive”)
      - it involves knowledge, practices, rules, etc. that help people get along in their natural and social environment
    - Naturalized and unconsidered
      - people tend to think that their understandings of things are real features of the world, rather than just ideas that may differ in other cultures
  - these definitions emphasizes that culture is in people's heads
    - sometimes called **symbolic culture**
  - but we also talk about **material culture**
    - the resulting material things: tools, houses, clothing, etc.
- Uses a **comparative** approach
  - comparing different cultures
    - to see the range of arrangements humans are capable of
  - comparing cultures across time
    - to see how cultures change from one form to another
- Seeks to avoid **ethnocentrism**
  - the assumption that one's own culture is normal or the best, and others are deviations from that
    - not productive for studying or dealing with people of other cultures

- resisting ethnocentrism is a constant struggle
  - we are so immersed in our own culture that it is difficult not to assume it is the norm
- Starts from a position of **cultural relativism**
  - belief that all cultures make sense and are valid relative to their own context
    - you will never learn how a culture fits together and makes sense if you don't start from the assumption that it *does* make sense
  - involves suspending judgment in order to learn how the culture works and why
  - for archaeologists, this means resisting the temptation to uncritically interpret things in ways that make sense in one's own culture
    - “the past is a different country; they do things differently there”
- adaptive vs. ideational approaches to studying people
  - adaptive approach
    - explains things in terms of how they affect the success of individuals or the society in its ecological and social context
    - involves practical explanations that emphasize material needs and consequences, and how parts of the society interact as a system.
  - ideational approach
    - explains things in terms of what people think
    - religious ideals, notions about equality or special rights of certain families, the desire for power, etc.
    - naturally, this is harder to do with material remains
- Kelly & Thomas give interpretations of why Kwakwak'awakw continued practicing the potlatch in both approaches
  - adaptive:
    - it spread risk, getting food to villages in poor locations when needed and forestalling starvation or attacks
    - it encouraged people to move from the riskier areas to the better areas that could support them
    - another author (Marvin Harris) suggested that it caused villagers to work hard and produce a big surplus that they would not otherwise do – but which would save them and their neighbors in occasional very bad years
  - ideational
    - prominent people and their villages gained prestige from it
    - recipients were humiliated, and responded with another potlatch to reclaim their honor
- both approaches are valid and have their uses
- generalism vs. particularism
  - generalism
    - assumes that there are generalities or regularities in societies and cultural change that are useful in understanding them, and we should look for these regularities
    - so we compare many cases, and develop ideas like “societies that experience circumstance X tend respond by doing Y”
  - particularism (or “historical particularism”)

- assumes that societies and cultural changes are so complex and diverse that each has to be studied as a special case, taking into account the historical path that led to them
- tends to lead to detailed, complex explanations of individual societies as unique cases
- again, both are valid and have their uses.
- scientific approach to knowledge
  - anthropology is a social science, and like other social sciences, it strives to be scientific (not always successfully)
  - Kuznar's characteristics of science, in Kelly & Thomas
    - science is empirical or objective
      - it deals with the observable, measurable world
    - science is systematic and explicit
      - evidence should be complete
      - procedures fully explained
      - so someone else would make the same observations
    - science is logical
      - arguments linking ideas together must be sound
    - science is explanatory
      - it seeks to show what happens under certain circumstances
      - and why it happens
    - science is self-critical and based on testing
      - conclusions are only scientific if they are testable
      - that means, if they are falsifiable
        - there must be some way of showing that they are wrong, if they are
        - but after checking, the evidence to disprove the conclusion was not found
      - an example later...
    - Kuznar says: science is public
      - methods, data, and arguments are available for scrutiny by the public
      - I disagree on this
      - that is a nice ideal, but real science is also done by researchers at private institutions that do not share their data
      - this is considered bad form
      - it probably slows the process, since there are fewer minds working on the problem
      - and probably allows errors to remain undetected for longer
      - but it is still science, in my book
  - science is basically a way of establishing knowledge, based on the "**scientific method**"
    - which allows us to know how we know what we know
    - to evaluate and trust conclusions
  - The **scientific method**
    - 1. ask an interesting question
    - 2. suggest a **hypothesis**
      - hypotheses can be made up out of the blue
      - but in practice, are usually devised by **inductive reasoning**
        - get and look at the available evidence

- reason from the evidence towards an idea that might explain it all
- 3. figure out some **test implications** or predictions of the hypothesis
  - “if the hypothesis is true, we should find X”
  - hypotheses (really, their test implications) must be **falsifiable**: it must be possible to NOT find X
  - this is **deductive reasoning**: reasoning from an idea (the hypothesis) towards some expected evidence
- 4. collect the data to see if X is, in fact, true
- 5. compare the data to the test implications
- 6. draw conclusions and repeat
  - if the test implications *are* met
    - then hurrah! the hypothesis is supported
      - but not proven
      - because it is always possible that some other hypothesis could fit both the original data and this new piece
      - confirming the test implications only shows that the hypothesis MIGHT be right
        - by showing that it fits some data: it is consistent with the facts checked so far
        - it has been tested and has not yet been proven wrong
    - if there remains doubt, interest, and funding to continue,
      - then go back to step 3:
        - develop further test implications of the hypothesis and go back to collect more data to check those
  - if the test implications are *not* met
    - then OK, we still learned something:
      - the hypothesis was wrong
      - or some *part* of the hypothesis was wrong
      - or the *reasoning* behind the test implications was wrong
      - or the collected *data* was incorrect
    - so we need to:
      - change the hypothesis
      - or make a new hypothesis about why the test implications were not met
      - then go back to step 3:
        - develop test implications for the new hypothesis and collect more data to check those
- using the scientific method, we can eliminate the clearly wrong ideas, and keep moving closer (we hope!) to "truth"
- a real example
  - 1. Question: Did the Tiwanaku state, centered on the south shore of Lake Titicaca from about 500 to 1000 AD, establish colonies on the far south coast of Peru?
    - many people thought they had, due to finds of Tiwanaku-like pottery on the coast
  - 2. Hypothesis: Yes, there were Tiwanaku colonies on the Peruvian coast.
  - 3. Test implications: If I dig at three sites where Tiwanaku-like pottery is found, I should find

- artifacts that are a good match for the Tiwanaku style
- artifacts that give radiocarbon dates contemporary with Tiwanaku
- these are falsifiable implications: there are ways they could turn out that would not support the hypothesis
- 4. I excavated at the sites and analyzed the data
- 5. Oops – the test implications were not met
  - the pottery, textiles, wooden spoons, tomb shapes, and so on resembled Tiwanaku styles, but were all slightly different from them
  - the radiocarbon dates were all a little after 1000 AD: bit later than Tiwanaku
- 6. So I had to
  - reject the hypothesis: at these places, at least, Tiwanaku did not establish coastal settlements.
  - revise the hypothesis: people descended from members of the Tiwanaku state settled on the coast after the state collapsed
  - test implication: future excavations and analyses should continue to find pottery that resembles, but does not quite match Tiwanaku style, and additional dates should all be after 1000 AD
  - so far, that has been true
  - so my new hypothesis is supported
- The result is a series of successive approximations,
  - we hope getting closer to the truth,
  - but inevitably also reflecting intellectual biases of the individual researchers and their times.
  - But at least the evidence can constrain the conclusions, eliminating some incorrect ones.
  - “We don’t know much, but now we know that much”
  - that is, archaeology does tell us something about the past; without it we would know nothing at all
- So again, what those anthropological questions?
  - that is, what are the goals of archaeology?
    - Depends on who you talk to, and what stage of research they are at.
  - Question: What was life like in the past? Reconstruct past ways of life
    - analogous to ethnography: figure out as much as possible about all aspects of life, from getting food and making houses, to marriage patterns and social structure, to religious beliefs.
    - This is called a **synchronic** view: looking at the whole social system as it functions at a given moment
    - seeking to understand how a society works overall is a classic descriptive goal of cultural anthropology
      - harder for archaeologists, since our data is much more limited
  - Question: How did cultures change over time? Reconstruct the sequence of changes over time
    - Analogous to history

- the reconstructed sequence of events is called **culture history**, although some people consider this term old-fashioned
- This is called a **diachronic** view: looking at the changes that occur over time.
  - A diachronic view is essentially a series of synchronic views over time
- understanding the course of change in culture over time is another anthropological goal,
  - one that fewer cultural anthropologists have been able to do, and then only for one or maybe two lifetimes of history
  - but archaeologists have access to long spans of time, which cultural anthropologists do not
- Question: *Why* did they work that way and change that way? *Explain* the societies and the processes of change in each culture history
  - Also analogous to history
  - why was the society organized as it was?
  - How and why did it change from one time to the next?
- Question: What are the general patterns, rules, processes of cultures and changes? Generalize about societies and the processes of change in them
  - What causes certain kinds of developments in society?
    - adoption of agriculture, rise of states, collapse of empires...
  - What universal laws (if any!) describe the nature and development of human societies?
  - There are many approaches to this, as we will see
    - emphasizing the primacy of material factors like climate, subsistence, technological innovations, etc.
    - emphasizing the primacy of ideological factors like religion, political ideals, social norms
    - emphasizing the agency of individuals and groups advancing their own interests, resisting others, etc.
- What is the process of archaeology? How do archaeologists proceed?
  - we want to answer big, interesting questions, but the answers are not spelled out in the dirt we dig up.
  - we use theories to approach the answers
  - **theory**: an explanation for why or how something occurred
    - a theory may be true or false; it can be checked
    - if it has been checked extensively and found repeatedly to fit the evidence, we can use it to build further theories
  - at the first level of interpretation is **low-level theory**
    - these are theories that are used to make basic interpretations of field observations
      - Is this a stone tool or a naturally broken rock?
      - Is this potsherd an example of pottery style “a” or “b”?
      - Are these rocks in a line, or just a chance or natural pattern?
      - Was this potsherd laying in contact with the floor, or just above it in later fill?
    - example: we observe a patch of black material with red soil around and under it
      - we use low-level theory that says that this pattern is often formed by a man-made fire

- we interpret the observations as the charcoal and burnt earth left over from a man-made fire: a hearth or fire pit
- we have not actually observed a hearth
- we have observed some red soil and black stuff and interpreted it as a hearth
  - it might actually be a place where a dense bush was struck by lightning and burned
  - or the “charcoal” might actually be pieces of a rock containing the black iron mineral limonite, surrounded by soil stained red by the weathering iron mineral
  - we hope our theory is good enough to allow us to reject those possibilities...
- even at this level, our results are only as good as the theories we use
  - I had a supposedly skilled worker in Peru who had picked up a theory that three rocks near each other in a triangular pattern were a hearth
  - he recorded many hearths on my project’s field forms
  - I disagreed with his theory and did not treat most of them as hearths in my later analyses
  - this is one reason why good drawings, measurements, and photos are very important: to check the actual observations behind the field interpretations
- next is **middle-level theory**
  - these are theories that connect the interpreted data of fieldwork (hearths, houses, garbage piles, etc.) to behaviors of people or natural processes that created them
    - this house was occupied by a family with more wealth than that house
    - these people were specialized pottery makers, while these others just farmed
    - this garbage pile accumulated from a single big party, while that one built up from many small, ordinary meals
    - this trench was dug by people to defend their village, but that one was eroded through town in a big flood
    - etc.
  - middle-level theory is often derived by
    - observing living people doing things and checking the material remains afterwards
    - doing experimental archaeology, like cutting up a wildebeest with a stone tool, then checking to see what sort of wear or damage is left on the tool’s edge
    - checking natural processes that can affect archaeological materials, like recording the condition of bones at a hyena kill site every two months for several years to learn how bone decays when left out in the sun
    - in practice, often by “common sense”, which might not be right
    - that is why rigorous middle-level theory is so important
  - using middle-level theory, archaeologists try to figure out what people did and what natural processes happened to form the material remains
- finally, there is **high-level theory**
  - these are theories that seek to explain the big questions: why people adopted agriculture, why certain people came to have power over others, and so on
  - Ideally, archaeologists form hypotheses based on high-level theories or models about the past and the issues
    - example: we are interested in a high-level theory that social change is often caused by high-status individuals trying to increase their power



- so we hypothesize that in X region, the wealthiest people threw big feasts to attract and reward supporters
- we suggest a test implication that we should find storage and cooking facilities for large amounts of food near or in the biggest, best-built homes at the site
- we go out and excavate
  - we use low-level theory to identify hearths, cooking debris, and structures built out of stone
  - we use middle-range theory to assess whether they are consistent with feasting
  - and we use those results to test our high-level theory about the importance of feasting and high-status self-aggrandizers
- high-level theories are based on **paradigms**
  - a paradigm is
    - a theoretical framework,
    - set of assumptions,
    - point of view,
    - or concept of what kinds of explanations and causes are appropriate;
    - that is, an overarching view about how the world works
    - almost like a culture of researchers
  - archaeology currently has two major paradigms
    - processual archaeology paradigm
      - 1. archaeology should generalize, that is, seek regularities or laws of culture and behavior that cover most or all cases
        - sees the particular details of places and individual people as less important
        - as responding to the overall circumstances, rather than being major determinants of them
        - sees different regions and periods as cases that can be compared, examples of the same general processes
      - 2. culture is a system and a form of adaptation to material and social circumstances
        - typically a materialist view
        - economics and power are key to explanations
        - religion, art, ideology are “epiphenomenal” (“alongside the phenomenon”)
          - that is, they are not causal, but are dragged along by material processes
          - or are just irrelevant sidelights
      - 3. the past is part of objective reality, and it can be reconstructed and explained using the scientific method
      - 4. archaeology should be objective (factual), not political
        - factual and theoretical findings are ethically neutral, not political,
        - they are simply facts about the past
  - post-processual archaeology paradigm (closely tied to postmodernism)
    - 1. generalizations oversimplify; each case is unique, complex
      - seeks explanations in the particular details of each place and time
      - seeks explanations in terms of how individual people acted, especially ordinary people negotiating tensions around gender roles, wealth differences, and so on

- sees no point in pursuing generalizations, because they would have to be so broad and vague as to be boring and uninformative
- 2. explanations in terms of system or adaptation are trivial, incomplete, misleading; good explanations involve ideation
  - instead, emphasizes ideology, religion, other ideas as crucial
  - often try to reconstruct the meaning assigned to artifacts
- 3. the past is always a reflection of the present; we are only fooling ourselves with scientific method
  - argues that most archaeology is not really so scientific, but instead perpetuates assumptions and fashions in the archaeologist's culture
  - some postprocessualists have argued that there is no objective reality, that the evidence can be made to show anything, and that therefore there is not even any reason to dig it up
  - that extremism has faded; most now argues that we should try for objectivity, but realize that it is rarely possible
- 4. archaeology is inherently political, not objective
  - it always serves a political agenda
- In the 1980s and 1990s, the fight between these two approaches was bitter and often personal
- but now, most archaeologists have adopted the reasonable parts of each
  - keeping much of processual archaeology
    - especially the scientific method
  - but becoming more skeptical of generalizations
    - and recognizing that they describe tendencies, not hard rules
  - adding more emphasis on historical particulars and the roles of individual agency
  - adding consideration of ideology
  - trying even harder to avoid cultural and political biases
  - and recognizing the potential political impacts of the research
- Why do archaeology? What are we trying to accomplish?
  - Also a debatable question
  - The plain old curiosity answer
    - What is “x” artifact/building/site? What happened here?
    - Stonehenge, Giza, handaxes, potsherds...
  - The intellectual curiosity answer
    - We are trying to answer countless questions about humans and our past. Examples:
      - How and why did human culture arise from our non-human, non-cultural origins?
      - When and why did people shift from hunting and gathering to farming?
      - When did the first people get to Australia and to North America, and how?
      - How did people come to live in cities?
      - What lead to the development of the first states?
      - How and why were the Egyptian pyramids built?
      - What was the economic basis of Greek democracy?
      - Why did Maya civilization collapse?

- What role did Old World diseases play in the European conquest of the New World?
- What were conditions really like for black slaves in the colonial US?
- How was the first “mass production” factory of the industrial revolution organized?
- Archaeology is the only way to get at many of these questions, because
  - it gives us access to an immense span of time
    - it transcends the limits of the present time and recent past to which cultural anthropology is limited
    - it transcends the limits of where and when history was written and preserved
  - by doing so, it gives us access not only to longer runs of "historical" development, but also to societies that lived in conditions that no longer exist
    - it gives us access to a much wider range of human behaviors and possibilities than history or ethnography could offer
      - the very first attempts at things like farming, living in cities, having kings, etc.
      - adaptations like specialized mammoth hunters or foragers in rich environments that have been controlled by farmers since before written history... etc.
- Archaeology is particularly good for answering questions about society because it is unaffected by certain kinds of bias that plague history and ethnography
  - written history tends to focus on upper classes, certain kinds of events and places, and is generally ideologically biased, intentionally or not
  - ethnography is necessarily influenced by what people want the ethnographer to know and think about them, intentionally or not
  - “Garbage doesn’t lie” - or at least, not in the same ways as history and ethnography
    - Rathje’s "Projet du Garbage"
- The practical utility answer
  - National and ethnic identity and pride
    - “El orgullo de ser Peruano” (“The pride of being Peruvian”)
  - Political uses
    - Israel’s constant excavations justify modern Jewish presence
    - example: SF Chronicle, Sept 6, 2009: “Ancient wall testifies to Jerusalem’s strength”
      - excavations by Ronny Reich, “Archaeology professor at the University of Haifa”
      - not mentioned: also Senior Archaeologist for the Israel Antiquities Authority, an office of the Israeli government
      - “Archaeological research at the site known as the City of David, just outside the walls of Jerusalem’s Old City, is caught up in the struggle for control of the city.”
      - site is in a Palestinian neighborhood
      - excavation is funded by “Elad, a Jewish settler organization that also buys Palestinian homes and brings Jewish families into the neighborhood. ... critics have charged that the archaeology is being used as a political tool to cement Jewish control over parts of Jerusalem that Palestinians want for the capital of a future state.”
      - is this a new discovery? No; the wall was first found in 1909, and the current project must have taken months
      - the site is about to open for tourists, so this press release is a bid for publicity
      - but why? the wall long predates the Hebrew kingdom
      - presumably Elad thinks they are supporting their cause somehow...

- Tourism and display, for economic reasons
  - Teotihuacan, Tikal, Giza; Machu Picchu
- The personal answer
  - It's fun.
  - Intellectually stimulating, outdoors work with your hands, many different skills, constant variety, travel to interesting places, creative problem solving and writing
- The social value answer
  - Adds richness to people's lives, however subtly, to know that people are studying and recovering the past; fires people's imaginations to see documentaries, museum displays, visit sites, read articles and books about archaeology, even if they don't bother with the details.
- This has all been very abstract. Most of the rest of the class will involve filling in concretely how archaeologists actually do all this stuff