

**Analogy and ethnography: a straitjacket for archaeological explanation?**

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Analogy is inextricably linked with human perception, discovery and cognition (Edgeworth, 2003, pp. xiii, 13). Analogical reasoning is a form of inferential logic whereby likely relationships are implied between similar entities with varying degrees of probability (Binford 1967, p. 1; Van Reybrouck 2000, p. 42; Wylie 1982, pp. 392-393). Since the 19<sup>th</sup> Century, archaeologists have used ethnographic analogy to understand the human past behind the archaeological record (Charlton 1981, pp. 133-134, 136; Wylie 2002, pp. 137-138). They illustrated ancient prehistoric hunter-gatherers' lifeways using ethnographic analogies. Sir John Lubbock utilised general analogical research to "throw some light on" (1865, pp. xiii, 1) prehistoric peoples. He contended that contemporary Inuit scrapers were "absolutely identical" to common prehistoric tools, so their use is thus "entirely explained" (Lubbock 1865, p. 407), regardless of dissimilarities (Van Reybrouck 2000, p. 71). William John Sollas (1911, pp. 91, 94) similarly believed that knowledge of modern hunter-gatherers was useful for analogies to understand prehistoric people, by directly comparing Tasmanian Aboriginals with Palaeolithic peoples. Yet, without this ethnographic-based beginning, "few identifications or comparisons would be possible" (Kent 1994), as the archaeological record "cannot speak to us ... cannot tell us how or why they were made or what they mean" (Peregrine 2001, p. 1). However, such uncritical social evolutionary-based similarity studies are not useful archaeological tools (Stiles 1977, p. 89).

From the mid-20<sup>th</sup> Century, archaeologists recognised that analogy, whilst important to archaeology, needed a more scientific base to be useful. Sir Grahame Clark (1939, pp. 166-167, 173, 183) warned that ethnographic parallels should not be used indiscriminately, as "what appears to be the same form may in reality have quite a different history, function and significance", yet he inferred that Late Bronze Age Jutish locks of hair found in bogs were likely analogous to the ancient Greek belief that hair held great power. Julian Steward (1942, pp. 337, 340) advised that, instead, archaeologists should start with identifiable historic sites and related ethnographies and work backwards through sequences to prehistoric times. The direct historical

approach, used by William Duncan Strong (1972, p. 377) to explain the archaeology of the northern plains of America in 1940, is one example of this. More critical reactions were also evident, due to misguided applications of ethnographic analogies (Kuznar & Jeske 2006, p. 37). Using his 'ladder of inference', Christopher Hawkes (1954, pp. 161-162, 168) argued that ethnological data cannot demonstrate a "real connection" between ancient and modern peoples, especially regarding social structure or ritual matters, excepting for identifying production techniques and subsistence economies. MA Smith (1955, pp. 6-7; Hawkes 1954, p. 162) agreed with Hawkes that, while ethnographic analogies can account for prehistoric economics, there is little logical connection between the archaeological record and human behaviour. Strong analogies were required to reliably investigate human behaviour.

During the 1960s, Robert Ascher attempted to place "analogy on a firmer foundation" (1961, pp. 322-324) by recommending a systematic approach for ethnographic analogies, with archaeology and ethnography overlapping different stages of the transformational process. Lewis Binford disregarded Hawkes' ladder of reliability completely, stressing that analogy was a logic-based inference that "implied relationships between demonstrably similar entities" (1967, p. 1). He recommended a methodology to follow, by which analogical evaluation, when compared to the ethnographic record, can suggest potential functions of an archaeological feature upon which testable hypotheses can be developed (Binford 1967, p. 3). This he demonstrated by comparing a wider range of ethnographic sources illustrating Native American hide smoke pit-related activities to archaeological Toothsome "smudge pits", to show they were used for hide smoking (Binford 1967, p. 7). In the process, he provided an example of falsificationism (Renfrew, Rowlands & Segraves (eds.) 1982, p. 42), as his data proved that a prior belief was incorrect: the smoke generated from the pits was not for mosquito control. The hide smoking explanation has been challenged by Patrick Munson (1969, pp. 83-84) as being too narrow, and using different ethnographic evidence, he shows that these pits may have had alternative uses such as smudging

ceramic vessels. Binford was forced to conclude that when analogy-based hypotheses are inconclusive, a general proposition should be used, and concluded that the archaeological features were “smudge pits as distinct from lighting fires, roasting pits, etc” (Binford 1972, p. 57). Sandra Bowdler (1976) used an ethnographic method with a feminist perspective to “construct models that challenged existing paradigms and encouraged explicit hypothesis testing” (O'Connor 2008, p. 92). She inferred gender roles at a Bass Point shell midden using archaeology and Aboriginal ethnographic records, such as the assumption that women do not, and therefore never have, used spears to fish. Her view of an unchanging Aboriginal lifestyle, whereby ethnographic records could be directly applied to the past, was criticised by Peter Hiscock (2008, pp. 104-105). However, while her hypothesis is hard to test without confirmed evidence of gender divided fishing activities in the archaeological record, yet Binford’s “smudge pits” remains the more convincing of the two hypotheses styles. Even so, the results of any hypothesis may thus either be incorrect or have alternative explanations that require further exploration.

As a way of studying archaeological data to determine relationship links with contemporary societies to explain the human adaptive behaviour that may have created it, ethnoarchaeology became a growing sub-discipline of archaeology (David & Kramer 2001, pp. 18-19; Gould 1980, p. 4; Stiles 1977, p. 90). As ethnographers were not interested in the same issues as archaeologists, the latter began to investigate societies from an archaeological perspective (Stiles 1977, p. 87). Archaeologists can speak directly to native informants, allowing for investigation into individual archaeological concerns. This generates project-specific analogies for hypotheses, as per Max Friesen’s (2002) Iqaluktuuq Project. While ethnoarchaeologists can be influenced by their informants (Friesen 2002, pp. 338-339), no archaeologist is completely impartial, as interpreting the past is in itself a political act (Edgeworth 2003, p. 18). As such, Daniel Stiles (1977, pp. 91, 94-96) recommends using archaeologically-related ethnographic ideas to generate hypotheses or models, which should be tested against the archaeological data. He suggests that, if ethnographic

Hopi kinship and residence patterns were used to hypothesise pottery distribution for matrilineal Hopi settlements, the archaeological data from a Hopi excavation could then be tested against the ethnographic hypothesis to determine its validity. If the modern Hopi settlement was then excavated after a recent abandonment, this would be a 'post-mortem' excavation. These excavation results could then be compared to archaeological sites (David & Kramer 2001, p. 80). One example is that of Robert Janes' (1989) post-mortem excavation of a Dene hunter's camp. After living with the Dene for 4 months, he used the observational and excavational data to find diagnostic attributes for a model for tepee identification in the archaeological record. However, Richard Gould (1980, pp. 29-30) argued that analogy by similarity leads to unwarranted assumptions about the data, instead suggesting that argument by anomaly provided more useful data for his systematic, unified approach (Gould 1980, p. 138). Since analogy covers both similarities and differences, argument by anomaly is part of analogical reasoning (Charlton 1981, p. 130; Watson 1982, p. 445; Wylie 2002, p. 147). His wish for a better system came from its inconclusiveness which, being inductive, can only provide probabilities (Shelley 1999, p. 580; Van Reybrouck 2000, p. 21; Wylie 1982, pp. 392-393). As such, analogy is an intrinsic, necessary part of ethnoarchaeology which provides an explanation of past human behaviours.

However, analogy covers a wider range of cognition than that related to ethnographic data, and ethnography can no longer be privileged over archaeology (Charlton 1981, p. 130; Edgeworth 2003, p. 10; Van Reybrouck 2000, p. 19). As Patty Jo Watson argues, people "can never experience the past directly; we always interpret materials from the past by inference from knowledge of the present" (1982, p. 445). Whenever archaeologists identify a stone axe or hammerstone, or determine soil consistency or colour, they do so by analogical reasoning (Edgeworth 2003, pp. 249, 278-279; Watson 1982, pp. 445-446). Given this, Thomas Charlton noted that archaeologists must be concerned with when and how to limit and structure analogical research. He suggested that analogies could be constructed from a wide range of historical data, such as his analogical model

of the patterns of 19<sup>th</sup> Century Chinese opium trade, serving to interpret archaeological Mesoamerican resource signatures (Charlton 1981, p. 157). This conforms to the idea that if an observable 'X process' (opium trade) results in 'Y debris' (opium-related distribution), archaeological 'Y debris' (resource distribution) infers that a well-substantiated 'X process' (resource trade) probably occurred in the past (Watson 1982, p. 446).

Alternatively, as proposed by Cameron Shelley (1999), multiple analogies of human behaviour could be utilised to provide the necessary data in constructing hypotheses that cover additional viewpoints which may be missed by single analogies. In his data comparing wolf/bison kills and human/elephant culls to Clovis human/mammoth kills, he illustrates that elephant culls alone miss important aspects related to mammoth kills, such as the requirement for water-holes and environmental constraints (Shelley 1999, p. 593). Peter Peregrine (2001, p. 4) recommended that these analogies be cross-cultural, assuming statistically valid samples with comparable units of analysis were used. This requires a global cultural sample collection of inferential statistics with which to identify behavioural trends and associations, such as the online databases provided by the Human Relations Area Files (HRAF 2015; Peregrine 2001, pp. 12-14). Instead of using datasets and theories closely aligned with each other in time and space, analogical research has expanded to cross-culturally investigate how humans are predicted to have behaved using logical, formalised, testable strategies (Kuznar & Jeske 2006, p. 38).

Archaeologists are now using modern technologies and associated data to explain human behaviour from material remains. Computer-generated models and simulations of visual representations of archaeological similarities are also useful in determining behavioural attribute matches (Shelley 1999, p. 594; Wylie 2002, pp. 92, 204). The range of tools to assist archaeological analogy now covers a wide range of fields including geographic information systems, materials science, radiocarbon dating, and DNA, archaeobotanical, photographic, micromorphological,

osteological, microscopic and isotopic analyses (Ravn 2011, p. 722; Furmanek et al. 2013, p. 375; Marreiros et al. 2014, p. 160). In an investigation of a Jordanów site near Dobkowice, preliminary micromorphological analyses confirmed human land-use activities in the area, while archaeobotanical analysis showed the plants at the site, including feather grass (Furmanek et al. 2013, pp. 384-388). They used a central European stockherding analogy to suggest that feather grass was present due to landscape changes through land-management activities. This strengthened their archaeologically-based interpretation of the Dobkowice enclosure as a temporary camp site with an animal pen, in a landscape extensively managed by mobile stockherders (Furmanek et al. 2013, pp. 388-393). The availability of modern technology means that analogy is no longer confined to ethnography, but to a wide range of technologies for archaeological application.

Today, experimental archaeology-based analogies are utilised as important tools to understand the complexities of past human behaviour. Typically, experimental archaeology is when archaeologists attempt to create an analogue of an artefact or ecofact to determine what behaviours caused these archaeological remains (Domínguez-Rodrigo 2008, pp. 67-68). Lawrence Kuznar and Robert Jeske (2006, pp. 39-43) used cross-species analogues, similar to Shelley, to create an analogical model. This use of experimental archaeology differentiated canine-dug pits from human-dug ones, which could be applied to archaeological sites. João Manuel Marreiros et al. (2014, p. 7) examined experimental archaeology and use-wear analysis to find analogical parallels with archaeological tools. Manuel Domínguez-Rodrigo (2008) demonstrated how cut marks found on bones at FLK Zinj infer behaviours of human butchery. He cautions that different researchers may produce varying results with the same archaeological materials through alternative analogical assumptions and hypotheses testing, so best practice must be employed (Domínguez-Rodrigo 2008, pp. 78-79). Thus is due to the complexities associated with such research, which is currently undergoing methodological and technological improvement

(Marreiros et al. 2014, pp. 18-19). According to Mads Ravn (2011, p. 716), best practice would be to use experimental analogies in a case-specific manner, adjusting the analogy to suit the requirement. Future analogical research is thus closely linked with technology, and advances in science will result in further archaeological understandings of past human behaviours. Rather than being a straitjacket, analogy and ethnography are both vital and useful tools for archaeological explanation.

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