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University of California, Merced

The Use of Phenomenology in Sensorial and Experiential Archaeology

A Thesis submitted in partial satisfaction of the requirements for the degree of Master of
Arts

in

Interdisciplinary Humanities

by

Sven Sulzmann

Committee in charge:

Professor Holley Moyes, Chair
Professor Jeffrey Yoshimi
Professor Mark Aldenderfer
Professor Linda-Anne Rebhun

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Abstract

In this thesis, I examine how human experience (thoughts, feelings) has been treated in archaeology and how phenomenology is traditionally employed in archaeological research. Phenomenological approaches have been heavily critiqued as lacking in rigor. Many argue that the differences between past and present human experience is too vast to allow for valid interpretations. I propose that humans in the past and present are similar enough to allow for plausible inferences. Further, I argue that phenomenological interpretations of the past are special forms of analogies, which are accepted by many within the archaeological community. To bolster these interpretations, new theories in cognitive science support the validity of phenomenological inference. Based on those insights I elaborate on methodology for constructing and evaluating phenomenological analogs in archaeological interpretation.

Introduction

Archaeological method, theory and interpretive paradigms are always in a state of flux and proceed through time as a conversation that mirrors the *Zeitgeist* (Trigger 1989). Beginning in the 1960s, when the U. S. was engaged in the space program, the cold war, and the war in Vietnam, archaeology underwent a scientific turn because of a profound interest in science sparked by new technological achievements. At the time, U.S anthropology tried to explain culture through behavior (Trigger 1989: 394). Archaeology critiqued earlier paradigms such as culture-history and functional-processual archaeologies as deficient. Processual archaeology explains culture as adapting to changes in population, environment, and inter-cultural competition (Trigger 1989: 394).

Archaeologists operating under this framework were mainly interested in questions concerning past subsistence patterns and technology. (Binford 1967; Yellen 1977; Vayda 1971; Sahlins and Service 1960; Tosi 1976; Smith 1976). Processual archaeologists assumed that past people were rational, arriving at logical solutions to problems. The unit of meaningful analysis for Processualists was on the systemic level of past human groups employing scientific methodology. The individual was still visible but generalizable features of human behavior were highlighted (Trigger 1989: 395-400).

As a reaction to the focus on science and process, a more humanistic theoretical focus followed, and archaeologists became more interested in meaning, symbolism, and human cognition (Hodder 1992; Shanks and Tilley 1982). Julian Thomas (2008: 300) critiques archaeological work under the paradigm of the New Archaeology (Processualism) because it leads to ethical problems. One of the problems resulting from too much empiricism is that the past is thought to be objectified. Further, the past is appropriated through the archaeologist's own experience and understanding of the material record. According to Thomas, the aim of the Processualists was to formalize human behavior which he argues, lead to broad generalizations and essentialization of past people (2000: 8). Therefore, the goal for Post-processualism is interpretation and not explanation.

The claim that scientific method in archaeology is totalizing and colonialist made by Thomas is unfair. These critiques do not account for the biological, physical, and cognitive similarities between groups or individuals. Moreover, these attacks are essentializing in their own way because existing regularities in human behavior are ignored. In rejecting any similarities between humans, we would never be able to understand other individuals at all, which is not productive for archaeology or for anthropology in general.

Kohl suggests that there is continuity between post-processual and processual archaeology. He welcomes the diversity introduced to archaeological interpretation by post-processual approaches (1993: 14), but suggests that some form of testing is still necessary to prevent mere speculation, or in Kohls' words:

Some of the more unguarded, hyperbolic statements of his [Binford's] post-processual nemesis, Hodder, unfortunately have implied that this Pandora's box should be opened, resulting inevitably, of course, in the realization that Mr. von Daniken's readings of prehistory are as true and meaningful as those of Mr. Hodder (Kohl 1993: 16).

Christopher Tilley (1994) was the first to introduce a phenomenological approach to archaeological interpretations. A pioneer in this endeavor, his work examines human experience of the landscape in his book the *Phenomenology of Landscape*. Tilley draws on Martin Heidegger and Maurice Merleau-Ponty in terms of a body centered human phenomenology: Humans experience the world through their bodies through the senses (Tilley 1994: 12).

Tilley's work was originally not well-received by all, but the phenomenological method has returned under different guises such as the archaeology of the senses, experiential archaeology, and some experimental archaeologies. Newer approaches to archaeological interpretations critiquing phenomenology are essentially just as phenomenological. A good example is found in Yanis Hamilakis' *Archaeology and the Senses*. Hamilakis extends his phenomenology to all senses and suggests that archaeologists study the "sensorium," that comes together to create past sensual worlds. The "sensorium" encompasses senses connected to the sensory organs and sensory fields such as smell or taste but does not focus solely on sight. Hamilakis' method, similar to Tilley, uses his own self-reflective background to understand the human experience of reconstructed burial practices in Bronze Age Crete (Hamilakis 2014: 130).

Dealing with past human experience has proven to be problematic. This is because the material record in itself does not provide enough evidence to directly connect material remains to more abstract qualities of the human reality as for example meaning, emotions, and feelings. For this reason, phenomenology in archaeology became the target of multiple critiques (Brück 2005), which suggested that phenomenological interpretations lacked rigor and proper methodology and made too many assumptions (Fleming 1999).

Furthermore, Meskell (1996) argued that humans from the past and present may be more different than assumed, complicating valid inferences about past human feelings and thoughts. However, the recent "ontological turn" in anthropology suggests that only cultural meaning is relative while the world cultures are explaining remains the same (Heywood 2017). Other critiques are concerned that by using a self-reflective method, archaeologists are introducing Methodological Individualism into their interpretations. Methodological Individualism is the idea that we may understand social groups through distinct agent behavior, in other words, explaining collective behavior as the aggregate of individual actions.

The term Methodological Individualism was introduced by Max Weber and was adopted by sociology and economics (Weber 1978: 3-62; Agassi 1960). Critics of this method argue that characteristics of social organization are reduced to the sum of single agent behavior which does not account for individual variation. Sperber (1997) for example, argues that a lot of individual behavior is unintentional or motivated by biases. Methodological Individualism requires individual agency to be the most fundamental unit of analysis. However, phenomenological archaeology is not trying to explain but to understand the past. Relying too much on individual experience of the archaeologist might narrow our understanding of the past. Through experimentation on subjects in the present it would be possible to arrive at a more nuanced picture of human experience based on group or responses and cross cultural observations.

Here, I will argue that phenomenological interpretations have been dismissed prematurely, but I agree with Brück that there has been little methodological development. Naturalized phenomenology abandons anti-naturalistic tendencies of phenomenology in favor of naturalism (Zahavi 2010: 3), which is the idea that the physical world exists in a material sense and scientific methodology is best suited to understand our physical world (Kim 2003). Naturalized phenomenology enables phenomenological philosophy to meaningfully employ empirical methods (Zahavi 2010: 14). I make the case that the cognitive sciences support a phenomenological approach by generating testable theories that can be applied to human cognition and sensual experience. Experimentation using statistical analyses as well as cross-cultural subject testing and psychological methodology can be used to better understand human behavior. This might enable a more fine-grained picture of past human experience and variation to emerge. Phenomenology in archaeology can use empirical methods to further understanding of the past and does not need to establish general scientific claims about it.

In the philosophy of phenomenology there is a debate between a realist and idealist reading of Edmund Husserl and Heidegger. The realist view accepts that there is a physical reality which can be explained scientifically (Dreyfus and Spinoza 1999). Idealism rejects the notion of an independent physical reality and suggests that experience of the world is created by the individual (Royce 1919). However, in each case archaeological practice remains unchanged and only the philosophical interpretation will change.

To better employ phenomenology in archaeology researchers may focus on naturalized phenomenology in which phenomenological thought is extended through the use of scientific methodology (Yoshimi 2016: 287). The tendency to utilize psychological and other scientifically-oriented fields to support phenomenological claims has a long tradition. However, Husserl and Heidegger were opposed to introducing empirical approaches into their phenomenologies. Archaeologists may strive for a naturalized phenomenology in order to ground an understanding of past human experience in testable data. Phenomenology in archaeology is complicated because there are two levels of inquiry. The first level is concerned with the experience of the archaeologist doing field work. Second, there is the level of phenomenological interpretation of the past. I focus on the second level of phenomenology in archaeology dealing with the interpretation of past human behavior.

Further, I argue that the use of phenomenology in archaeology could be seen as a special form of relational analogy. Analogy has a long standing tradition in archaeological interpretation that has been well-accepted by the archaeological community. Some of the methods used to bolster analogies can be used to improve phenomenology. Analogical arguments posit a relationship between past and present behaviors or artifact forms, based on environmental, cultural and material similarities between two human groups across time (Wylie 1989: 11). The analog in phenomenological archaeology is the modern human experience. The connection between the past and present in phenomenological archaeology may be made through the commonalities between modern humans across time justified by shared physiological features (such as similarities in biology), basic physical laws such as gravity, weather effects such as wind, rain, snow, and basic perceptions such as heat and cold. It may be

argued that these are simply low level similarities, but they are not trivial. As Tilley (1994: 74) argues, basic perceptions are fundamental to human understanding and provide a context for shared human experience. Ultimately, similarities in human experience past and present are based in the semblance between the brain and the sensual organs. Because archaeologists only deal with material remains, in order to understand past human experience we must establish what can be reasonably inferred about human experience across time and space through the material record.

Historian R. G. Collingwood (1946) argues that we can experience the past by putting ourselves in the shoes of others. Through this we create a model of past experience in the present. Collingwood's idea was originally designed for written history. Consider for example, that we can imagine how Socrates may have felt drinking the hemlock. This approach could be useful to understand the experience of past humans we encounter through the archaeological record. The archaeologist becomes the source for analogies between past and present human experience. The more archaeologists know about the context the better we can understand the past (Collingwood 1946: 282)

This can be supported by Theory of Mind (ToM). This theory posits that we have a general idea about the motivations of other individuals, which causes them to behave in the way they behave. Moreover, the immanent human skill of understanding others allows archaeologists to gain an understanding of the cognitive processes which informed past human behavior. ToM is not perfect but, as suggested by research, it sufficiently allows us to gauge each other's intent (Gallagher and Frith 2003; Gallagher et al. 2000). ToM could potentially be applied to people of the past because ToM suggests that people are capable of understanding the intentionality of other human beings which could be expanded to past humans. This can be bolstered with archaeological knowledge to better comprehend past human experience. In other words ToM predicts that the more knowledge we have about another person the better we can predict their intent. This is analogous to the archaeologist's knowledge of the past peoples and their increased understanding.

ToM is valuable for mentally healthy human adults in their daily lives because they use ToM for successful social organization (Goldstein and Winner 2012: 19). ToM abilities might be limited in some individuals such as for example in schizophrenic patients (Sprong et. al 2007). Further, studies on children show that ToM can be trained (Goldstein and Winner 2012). This could mean that ToM abilities might improve over time and through experience. Bayesian probability (Poldrack 2011) suggests that archaeologists could improve their inferences regarding past peoples based on thorough knowledge about the natural and socio/cultural environment that they would have experienced.

Finally, I propose a methodology for evaluating and constructing phenomenological analogies based on the archaeological record. I propose a combination of phenomenological archaeology and ToM to arrive at a more refined understanding of the past, by introducing modifications to phenomenological archaeology. Phenomenology in archaeology alone will not be sufficient to understand past life experience and archaeologists need continue the hard work of reconstructing past societies using material evidence as necessary and valuable tools that aid in understanding human experience.

Archaeological and paleoenvironmental data can be used to create reconstructed environments and behaviors that help us to gain a better understanding of past lived experience by situating past people in context. Geographic Information Systems can be used to interpret spatial relationships among different artifacts, features and their locations and can create viewsheds and least cost pathways in intrasite or intersite analyses. Julian Thomas critiques such methodology as broadly generalizing and essentializing the past (2000: 8). But, Thomas is too extreme in his rejection of all general features of the human experience. There are at least some basic level similarities of human experience such as for example, the day and night cycle. Thomas might agree more with the use of experimental archaeology as reconstructions and experiments that create “lived experiences.” Additionally, computer simulations, reconstructions, and visualizations allow to us to experience the predicted past appearance of a site (Ch’ng 2009; Dunn and Woolford 2012). In this way, archaeologists may use multiple strands of evidence to flesh out past environments in which to embed imagined human agents. Not only can an analogical approach be applied, but reconstructions, visualizations, and experimentation can be used, and statistical approaches applied to human group reactions.

For archaeologists whose goal is to understand past experience, naturalized phenomenology offers a framework for such a discourse. The point is that archaeologists need a transparent theoretical foundation to achieve these goals. Further, archaeologists should state clearly when they employ a phenomenological paradigm. Only then can a strongly theorized phenomenology in archaeology be formulated, strengthening arguments about past human experience. However, a phenomenology in archaeology will necessarily be a weak version because we are not able to understand everything about past human experience. A major tenet of such a phenomenological approach is a decipherment regarding what can be inferred and what cannot. But, here I argue that archaeologists are able to gain a rough experiential understanding of the past and at the same time avoid methodological individualism. Further, archaeologists are able to prevent totalizing of past people through the use of statistical evaluations of quantitative studies concerned with aspects of human experience. The more archaeologists know about human experience the better and more specific interpretations of the past will become.

The first chapter of this thesis focuses on the fundamentals of phenomenology as applicable to archaeological interpretation. In the second chapter I discuss the phenomenological literature for archaeology and relevant critiques of phenomenology in archaeology. An overview about analogy in archaeological interpretation is given in the third chapter, and a phenomenological interpretation in archaeology is framed as a special kind of archaeological analogy. In Chapter 4 I will discuss the potential of ToM to support phenomenological interpretations of the past. In the last chapter I will introduce a synthesis and expansion of different methodologies to improve the rigor of phenomenological interpretations of past human experience.

Chapter 1

Phenomenology

This chapter deals with phenomenology. First, phenomenology is defined. Introspection is established as a stepping stone to better understand phenomenology. Husserlian phenomenology is introduced followed by Heideggerian phenomenology. Finally, the relevance of phenomenology in understanding human past from the archaeological record is sketched.

Phenomenology studies phenomena as the basis of human experience of the world and the objects within that world (Stanford Encyclopedia of Philosophy 2003). The term “phenomenon” refers to the appearance of things and not to their physical or chemical composition (Husserl 1991: 2). Phenomena can be objects such as pyramids, temples, or monuments as they appear, or more complex experiences such as life goals, and the personal life history of an individual (Heidegger 2008).

The goal of phenomenology is to describe how people perceive and experience the world and to identify common features of human experience. Phenomenology is concerned with processes of the mind and not directly with the physical world, bearing in mind that our mental experience of the world is connected with our bodily experience (Merleau-Ponty 1962). Husserl and Heidegger can be both read as either realist or idealist (Holmes 1975: 98; Blattner 1994: 193; Ameriks 1977: 501; Glazebrook 2001: 376). Phenomenology based in realism is better suited for archaeological inquiry because archaeological research is concerned with material culture.

Phenomenology uses the method of self-understanding similar to Descartes who uses self-meditation as the basis for his philosophical thought. For him self-analysis or meditation can lead to the formation of correct beliefs if the right process of inference is applied. The process for correct self-analysis is for Descartes connected with the ‘I’ or self-awareness:

Well, then, what am I? A thing that thinks. What is that? A thing that doubts, understands, affirms, denies, wants, refuses, and also imagines and senses. That is a long list of attributes for me to have—and it really is I who have them all. Why should it not be? Isn’t it one and the same ‘I’ who now doubts almost everything, understands some things, affirms this one thing [...] But the ‘I’ who imagines is also this same ‘I’. For even if (as I am pretending) none of the things that I imagine really exist, I really do imagine them, and this is part of my thinking. Lastly, it is also this same ‘I’ who senses or is aware of bodily things seemingly through the senses. Because I may be dreaming, I can’t say for sure that I now see the flames, hear the wood crackling, and feel the heat of the fire; but I certainly seem to see, to hear, and to be warmed (Descartes 1996: 10).

This means even if an external world does not exist, the process of thinking would still be real because we are aware of the fact that we think. For Descartes this self-cogitation is the only way of attaining knowledge about the world because every other source can be doubted. This is important because the focus is shifted to the question how humans perceive the world and not so much on the physical world itself. Furthermore, when phenomenology is used to recreate the experience of past people through archaeology, this kind of self-analysis is typically the methodological basis, using the archaeologist’s own experience to build an analogy for past peoples’ experience.

There is a debate within philosophical phenomenology about reading Husserl and Heidegger in rather realist or idealist terms. Some argue that some statements of Husserl suggest that he was indeed idealist (Ameriks 1977: 499). Ameriks argues that this is not necessarily true because Husserlian phenomenology assumes the existence of a physical world (1977: 502). In the case of Heideggerian phenomenology idealist and a realist readings are also possible (Blattner 1994: 186). The realist reading suggests that Heidegger's conception of *Dasein* requires the existence of a world (Glazebrook 2001). It is necessary to accept a realist interpretation of both Husserl and Heidegger in what follows, consistent with the naturalized approach to phenomenology.

1.1 Introspection

Introspection emerged in the same period as phenomenology, and is helpful to begin with because it is simpler and more straightforward than phenomenology. The term "introspection" is associated with Wilhelm Wundt, the founder of psychology who established the Institute for Experimental Psychology in Leipzig (Danziger 1980).

The concept of introspection developed in early psychology Wilhelm Wundt divided introspection into two separate concepts. Wundt tried to establish self-observation as scientific under the right conditions. He achieved rigorous self-observation through training multiple subjects under controlled conditions to ensure stable results. Inner perception for Wundt was not scientific and he equated this part of introspection with the realm of fairy tales. It is important to clarify which specific kind of introspection is meant when using the term introspection. Only by clearly differentiating between internal perception and self-observation it is possible to prevent mixing mere storytelling with rigorous methodology. According to Danziger:

The basis for Wundt's initial discussion of the problem of introspection is provided by his insistence on the distinction between "self-observation" (Selbstbeobachtung) and "internal perception" (Innere Wahrnehmung)." Unfortunately, English language references to Wundt's position almost invariably fail to reproduce this distinction and use only the single term "introspection" to cover both concepts indiscriminately. This not only makes it difficult to understand the nature of Wundt's contribution to the problem of introspection, it also leads to the appearance of extraordinary inconsistency [...] (1980: 245).

The claim that introspection is scientific is important when discussing phenomenology especially in connection with archaeology (Danziger 1980). Wundt is transforming the Cartesian conception of self-analysis which solely rests on inner experience into an endeavor which can be correlated with external stimuli (Danziger 1980). This serves especially well in psychology in which the reaction of individuals to various stimuli is an important part of inquiry. Wundt's approach is problematic for archaeology because past people cannot be tested directly and self-observation cannot be correlated easily with external stimuli. Archaeologists need to develop other approaches anchoring past human experiences with empirical data. Such an archaeological method of introspection should consider the special situation of archaeological inquiry, which has to bridge large temporal gaps between recent and past experience. This is because we can

only use our experience to approximate past human experience. A phenomenological approach in archaeology can increase methodological rigor through psychology and the cognitive sciences.

Husserl and Heidegger are very influential in the development of phenomenology (Dowling 2007). Heidegger started as the student of Husserl and later developed his own type of phenomenology. While Husserl and Heidegger are situated in the social context of the late 19th and 20th century, Heidegger's thought developed through the mid-20th century.¹

1.2 Husserl

Husserl published 5 books and some 20 essays through his academic life which made him a respected figure in academia and among colleagues during his active time in academe. He also wrote a massive number of mediations and notes that were not initially published, and also gave a number of lectures which were later published (Husserl 1991: foreword).

Husserl's main method of conducting phenomenological analysis starts out with a form of introspection which goes back to Descartes and Wundt, though Husserl did not use or condone the term. Husserl terms his approach 'phenomenological' reduction or 'bracketing' (Husserl 1983: 36). Phenomenological reductions allow us to treat phenomena as objects of reflective analysis following an experience so that we may analyze the constituent parts of the experience (Husserl 1977: 18). Reductions and bracketing are further developed and complicated by Husserl. Even though, Husserl begins with meditations similar to Descartes. He further develops and theorizes phenomenological thought. Bracketing makes a phenomenon available to a holistic understanding of experience. We can understand the feelings and attitudes but also the world surrounding human experience. The focus of his analysis is to interrogate how individuals' analyze their own experience. This analysis forms the basis to gain a deeper understanding of human experience and in consequence to find general structures shaping experience. The Phenomenological reductions and bracketing are central to Husserl's methodology to investigate human experience.

The main focus to understand phenomena is everyday experience, which is antecedent to all philosophy or theory (Husserl 1983: 50). The everyday mode of experience includes a sense of self which is presupposed by individuals as well as an understanding, that the world exists and that the world we know is based on what our senses tell us. However, the everyday mode of experience also contains a sense of overall

¹ Heidegger is controversial because of his background in Nazi ideology beginning in the 1930s. The claim that Heidegger revoked Husserl's access to the library seems to be a long living myth (Thomson 2007: 33). As Farias describes there were close links between Fischer and Heidegger in form of a long lasting friendship. Fischer was the director of the institute of racial purity which was involved in many of the Nazi atrocities (Farias 1991: 70). Heidegger never ended the connections between himself and the Nazi system. Heidegger was active at his university in organizing a Nazi student organization which put him in conflict with the leading party ideology (Farias 1991: 5). The publication of *the black notebooks* suggests that Heidegger's work was indeed influenced by Nazi ideology. *The black notebooks* are Heidegger's personal notebooks containing his thoughts and observations. Heidegger's involvement in Nazism was complicated and does not support a general dismissal of Heidegger's intellectual work as Nazi propaganda per se.

time which is perceived as a constant stream in the background (Husserl 1991). The everyday perception also includes a basic sense of spatial directions and extension. This mode of human perception is frames and informs our experience of a given phenomenon at a given time.

Husserl analyses the perception of single objects or tones. In Husserl's thinking the world can be build up through the sum of all those small-scale perceptions. For Husserl perceptions are modified by humans in specific ways. These modifications happen when memories are fading into the past. People can also recreate past experiences through enacting them in the present.

Husserl tries to analyze human perception as formally as possible (which is probably due to his initial training as mathematician). As Husserl switched from mathematics to philosophy he was troubled by the situation in the field at the time which he thought was not scientific enough (Husserl 1991; Foreword). This is the foundation of his basic motivation to find generalizable and testable law-like structures in human perception (Husserl 1991: 371). Phenomena are connected with a sense of self which is termed by Husserl as 'transcendental ego'. Some of the phenomena we experience such as for example a coffee cup are based on perception. The stimuli are transformed into mental representations which can represent objects in the physical environment. Each phenomenon has its own temporal duration which it occupies within time which serves as a temporal container for the phenomenon. To exemplify Husserl's approach let's use this excerpt:

[...] I am conscious of the first time-point of the tone's duration in the mode of the now. The tone is given; that is, I am conscious of it as now. But I am conscious of it as now "as long as" any of its phases is intended as now. However, if any temporal phase (corresponding to a time-point of the tone-duration) is an actually present now (with the exception of the initial phase), then I am conscious of continuity of phases as "immediately past" and of the whole extent of the temporal duration from the beginning-point up to the now-point as elapsed. [...] (1991: 26).

In this excerpt Husserl is arguing that we do not hear one melody but rather a sequence of different tones. Our ability to remember allows us to construct a melody out of the different tones. This illustrates that Husserl is focused on single relatively short perceptions instead of longer ones. This approach is employed at many places throughout Husserl's text. In the Husserlian approach it's as if individuals perceive little snapshots of the world which are treated and modified snapshot by snapshot. We do not need to focus our analysis on whole objects or events but can also consider small parts of the objects or events during phenomenological analysis. In everyday situations we experience the world and phenomena within as a whole. The snapshot idea to understand the human experience is part of the deeper structure governing experience.

Husserlian phenomenology also suggests that memory and imagination are important aspects of the human experience (1991: 34). Memory is more than pure perception; it includes additional knowledge about past personal experiences which can be accessed in the present to inform our current experience (Husserl 1991: 59). A

musician listening to a piece of music for example might have memories of a similar tune he experienced. A musician is in many cases able to make assumptions about the tones which were not already played (Husserl 1991: 54).

1.3 Heidegger

Heidegger was a student of Husserl who extended and problematized Husserl's phenomenology. Whereas Husserl was focused on individual experienced objects such as perceptions of trees, houses, and coffee cups, Heidegger was concerned with structures at broader temporal and spatial scales. Heidegger developed an approach to phenomenology which is geared towards the whole of a human life span, and the historical situatedness of individuals (Heidegger 2008). Death is important in Heidegger's phenomenology because an individual's awareness of her own end can be crystallization point of discovering one's life goals and the opportunity for achieving them. The realization of the finiteness of our existence can be a reminder for us to discover our real self's. This means that we are usually part of our society and culture which prevents us from ultimately reflecting our possibilities and choices in life. We tend to do things because we think we are supposed to do them because it seems to be the proper thing to do. The historicity of an individual is important because people have a background which then shapes the opportunities, beliefs, desires and goals a person has in specific contexts.

Heidegger distinguishes two modes of being: "authentic" and the "inauthentic" (Heidegger 2008). The inauthentic form of being is characterized by lostness in the *man-selbst* or 'they' (Heidegger 2008: 387). In this instance one is predominantly concerned with immediate activities of the daily routine such as one knows he must pick up his children from school and then he must go to work etc. (Heidegger 2008). Even more involved decisions such as deciding to study towards a degree can be inauthentic because the individual might not be aware of the broader implications and possibilities such a decision should involve in regards to individual life goals. In the inauthentic mode of *Dasein* the full potential and opportunities are closed off. This leads to a more shallow form of *Being*. In authentic being one is aware of greater goals in one's life, rather in the inauthentic mode where one simply does what is required by others or by necessities. In archaeology phenomenology is reduced to those parts which are deemed interesting by archaeologists losing the deeper aspects of phenomenological thought. The *man-selbst* or 'they' is important in connection with the "authentic" and "inauthentic" forms of being because it denotes what we ought to do and we are supposed to do in different social contexts. We can lose ourselves in the social world which diverts us from our true self. This is called by Heidegger 'lostness'.

Everything in the world has a special kind of being. A stone for example is not the same kind of active agent as a dog. Animals have a different form of being than the stone because animals actively do things in the world through their behavior and intentionality. Humans are different from animals because humans are interested in the world in a way animals are not. People have goals and moods that a dog cannot access. *Dasein* is Heidegger's term encapsulating the special kind of *Being* humans have in relation to the world (Heidegger 2008: 78). This active quality of human experience is identified by Heidegger as the care structure.

We are limited in our possibilities by our past. There are two types of personal history. One is the individual life history comprising our past decision and family history (Heidegger 2008: 426,430,434). This encompasses our education, skills, and assumptions of the world we share with our relatives. The second meaning of historicity consists of social class, nationality, and cultural background of the large group of people or nation we belong to (Heidegger 2008: 436). Historicity is different from academic history which was concerned with dates of events and important personalities (Heidegger 2008: 431). Memory is also important for Heideggerian phenomenology because for personal history to be effective in the present we need to be able to remember (2008: 434). This is important for archaeological interpretation because individuals in the past were similarly restricted in their choices by their historical context.

Our personal history and the history of our country or culture ‘throw’ us in a sense into the world. We understand our world through history and the role each of us incarnates in his world. There is a sense of direction in our life which originates in personal history. We are pushed toward certain possibilities (Heidegger 2008: 434). The notion of history as fundamental to the human experience opens Heideggerian phenomenology to broader cultural influences on our experience of the world (Heidegger 2008: 424). This is important to archaeologists because the material remains we find were imbued with meaning.

Heidegger’s phenomenology of space focuses on meaningful locations or regions relative to *Dasein*’s concerns and projects. A computer for example rests on the desk because that area is our home office. The lake is located in the recreation area which we use to relax. This kind of “existential space” is meaningful because phenomenological space is defined in terms of being for something. This is different from mere physical space consisting of measurements, which are simply there but are not meaningfully connected to human experience. Our default mode of experiencing space is in terms of the meaning a certain space offers us. Space, as defined by measurements is secondary and related to certain specialized contexts such as performing scientific work, complying with government regulations (Heidegger 2008: 114). Archaeologists turned to phenomenology in order to prevent the interpretation of the archaeological record to become a collection of measurements disconnected from human experience.

In Heideggerian phenomenology there is no pure perception because we are concerned with our lives (2008: 225). We care for example about driving an electric vehicle to demonstrate our care for the environment. We use tools to achieve what we care for (Heidegger 2008: 97). If I want for example to repair the old door of the shed, I use a screw driver to fix the hinges on the door. Not only tools are useful in our lives but also other people. This is because we live in a social world in which we are dependent on other individuals. For example, if somebody notices that he forgot to buy eggs needed to make a cake for his wife’s birthday he might decide to ask the neighbor for some eggs.

1.4 Phenomenology in archaeology

Archaeologists are intrigued by Heidegger’s ideas about human experience as a process of creating meaning. His conception that human experience is connected to individual life history and to a larger sense of belonging to a social group is deemed

important to understand the archaeological record phenomenologically. Heidegger's ideas about spatiality in terms of meaningful space as opposed to measured space resonate with archaeologists. The idea here is that we experience space in terms of personal meaning attached to a specific space. Many archaeologists like the idea of a connection between mind and body as presented in phenomenological thought (Tilley 1994: 1-34; Thomas 2006).

Husserlian phenomenology is largely ignored by archaeologists even though his approach bears potential for archaeological interpretation because Husserl's idea of general structures of human experience could help to understand past human experience from the archaeological record. Husserl's examples reference physical objects which correlate with the experience of the archaeologist who is confronted with material remains. This connection to the material and the potential for general structures underlying human experience could be tested experimentally.

One of the most recent advances in phenomenology is a naturalized phenomenology (Yoshimi 2016: 287) that builds on a realist concept of the world as physically present. This is the view that natural science offers us the best theory of the world we have, and that we should use its method to pursue truth. It is related with other philosophical views, such as positivism, empiricism and physicalism, which remain separate concepts. Naturalized phenomenology is an approach that eliminates the anti-natural part of phenomenology and integrates phenomenology into the natural sciences, the cognitive sciences in particular.

An interdisciplinary methodology for a naturalized phenomenology assumes equal importance for every discipline involved. This means developments in cognitive science, psychology, and phenomenology lead to revision in the other fields (Yoshimi 2016: 294). Naturalized phenomenology supports the use of personal experience in archaeological interpretation. Further, it suggests that human experience can be studied under an empiricist paradigm. This connects with Wundt's careful methodology of introspection as a way to understand human psychology (Danziger 1980).

In archaeology experimentation is possible through experimental archaeology and through connection with psychology and the cognitive sciences. This is important because data can be acquired which could help to investigate if there are potential similarities in shaping human experience. Further, there are fundamental basics of human experience through physics and common human biology which are based in the physical world.

Human biology and physical processes are connected to the body which forms the nexus of human experience. Biology describes the composition and limitations of our very bodies while physical processes act on our body such as for example gravity. The body is important for a naturalized phenomenology because only our bodies enable us to interact with the physical world.

Chapte 2

Phenomenology in Archaeology

Contemporary archaeologists draw mainly on Heidegger as a source for phenomenological theory. Phenomenology in archaeology is primarily employed in landscape archaeology. Here, the focus is on human constructedness of the natural environment. Large monuments such as pyramids, megalithic structures, and mounds are traditionally the object of study within a phenomenological interpretative frame. Archaeologists use phenomenological methods to study the past as embodied in the present. This means that the objective is to understand how past people might have experienced the landscape. Another focus of phenomenology in archaeology is centered on the creation of place which is thought to be embodied and constructed (Tuan 1977; Casey 1996).

Christopher Tilley (2010) is one of the earliest archaeologists to employ phenomenology in archaeology. His first book on the topic was *A Phenomenology of Landscape* published in 1994. In this book Tilley interpreted megalithic period monuments in England by walking through the landscape noting his impressions, which he then assumed to be comparable to what people in the past experienced. Tilley was using his own experience with the landscape to understand the past. To get a feeling for Tilley's phenomenology note this excerpt:

The general outlines and configurations of the chalk down lands are more or less uniform. This effect is 'to create an illusion of infinite distance by the repetition of like forms', giving an illusion of a landscape without limits. However, it is the variation of detail within the general law of the downlands shapes that perennially refreshes the eye. Obedience to this law allows within its folds for a multiform diversity in the patterns of the hills as they pass (2010: 61).

This example illustrates that Tilley is trying to capture the experience of the landscape in almost literary description. Tilley's approach is centered on the recent experience of landscape not the past. The recent experiences are then used to describe the potential experience of people of the Neolithic period. Tilley's description of the landscape is focused on what the landscape suggests to the observer. In this quote distance is identified as the feature that this landscape evokes. Those descriptions are supported by many photographs of the described landscape formations which aim to transport Tilley's experience to the reader.

Julian Thomas (1996) explores phenomenology for archaeologists in a different manner than Tilley. Thomas' phenomenological approach attempts to connect with the archaeological record more than Tilley's. Thomas counters the notion of Cartesianism which assumes a sharp distinction between nature and culture. Thomas argues that Cartesianism is the basis for processual archaeology and that archaeologists have to break free from a Cartesian understanding of the world to be able to capture the experiences of past peoples. In Thomas words:

The principal elements of this perspective are the categorical distinctions which are drawn between mind and body, and culture and nature. Both of this antinomies, I will suggest, are of relatively recent origin, and in their more

developed forms are peculiarities of a western, metaphysical habit of thought (Thomas 1996: 11).

For Thomas, Cartesianism is deeply ingrained in Western thinking and that other cultures in the past did not understand the world on the same terms as those in the present. Therefore, it is not useful for archaeologists to simply use recent thought and experience as a direct analogue to infer past people's experience. To come closer to understanding this experience we have to break with our own pattern of thought to be able to make our experience today more akin to that of the past (Thomas 1996). This is not dissimilar to Collingwood's notion of putting oneself into a historical mode.

Thomas argues that scientific methodology in archaeology introduces ethical problems. Archaeology under a strict empiricist paradigm is focused on formulating general rules of human behavior. Past behavior is complex and diverse which means that the formal rules about past behavior can quickly amount to totalization (Thomas 2000). Further, the role of the archaeologist as an active agent of western knowledge production has to be understood reflexively to avoid colonizing tendencies in archaeological interpretation. Processual approaches to archaeology can lead to the reduction of past life worlds to the material remains (Thomas 2008). Thomas' point is well-taken, but, this polarized view does not account for human regularities and similarities not only in the past but among contemporary peoples as well. While human cultures and individuals do exhibit diversity, there are also many similarities among people cross culturally and in their cultural adaptations.

Andrew Fleming critiques Christopher Tilley in *Phenomenology and the Megaliths of Wales* (1999) claiming Tilley uses his own subjective experience as data. Fleming points to the lack of scientific standards exhibited by Tilley's approach. Fleming especially argues that the megalithic structures of South-West Wales are not as uniform as Tilley describes them since they are altered due to weathering and other processes. Changes based on weathering cause the structures to appear more similar than they are. Therefore, the megalithic architecture is not necessarily intentional or ascribable to a common understanding between the builders of those structures. Fleming further points out that there is differential conservation in play, which leads to a situation in which the structures positioned on the least desirable land are most likely to have survived over time. This makes it difficult to make claims about the builder's goals by using spatial relationships as they are represented by the archaeological evidence.

Aaron Watson and David Keating (1999) expand Tilley's phenomenological approach to include auditory experiences whereas Tilley was focused on visual experience. Watson and Keating argue that Tilley focuses too much on visual experience to the exclusion of other modalities such as audition. They did test at a tomb and a stone circle measuring the acoustic properties of each of the selected locations, and concluded that the stone circle had acoustic properties comparable to a theatre. Furthermore, Watson and Keating combine the acoustic results with the visual impression of the site. They argue that the visual and auditory experience combined makes the stone circle a good place for communal activities. The acoustic data from the intact megalithic tomb structure is very complex, which would have allowed for a multitude of different acoustic experiences for people visiting the tomb.

Vicki Cummings (2000; 2002a; 2002b; Cummings and Watson 2002; Cummings and Whittle 2003) did a series of studies focusing on British and the prehistoric landscapes and monuments. Cummings is involved in digital exploration of past landscapes which are computer based and visual. This departs from Tilley in the sense that for Tilley the individual experience of the researcher is enough and no mediation from technology is needed for the phenomenological process in archaeology. The use of computer reconstructions has some advantages because the possible experience of the monuments can be made accessible to a broader public. Computer reconstructions could be used as the basis for further examination through future generations of researchers. Tilley's discontent with using modern technology discourages its use in archaeological practice. However, Cummings demonstrates that phenomenology can be combined with technology and that computer reconstructions can help researchers to better understand the experience people might have had within a location, landscape, or monument.

Joanna Brück (2005) argues that phenomenology is important because understanding past human experience is central to the archaeological project. However, using the self of the researcher to draw conclusions about the lived experience of the past is problematic in many ways. Tilley for example assumes constancy in landscape which is not congruent with the fact that landscapes change especially through the long-time frames archeologists study. Further, there is the danger of simply projecting our modern sensibilities and culture back into the past. Phenomenology is useful in opening the discipline to modes of interpreting the past which takes into account past experience (Brück 2005).

This is important because the discipline has been traditionally centered along the lines of a scientific paradigm expressing the past in artifact and feature measurements.. Earlier scientifically-centered approaches treated the past as disembodied. But, the body is central to the human experience because humans are not disembodied beings and are physically connected with the world through the body. Moreover, the human body allows for human agency in the world which forms an important dimension of human experience (Brück 2005).

Sue Hamilton et. al (2006) reacts to the critique of the lack of rigor and subjectivity in most phenomenological work in archaeology. Hamilton tries to find a methodology for phenomenology in archaeology that connects it to the archaeological record. To achieve this goal Hamilton includes traditional archaeological frames of interpretation into her phenomenologically based work. The more traditional methods are focused on economy, environmental reconstruction and the analysis of the technology. Hamilton also tries to focus on the everyday rather than the large-scale structures and ritualistic sites to gain a clearer understanding of the daily experience in the past. This approach helps to make the life experience of the average individual visible in the archaeological record. Furthermore, the combination of traditional modes of interpretation and analysis could potentially ameliorate the perceived lack of rigor as for example in Tilley's approach.

Ruth Van Dyke (2007; 2011) uses a phenomenological approach to study the pueblo sites of Chaco Canyon New Mexico. Van Dyke argues that intervisibility between sites was one of the most important features of the Chacoan people because of orientation on the arid plateau and that accessibility was regulated through the topography of the

canyon and artificial manipulations which created paths. Through this the movement through Chaco Canyon was only practical on certain routes, which helps to shape a certain experience of the site since the routes are restricting some views while supporting others.

Van Dyke acknowledges that archaeologists cannot simply transport their own experiences in the field to the past because the landscape and pueblos had certain symbolic meaning attached for the Chacoan people. To arrive at a better correlate Van Dyke draws on ethnographic data from the region to get a hint about the symbolic meaning of the landscape and the architecture. This is especially important because interpretations of Chaco canyon are contested. Van Dyke seems to highlight a more rigorous approach including mapping of the area and map-based analysis (2007; 2011).

Christopher Tilley (2008a, 2008b) broadened the geographic scope of his phenomenology in archaeology in the two volumes of *Explorations in Landscape Phenomenology*. These books are focused on prehistoric monuments of Northern Europe. Tilley employs his subjective method of exploring the landscapes and noting the impressions which are connected to this experience and applies those insights to the prehistoric past. Tilley is further developing his type of phenomenological understanding of the past by applying the technique to other areas foremost in northern Europe. It is interesting that although Tilley has expanded the scope of his phenomenology he still does not address the critics of his method effectively. The main difficulties with Tilley's phenomenological archaeology are the lack of rigor is still an issue and he is still bracketing out audio experiences, smell and other sense and is focusing on the visual and spatial arrangements.

In general, criticism leveled at a phenomenological approach is based on the ability of archaeologists to understand the archaeological record without taking reconstructions into account. Critics are also uncomfortable with self reflective methodologies used to infer human experience of people of the past. Yet, there are ways to address these issues. First, reconstructions and experimentation can help to better understand the human past based on modern experience of the archaeological record. Second, Merleau-Ponty's (1962) phenomenology, suggests that we can safely infer human experience if it is grounded in environmental or material cultures. This adds constraint to our understanding of past human experience.

Chapter 3

Analogy in Archaeology

The use of analogy is central to archaeological interpretations. Analogies allow archaeologists to infer past people's behavior as revealed in the archaeological record. This is because material remains in themselves do not contain enough information to determine complex human behavior such as the development and enforcement of hierarchies and social institutions over time (Chapman 2003; Taylor 1874; Boas 1982). Analogies connect observable or described behaviors with people of the past. For instance, they may be used to infer on conflict, building activities, or the function of objects (Arkush and Stanish 2005; McIntosh 1974; Talalay 1987; Friesen 2002; Brown 2004; Berrocal 2011; Bernadini 1999)

Analogies require a target, a source and a connection between both. The source of the analogy is based on a human group that is either documented historically or ethnographically. In some cases the source of an analogy can be an existing human group which can be studied by researchers directly. Archaeologists bring their own experiences and conceptualizations to archaeological interpretation. The target of an analogy is to understand the archaeological record exceeding the provided data. Alison Wylie (1989) differentiates between two forms of analogy: formal analogies are related to similarities of form, while relational analogs are based on connections between human groups over time and space.

Gould critiqued the use of analogy in archaeology because there are no definite general laws, to infer cultural patterns. In contrast the natural sciences can work with a set of empirical laws which allows researchers to infer processes over time such as is the case in geology. For instance, geologists have a relatively clear understanding of the formation of different sedimentary layers to reconstruct the geological landscape (Gould and Watson 1982).

There are, however, some experiences which seem to be fundamental to the human existence such as the experience that fire is hot or that humans cannot fly. These fundamental similarities of human experience can be the foundation for analogies. Analogy cannot explain the past but can help to understand past human experience. Without some form of analogy it is not possible to interpret the archaeological record meaningfully. This is one reason that analogy has a long tradition in anthropological thought.

In the Americas in the early 20th century the Direct Historical Approach (DHA) became the frame for building analogies for the interpretation of the archaeological past. The assumption for the DHA was that there little of temporal depth in American archaeology. It was stipulated that populations of the past as accessed through the archaeological record can be connected to the ethnographically studied groups of the present time. (Lyman and O'Brien 2001: 308).

Processual archaeologists argued that formal and relational analogies are the basis for hypotheses formation. Hypotheses have to be rigorously tested against the archaeological record for verification or falsification. One of the most well known figures in processual archeology is Lewis Binford (1967) who argued that analogy could be used to direct archaeological inquiry based on the archaeological record. In Binford's understanding analogy can only be usefully employed to contribute new hypothesis for further testing. Binford focuses on one type of analogy based on the form and function of an object. Binford suggested a list of qualities a good analogy should have:

1. The recognition and demonstration of a positive formal analogy between a class of archaeologically observed phenomena and a class of ethnographically observed phenomena.
2. Consideration of the positive analogy between the spatial distribution of the facility as documented archaeologically and ethnographically, and the observation that, although poorly documented, the known distributions show a strong positive analogy.
3. Consideration to the degree of which it would be reasonable to expect a continuity between the archaeologically and ethnographically known cases; for example the dating of the archaeologically known materials as reasonably viewed as cases of historical priority to the ethnographic data (Binford 1967: 9).

The excerpt shows that Binford is mostly interested in formal analogies between ethnographically observed use and production of materials such as tools and the corresponding archaeological remains. More general assumptions about cultural properties and development are not formally recognized in Binford's construction of archaeological analogy. Binford's repeated use of the term "observed" highlights his interest in adopting a scientific methodology for archaeology (Trigger 1989: 394).

Alison Wylie (1989: 12-16) rehabilitated analogy as an integral part of archaeological interpretation against processual critiques. Wylie calls for the use of multiple strands of inference as a way of falsifying analogies, that do not archaeological data, or are not the best fitting explanation, eliminating the need for formal hypothesis testing. This requires a potentially interdisciplinary approach. Further, Wylie suggests that analogies are constrained by the archaeological record itself, and argues that analogies can be at least partially be constrained by empirical evidence. Wylie identifies an effective strategy to defend the use of analogy in archaeology from over generalization, suggesting that analogies should be smaller in scope such as to cover specific types of behavior. Wylie illustrates her concept with the cable and tacking metaphor. The cables stand for a non-linear process of reasoning connecting with different sources such as ethnographic, historic or psychological evidence. Wylie describes her understanding of tacking as follows:

Whatever its specific aims, archaeological interpretation depends on background knowledge of contemporary contexts; usually it proceeds by means of ethnographic analogy. It is therefore explicitly and heavily dependent on vertical tack arguments within the source context (broadly construed) which produce both experience-distant concepts - general theories about cultural development, differentiation, interaction, and adaptation - and experience near models of specific past contexts (Wylie 1989: 11).

This is interesting because Wylie incorporates the concept of generalized analogies of early anthropologists and archaeologists instead of excluding such a notion.

Wylie acknowledges the importance of some general assumptions for archaeological analogies because they are necessary to link documented source behavior to the archaeological record. The main burden of theory testing is focused on the experience near models which can potentially be tested through the archaeological record.

Stahl (1993: 236-237) argues that analogies can be used to fill in the gaps archaeologists experience in connection with the archaeological record. This requires that archaeologists have some sense about applicable analogs for the case in question. He suggests that sources of analogies need to be critically investigated to achieve better quality analogs. Further, he argues that researchers have to be careful in selecting sources for analogs especially when so called traditional societies are involved.

3.1 Experimental Archaeology

Experimental archaeology is a useful technique in order to build experience-near analogies connected to the specificities of the archaeological context. Experimental archaeologists try to replicate as closely as possible the creation of artifacts and the techniques involved in this process. In some cases experimental archaeologists reconstruct whole structures and settlements. They are also interested in the kinds of objects used in the past and in the specific techniques were used in their production.

There are different forms of experimental archaeology. Mathieu (2002: 2) offers a typology of experimental archaeology. He differentiates between “object replication” (Plison 1983; Beyries; 1978; LeMoine 2002; Bienenfeld 1995; d’Erico et al. 1982; Hillson 1992; Cross et al. 2002; Greenfield 2002; Walker 1978), “behavioral replication” (2002: 3; Mathieu and Meyer 2002), “process replication” and “system replication” (2002: 6). Object replication attempts to reproduce past objects. Behavioral reproduction replicates aspects of past behavior. Process replication is concerned with replicating taphonomic processes which shape the archaeological record. System replication involves ethnographic data in order to replicate on the systemic level including large scale social experiments (Mathieu 2002; Ammerman and Cavalli-Sforza 1984 Binford 1977; Flannery 1986). Another category is “phenomenological studies” (Mathieu 2002: 4). Phenomenological studies try to replicate past human experience (Forte and Siliotti 1997; Tilley 1994; Sanders 1990; Watson and Keating 1999; Vranich 2002; Rasmussen and Gronnow 1999).

In *Archaeology of the Senses*, Yannis Hamilakis (2014: 61, 161) tries to understand the experience of humans in the context of burial practices in Bronze Age Greece. The focus is on the sensuality of human experience. Hamilakis uses his personal experiences with the cinema and with food in order to build a sensory analogy for Bronze Age Crete. Hamilakis suggests that the cinematic experience is more than just visual but rather includes the experience of the movie music, and activity of the audience such as laughing or crying. Hamilakis suggests that people in Bronze Age Crete did not only visually experience the burial chamber but that they also interacted with the dead. The place was probably crowded and various odors were part of the experience (2014: 161).

Ultimately archaeologists and also the general public are interested in the meaning past material remains had to past human groups. In order to gain more than a detailed inventory of measurements and use-wear analyses analogy is required. In many

cases ethnographic analogy seems to be a good fit to explain some aspects of the archaeological record because the ethnographic record is fairly extensive covering populations which are potentially close to the past target population either geographically, culturally or temporally (Sanger 1996; Hegmon 2000; Siegel 1990; Atherton 1983). Sometimes historical analogies could work better than ethnographic correlates because of wide temporal range of historical sources that overlap to a certain extent with the archaeological record. Historical sources are in parts well studied and critically analyzed by history as an academic discipline. The advantage is that archaeologists can build on history as a discipline in order to contextualize and understand historical circumstances (Howell and Prevenier 2001).

3.2 Different Strands of Inference

Ethnography and history are not the only possibilities for archaeologists to construct potential analogues. This connection between behavior and material remains can be studied through experimentation (Sheetah 2008; Johnson and Olson 1992; Shennan 2002; Wynn 2009). The advantage of experimental archaeology is that it allows for a controlled situation comparable to laboratory experiments (Schiffer and Skibo 1990; Brandt et al. 1992; Eren and Lycett 2016). In the controlled environment, archaeologists are able to keep surrounding factors constant while some parameters might be changed in order to gain a better understanding of some past behavior.

Experimental archaeology can be extended to encompass more aspects of past people's life world than focusing predominantly on strictly behavioral questions about tool use and production. Experimental archaeology opens up the possibility for testing assumptions about past human experience. For instance, in trying to understand ancient ritual cave use Moyes and her colleagues (2015) studied the impact of darkness on the experience of the supernatural. The experiment featured two conditions, a small room with a window and a small dark room. Participants in both conditions were asked to answer questions concerning odd circumstances or coincidences. In the dark room condition participants were more statistically more likely to identify supernatural causes to explain these events suggesting that darkness influences peoples interpretations. There are further studies concerning the role of darkness in human experience (Boutsikas 2015; Goodison 2015) and studies involving light and shadow (Bosch 2015; Dawson and Levy 2015). These authors achieved similar results indicating intentional use of light and shadow in past structures. Studies in human cognition such as these can have archaeological implications regarding not only how dark space is used, but why dark areas are chosen for particular activities.

3.3 Human Experience as Analogy

Human experience is a special form of analogy. The source of an experiential analogy is human experience which can be used to infer past human experience. Some of the criteria suggested for identifying good analogies might be applied to access human experience as analog. Cultural similarity might for example be established for human experience through experimentation with a diverse population (different sex gender and

age groups). Experimental analogy allows us to experience similar conditions as in the past. Temporal similarity might not be as important to evaluate human experience because some aspects of human experience might be similar enough especially on a basic level. Similarities in space can be explored by experiential studies with participants from different regions of the world. Formal analogies could be translated to human experience in the sense that pithouses were probably warmer than sleeping outside. A dead animal smelled probably as decaying cadavers do today. Judgments about a sensation might be subjective but the experience itself exists. Human experience past and present is mitigated through our bodies and the resulting opportunities and limitations to interact with the world our bodily structure seems to be similar enough to suggest relatedness in experience.

The use of analogy would strengthen the human aspect of archaeological work in two ways. First, the use of analogy allows us to go beyond measurements of artifacts and features and other quantitative descriptors of the archaeological record. Second, the open use of analogy allows for the expertise of the scholar to understand the archaeological material. Our humanity is the common link between humans over time in the sense that all human groups which existed or exist share common features because they are members of the human species which contains a set of behavioral, physiological and psychological features which differentiates humans from other species (Bastian 1868).

Analogy may allow archaeologists to understand more about past people's cognitive/ sensorial experience. Human experience is characterized by behavior and related material remains but also by the feelings, motivations and representations which are all aspects of mental processes. Phenomenology can lead to new forms of analogy based in shared human experience. However, in other cases we understand past human experience through imagination based on shared knowledge or similar experience.

Phenomenological analogies based on human experience will allow us to transcend the innate blanks in the material record. This requires strong analogies which are based on similar context (environment, culture) and in formal similarities of archaeological experiences. Through experimentation we may not only replicate certain behaviors such as tool making but can also replicate the experience.

Chapter 4

Theory of Mind (ToM)

This chapter explores the possibilities Theory of Mind (ToM) offers to bolster archaeological interpretations that seek to understand past human experience. ToM is connected to our human cognitive structure and is part of our social experience of the world (Goldman 2012). ToM seeks to explain the mechanism that allows us to understand other individuals' cognitive/sensorial experience based on their behaviors. The theory helps to justify phenomenological approaches because it offers a path to understand commonalities in human experience based on our mental and biological structure and allows archaeologists to use their own experience to build models (or what may be thought of as analogies) about past human experience. Imagination is important for ToM to be useful for understanding the archaeological record. Under everyday life conditions ToM seems to yield results that help humans operate in social settings (Thomas and Fletcher 2003). This property of human cognition supports a self reflective attitude used by scholars to understand the human past.

In order to understand other individuals we need to infer their mental processes, because behavior can have multiple related states of mind attached to it (Frith and Frith 2005). For example, if somebody is crying it could be related to pain or it might be related to sadness or frustration. Furthermore, someone might cry about something which is not present but is remembered. We have to know something about the processes involved in cognition, which seems to include potential mental states. This means we have to know ourselves first before we are able to understand others. The founding philosophers of phenomenology argue that everyday experiences in the real world allow us to access our own mental processes through personal experience or introspection (Husserl 1982; Heidegger 2008).

ToM is labeled in numerous ways often referred to as "folk psychology." The basic notion is that humans have a basic understanding for other peoples' mental states (Sellars 1956). There are various ideas about the specific mechanisms of theory of mind (ToM). The two main accounts are theory-theory (Fodor 1987; Churchland 1981) and simulation-theory. Theory-theory (Gordon 1986; Heal 1986) suggests that humans generate hypotheses about other peoples' states of mind and then test these hypotheses by observing the behavior of the target in question. The hypothesis is then either rejected or accepted depending on the fit between behavior and hypothesis. In the case a hypothesis is rejected another hypothesis is generated and tested until a satisfactory match between hypothesis and observed behavior is achieved. Theory-theory suggests a structured process connected to ToM.

Simulation-theory on the other hand argues that humans simulate other peoples' mental states through replicating mental process (Goldman 1989). However, this is not a complete account of all the various conceptions which exist to understand ToM. Further, both theory-theory and simulation-theory and other similar accounts will be useful for phenomenological archaeology. This is because ToM suggests that we can infer human thought and feelings of others in order to be able to work on a phenomenology of human experience in the past. Both modes of ToM theory-theory and simulation theory are maximized with increased information, which fits well with archaeological pursuits. Analogically, we expect that the more knowledge an archaeologist has in relation to a respective area of study, the stronger their interpretations of past cognitive/sensorial experiences will be.

It is possible to statistically support the effect of prior knowledge on ToM quality through the use of Bayesian statistics. Bayesian statistics are based on the idea that our current assumptions about the world we hold are informed by prior beliefs and are updated with empirical data. They allow researchers to formalize the effect of prior knowledge on ToM. This is important because it suggests that prior knowledge is able to improve ToM based interpretations of cognitive/ sensorial experience. Bayesian statistics allow us to better theorize and formalize ToM (Poldrack 2011). This allows us to understand how prior knowledge improves the understanding of the archaeologist.

ToM is useful for understanding past human cognitive/sensorial experience from the archaeological record because ToM is part of our evolutionary heritage. ToM is present in a number of non-human primates but is especially well developed in human cognition (Brüne and Brüne-Cohrs 2006). This suggests that ToM works for the human species well enough to be selected for. Otherwise ToM would not have become a prominent feature of the human mind (Trivers 1971). Our understanding of other individual's cognitive/sensorial experience is accurate enough to understand their behavior and motivation.

There is evidence that ToM is important for social relations in complex group organizations based on anatomy (Aiello and Wheeler 1995; Rilling and Insel 1999) and a correlation between neo-cortex and average group size (Dunbar 2003). This suggests that ToM evolved to cope with the challenges of complex social structures as formed by humans (Humphrey 1976). The argument is made that ToM is important for cheater detection in order to stabilize social groups and to ensure that the benefits of social cooperation outweigh its costs (Trivers 1971).

ToM could potentially be connected with brain activity, thereby grounding ToM in human biology (Kramer and Erickson 2007; Haynes and Rees 2006; Just et al. 1999; Smith et al. 2002; Posner 2003, Van Honk et al. 2010, Norman et al. 2006; Saxe 2006; Charlton et al. 2009; Charman et al. 2000). The correlation between ToM and brain function seems strong enough to suggest a connection between the two. This is important because biological evolution requires organic correlates. This supports evolutionary arguments concerning ToM in humans. Further, the correlation between brain activity and ToM suggests that we have a natural imperative to employ ToM, which suggests that it is a way and perhaps the only way for archaeologists to understand past human experience. Biological and psychological research concerning human perception can be useful to further bolster our understanding of human experience. G. T. Buswell (1935) studied the perception of painting of participants. Lucia Vaina et al. (2001) studied brain structures involved in the identification of biological movements.

Douglas Frye (1995) suggests that characteristic difficulties of young children in ToM tasks could be best explained by a theory-theory based mechanism of ToM in humans. This means that ToM might be rule based and methodological which connects with archaeological reasoning and interpretation. Further, experimentation in this direction may allow us to formulate some of the rules which are part of ToM. This would enable archaeologists to self-reflectively understand the processes which lead to their understanding of the past. Archaeologists have to draw on other disciplines such as the cognitive sciences and psychology to understand the possibilities and difficulties of ToM in regards to inferring past human experience.

Interpretations of past people's cognitive states can be improved by archaeological knowledge and training, leading to increasingly better estimates over time. Studies concerning the improvement of ToM abilities in children for educational purposes indicate that ToM can be trained (Kloo and Perner 2008). The ever growing amount of archaeological data can also be part of prior knowledge as captured in the Bayesian statistics (Poldrack 2011; Gopnik and Wellman 2012). This would mean that a growing amount of archaeological data would eventually decrease error in ToM applied to the archaeological record so that self-reflectivity of the archaeologist in the field concerning prior knowledge can be used to improve the quality of our understanding of the past. Therefore, ToM suggests that we can understand other people's cognitive/sensorial experience to a certain degree. This means that Tilley's approach of inferring past experience is viable but needs to be bolstered by reconstruction and experimentation (Reindel 2009, Bruno et al. 2010, Ducke et al. 2011, Forte et al. 2012; Siart et al. 2008; Alexakis et al. 2011; Tarasov et al. 2006; Schoeninger and Moore 1992).

Through ToM archaeology can take part in a larger phenomenological endeavor of understanding the human experience connecting archaeology more strongly with anthropology and the humanities in general. ToM brings back a certain control of archaeological interpretation to the archaeologist instead of placing too much emphasis on computers, modern measurement equipment and the archaeological record. This does not mean that modern technologies and the archaeological record are not of utmost importance, but rather that emphasizing technology and materiality over the cognitive aspects of the archaeological past needs to be nuanced.

ToM suggests that humans are able to understand other peoples experience through inferring on human behavior (Dunn 2000) and may be extended to infer the experience of people in the past. This does not mean that ToM leads always to a true understanding of human experience but often enough because it is an adaptive part of human consciousness (Thomas and Fletcher 2003). Further, our ability to understand other individuals can be trained and improves through practice and accumulation knowledge about human behavior (Goldstein and Winner 2012).

Chapter 5
The Importance of Phenomenology in
Archaeology

Without interpretative paradigms archaeologists are very limited in explaining broader individual and cultural implications suggested by the archaeological record. There is a plethora of different interpretational frames for interpreting archaeological data (Trigger 1989; Bird and O'Connell 2012; LaMotta 2012; Renfrew 2012; Thomas 2012; Hamilakis 2014; Tilley 1994; Johnsen and Olsen 1992; Gillings 2012; Wheatley 1995) that try to gain insights into the experience of past peoples by reconstructing past life worlds. Processual and post-processual archaeologies allow us to understand some aspects of human experience. The problem with processual approaches is that a strictly scientific approach is too restrictive for understanding experience. Post-processual schools on the other hand deny similarities in human experience which is necessary to infer past human life worlds meaningfully.

Archaeologists need phenomenological frameworks to understand past human experience. Currently, no algorithm is capable of understanding human experience in the past. It seems likely that humans are the best approximations for past human populations because of their shared humanity. Since its inception, phenomenology has been critiqued, revised, and proposed under different schools of thought such as “sensory” archaeology.

Inventing new names for essentially phenomenological archaeology will lead the archaeological project astray from the humane quality which is common to all of humanity which also encompasses past human groups.

The appeal of phenomenology in archaeology is that it allows archaeologists to stay connected with qualities shared by humans. This inhibits a formulaic approach to archaeological interpretation. Archaeology can contribute to questions about what exactly makes humans human and about the human experience, allowing archaeologists to reach a more holistic understanding of the past. Experiences of past peoples can be understood which allows for insights into their motivations, feelings, goals and limitations. That is important because holism is a central part of the anthropological enterprise (Bubandt and Otto 2010). Archaeology as part of anthropology should be able to contribute to the broader spectrum of anthropological work. Otherwise past life worlds are reduced to what can be inferred directly through the material remains such as studies of subsistence, modes of production and technology (Bright et al. 2002; Borrero and Franco 1997). This implies that human experience and human intentions are not relevant to archaeological research.

The basic properties of the world can help archaeologists to understand the experience of people in the past. The basic laws of physics have not changed, for example. An individual in the past would have had a similar basic experience of his mass, and would also experience falling when stumbling over a rock. Further, it is safe to assume that fire radiates heat and that this was true in the past as well as it is true for the present. Past humans who experienced fire should have had a similar basic heat experience when near a fire, which affects human behavior. The human body is a physical object in itself and shapes the possibilities humans have concerning their life world. The body is the center of human interaction with the world and affords certain movements and manipulations while others are not possible or discouraged (Merleau-Ponty 1962). He suggests that the human body is the center of our experience because we interact with the world through our bodies and Husserlian phenomenology suggests that there are certain structures of human experience which could potentially be generalized

(Varela et al. 2017). Human anatomy has remained basically similar over time (with phenotypic changes), which offers the possibility that we share at least some of the basic commonalities of bodily experience (Klein 1995). Humans past and present might not be as different as post-processual thought assumes. This allows researchers to infer past human interactions with the world because human anatomy allows for certain movements but not others (Withagen et al. 2012). For example, experimental archaeology can be used to test if a door was actually high enough for people to pass through. Human experience is only meaningful through the nexus of the body oriented in space and time. I would argue that phenomenology in archaeology as practiced by Tilley (1994) goes too far in rejecting processual archaeology. An understanding of past human experience should be constrained by the archaeological record in order to create a better field for understanding humans embedded in their life worlds. Further, the connection between past and present human experience as assumed by Tilley would become stronger through better reconstruction of contexts through processual techniques among others.

Experiential archaeology requires some extensions to conceptions of philosophical phenomenology. First phenomenology in archaeology is concerned with deep time. Husserlian phenomenology deals with the individual human life span and his examples are often even more temporally limited. Heideggerian phenomenology is also focused on the individual human time span. However, the concept of historicity connects individual human experience to larger historical frame. Second phenomenology in archaeology has to incorporate archaeological data as the basis for interpretation. This means that an archaeological phenomenology is rooted in philosophical phenomenology but is not the same. This means that archaeologists have to be careful in using concepts of philosophical phenomenology because some of them might not be accessible to archaeological research. For example Heidegger's ideas of authenticity are difficult to infer from the archaeological record. (Brück 2005).

Phenomenological archaeology can be bolstered by experimental archaeology, because experimental archaeology can help to link behavior to the material record and it is even possible in experimentation to gain insights into experience. Archeological experiments do not have to be extremely complex in order to produce phenomenological knowledge. Consider for example March and his colleagues' (2014) experiment in which different forms of campfires were built in a place, which reassembles as closely as possible that found in the archaeological record. Experimental archaeologists should be able to experience some of the basic qualities related to the different forms of campfires. Some of the campfires for example might be brighter or dimmer or warmer or colder. Moreover, such basic phenomenological observations should yield relatively exact approximations of past peoples' experiences with such campfires (March et al. 2014).

Cognitive science can help archaeologists to better understand the similarities in human experience. Whereas post-processual archaeologists tend to focus too much on the differences of human experience, cognitive science is able to tie some aspects of human experience to brain functions. Emerson et al. (2014) connects pain sensitivity to certain brain regions. Kawabata and Zeki (2004). suggest that through MRI imaging it is possible to identify brain regions with higher activity in participants viewing paintings which the participants categorize as beautiful. As the phenomenologist's argue, humans' possess some distinct qualities which constitute their humanity. Bastian (1868) uses the term

Humane to describe the uniqueness of the human experience which is fundamental to the human life world. The human life world is in some aspects different from the animal life world in many cases not in quality but in quantity. For example, humans are much more invested in symbol systems than other animals.

Through phenomenology archaeology can work with cognitive science (Coolidge 2014) and psychology (Ingold 1998) in order to better understand the processes underlying human experience. To create experiential analogs with the past, ToM suggests that it is possible for humans to read other minds and infer intentions, though accuracy often depends on cultural and individual knowledge. This suggests that it is possible to use a reflexivity that is contextualized and bolstered by archaeological data.

Human experience allows archaeologists to combine archaeological traditions such as the use of analogy with specific knowledge and insights that archaeologists obtain concerning their respective areas of expertise combined with insights from other disciplines (Tilley 1994). Phenomenology in archaeology is an effective pathway to understanding past people's experiences, which makes it irreplaceable. With a phenomenological understanding of the past, archaeology as a discipline can become meaningful for scholars and the general public alike. However, a properly theorized synthesis of existing methodologies is necessary.

I suggest a synthesis and extension of prior methodologies I term the *sensory-experiential method*. This methodology adopts the concept of a naturalized phenomenology (Yoshimi 2016: 287). This approach suggests the use of scientific methodology to test phenomenological concepts through experimentation. In archaeology this can be done through experimental archaeology and reconstruction. Further, ToM can be tested scientifically by brain imaging and cognitive studies (Charlton et al. 2009; Charman et al. 2000). Archaeological interpretations cannot be fully scientific but this is the most effective route for implementing a naturalized phenomenology in archaeology.

The *sensory-experiential method* is designed to set phenomenology in archaeology on a sounder theoretical basis. The approach is interdisciplinary to combine different strands of inference into one narrative of past experience. The goal is to reinvigorate phenomenology in archaeology as an opportunity to understand past human experience through the material record.

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