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The Experimenter's Body: Movement as an Artifact

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This paper summarises a part of the discussions carried out in the author's MA in Archaeology at the Federal University of Rio de Janeiro - Brazil. Starting from the question "when the only thing we have is the archaeologist's body, how can we do archaeology?" We propose to engage with methodologies and theories from the field of Dance to analyse the experimenter's body in experimental archaeology research. Body Techniques (Mauss, 1973) and extra-daily body technique (Barba, 1995) are key concepts for understanding the idea of artifactual movement proposed in this research. As a result, we are proposing a trans-

disciplinary methodology to work with the body movement from an archaeological perspective, using Rudolf Laban's Choreology and Helenita Sá Earp's Fundamentals of Dance Theory.

Introduction

Everything started with the question "when the only thing we have is the archaeologist's body, how can we do archaeology?". To try to answer this puzzle, we propose a trans-disciplinary dialogue between the academic fields of Archaeology and Dance to develop a methodology of body movement analysis from an archaeological perspective. After investigating several sub-areas of archaeology to support this research, we chose to work with experimental archaeology because of the significant role of the experimenter and the new perspectives that evolved since the first decade of 2000s (Mathieu, 2002; Paardekooper, 2004; Kelterborn, 2005; Tichý, 2005; Schmidt, 2005; Mathieu, 2005; Outram, 2005). It is hoped that this research can bring some interesting and refreshing thoughts regarding the importance and uses of body and movement in Archaeology.

Experimentation in Archaeology

Experimentation has been part of archaeology since the beginning of the consolidation of the discipline and we can find several articles that use some kind of experimentation in the early 19th century. Coles (1979) points us to some famous researchers such as Nilsson (1838), Evans (1860), Lubbock and Steenstrup (1867), Pitt-Rivers (1869) and others. Lewis-Johnson et al. (1978) presents several pieces of archaeological research with experiments in the area of lithic materials developed from the 19th century to 1976. Moreno De Sousa et al. (2020) argues that it was only in the 1960s that archaeologists began to seek scientific approaches to experimentation and highlights the work of Asher (1961), Semenov (1964) and Coles (1965), who proposed, as an objective of experimentation, the production of replicas of the studied artifacts. Having those works as references, we can observe how the development of the thought of experimentation in archaeology had a great focus on technological research.

In 1979 John Coles published the book "Experimental Archaeology" which is organized into 3 sections (Food production, heavy industry, and light industry) the author argues that the pathway problem, idea, procedure, result and evaluation, commonly applied in a scientific experiment, does not entirely fit into the field of archaeology due to the impossibility of accurately evaluating the results of an experiment that relies on ancestral and undocumented information. Thus, he proposed eight basic rules to guide the experiments: 1) Choice of material being something available to the investigated society; 2) The methods must not exceed what the investigated society is thought to use; 3) Modern technologies should be avoided and if used they should be signposted; 4) There must be clarity about the scope of experimentation; 5) The experiment must be repeatable; 6) Improvisation must be considered and documented; 7) The results must be understood as advisory suggestions, as

experimental archaeology demonstrates but does not prove; 8) Positive or negative information, errors and mistakes must be reported. Those rules are still followed today, by many researchers and this book is a reference. But, once again, it is observed that these rules are focussed on technological research.

In Reynolds (1999) "The nature of experiment in archaeology" a proposal was made for the division of experiments into five large areas: 1) Construction: to build in a 1:1 scale and three-dimensionally the objects studied; 2) Process and function: seeking to examine how things were produced; 3) Simulation: projection to return to the initial state of the object; 4) Probability: the combination of construction with simulation, aims to explore the probable potential of the product produced by the experiment; and 5) Technical innovation: development of new equipment and technologies that assist in archaeological investigation. Reynolds (1999) assumed the idea that the experiment must be connected with the scientific methodology thus, in his perspective, to conduct an experiment correctly the most important factor is to discard the human element because of the subjectivity of the human body and human experience that cannot be scientifically measured and controlled. Here we observe the dichotomic place where technology, from a scientific perspective, and the body, as the most human element, are located. The relation between experiment and experience or body and technology is constructed in a dialectical way.

Experimental Archaeology and the puzzle of the experimenter's body

In the 2000s, researchers from the experimental archaeology field began to direct their attention not only to the technical issues of material production and artifact but also to "find out more about the people behind these artifacts" (Paardekooper, 2019, p.2) and to the enrichment of archaeological interpretations (Mathieu, 2002).

> *(...) the focus changed from a purely technical approach to testing a hypothesis by constructing a hands-on immersive comparison with the past. One cannot do experimental archaeology merely as a desk study. Learning an ancient technique from a book or video covers only a few aspects; when one experiences it in reality, this involves all senses, it requires agility and one gets an understanding of space, form and material*
>
> (Paardekooper, 2019, p.2)

In the 2005 edition of the journal *euroREA: (Re)construction and Experiment in Archaeology*, now EXARC Journal, several articles were dedicated to exploring methodologies and practices in Experimental Archaeology (Paardekooper, 2004; Kelterborn, 2005; Tichý, 2005; Schmidt, 2005; Mathieu, 2005; Outram, 2005). We observed three common themes pointed out in these works: 1) Importance of the purpose of the experiment (What are you looking for when carrying out the experiment?); 2) A clear description of the different aspects of the

experiment (What went right? What went wrong? What materials were used?); and 3) Efficient presentation of the data found through graphs and tables.

But what calls our attention in those articles is the discussion about body experience. Even while staying connected with a technological and technical perspective, totally based within material culture and scientific methodology, we observe that the body cannot be removed from the experiment for some researchers, and the main question that is bothersome is "how not to do it?". Tichý (2005, 115) goes more deeply into the problem when asking "*Do we know anything about the working times and physical performance of ancient people? The main problem is the experimenter – a modern person with different experiences, motivation, beliefs and physical condition*.". Outram (2005) even points out that finding a possible answer to the hypothesis raised through the experiment is as important as the experiences that the researcher has accumulated throughout the process. Here the experimenter becomes key to better understanding the experiment.

> *One thing that tends to be missing from a scientific paper is any kind of reflection on the experience of carrying out the experiment. This can be very important to experimental archaeology, however. Archaeologists will be very interested in the experiential side of experiments. After all, they do study the human condition. So discussion about the difficulty, awkwardness, ease, speed, conditions, smells, technique, skill level, danger etc. of a process are interesting, just as in the same way as ethnographic accounts are interesting.*
>
> (Outram, 2005, p.108-109)

It is in this discussion that our first question finds some ground to spread "when the only thing we have is the archaeologist's body, how can we do archaeology?".

Extra-daily body technique, artifactual movement and dance theory

Our first proposition is to look at body movement as a group of techniques, rooted in the work of Marcel Mauss (1973). Thus, every archaeological experiment, which needs a human being to perform some kind of technical task (hammer, jump, lift, sew, tear, pull, stir, watch, sit, shake, shape, squeeze et cetera), will be engaging with body techniques. Just as in the case of material, we will be working with techniques of the contemporary body (how to go to the gym, use the bus, have a cell phone et cetera) and with techniques of the ancient body through an ancient extra-daily body technique (Barba, 1995) that he/she is executing in the experiment. This ancient extra-daily body technique we are calling artifactual movement. Thus, when we are trying to replicate a mediaeval Nordic sword (for example) at 1:1 scale, in a construction group proposed by Reynolds (1999), using material and tools similar to the original period, per the rules of Coles (1979), we are, at the same time, executing the

experiment with body techniques and accessing and (re)constructing, in the experimenter's body, an artifactual movement of early times.

So, the concept of extra-daily body technique is very important to comprehend the notion of artifactual movement that we are proposing here. Eugenio Barba is a theatre researcher and director who created this concept using Mauss's idea of body technique. Barba (1995) defined the difference between those types of body techniques as daily body techniques generally follow the principle of minimum effort, that is, obtaining a maximum result with a minimum expenditure of energy. Extra-daily techniques are based, on the contrary, on the "wasting of energy" (Barba, 1995, p.15). He proposed that "the body is used in a substantially different way in daily life than in performance situations. In the daily context, body technique is conditioned by culture, social status and profession. But in performance, there exists a different body technique" (Barba, 1995, p.15). In his analyses Barba was including the profession as a daily life situation and for our purpose this is true when we are analysing our contemporary body (as an archaeologist for example). But when we move our attention to the experimental situation, the experimenter is accessing another type of body technique, and we are calling this body technique an artifactual movement. The movement that is needed to be executed for the archaeological experimentation.

Reflecting on the analyses made by Tichý (2005), I believe that this concept of daily and extra-daily body technique and the notion of artifactual movement can help us to analyse the experimenter's body. But, of course, we need to be very honest in this matter, as Coles (1979, 15-18) says in his rules, experimental archaeology demonstrates but does not prove anything. As we cannot affirm in archaeological experimentation that we are using the exact same material that the ancient people used, even natural sources we have the influence of time (radiation, pollution, et cetera), we cannot say that the artifactual movement is exactly the same performed by the ancient people, but as the anatomical construction of the body does not change, we can elaborate methodologies to analyse this artifactual movement, since a 45 degree knee flexion is a 45-degree knee flexion in the past, in the present and will be in the future if nothing changes. So, how do we analyse the artifactual movement? To do so, we make our second proposition which is to approach theories and methodologies of the field of Dance from a trans-disciplinary perspective, to analyse body movement.

> *I made, and went on making for several years, the fundamental mistake of thinking that there is technique only when there is an instrument. I had to go back to ancient notions, to the Platonic position on technique, for Plato spoke of a technique of music and in particular of a technique of the dance, and extend these notions.*
>
> (Mauss, 1973, p. 75)

The first dance theorist that our research approaches is Rudolf Laban who, as Mota (2012, 66) pointed out, "*defined branches of study that would contribute to the process of knowledge and understanding of a broader science of dance*" and produced a vast theoretical-practical legacy regarding the study of movement. We work with the concept of choreology defined by Laban as "*a kind of grammar and syntax of the language of movement, dealing not only with the outer form of the movement but also with mental and emotional content*" (Laban, 2001, p. viii). In addition to Choreology, Laban divided his theory into branches of study to investigate movement and think about a broader science of dance. They are: 1) Kinetography which later became known as Labanotation, which aims to create a notation of the movement; 2) Choreutics or Spatial Harmony, which is the study of the relationship of human movement in space, and 3) Eukinetics or Effort, which is the study of the dynamics and rhythms in movement that give expression to movement**.** With this, he believed that he would give dance independence as an academic producer of knowledge, with special attention to the body movement.

After Laban's death, some of the top students continued his work by expanding and perfecting it. In this process, Choreology acquired new perspectives on the approach to dance studies, and its theoretical path was expanded with new sub-areas such as Ethnochoreology (Anthropology and Dance), Archaeochoreology (Archaeology and Dance) and Choreological Studies. This research is based on an Archaeochoreology perspective.

Another dance theorist that our research approaches is Helenita Sá Earp with the Fundamentals of Dance Theory. Connected with Lanba's theory, the Fundamentals of Dance Theory analyses the movement through parameters and diversifying agents. Each parameter will have its diversifying agents that serve as focal points for movement study. We can understand these elements as magnifying lenses that we direct to the moving body and, through this action, we are able to focus on certain subjects for analysis. The five parameters defined in the Fundamentals of Dance Theory are: 1) Space, based on the studies of Euclidean Geometry and Topology, in this parameter the spatial relationship of the movement is dissected into levels, planes, directions, etc; 2) Time, connected with rhythm and time analysis; 3) Form, analysis of body lines, 4) Movement, analysis based on anatomy and kinesiology studies, observing the mechanical-motor possibilities of the body; and 5) Dynamics, in the search for expressive analysis.

> *The Fundamentals of Dance Theory, conceived by Professor Helenita Sá Earp and studied in the UFRJ Dance Undergraduate Courses, aim to build a conscious body supported by principles that reveal different techniques based on the processes of creative investigation of the body. Therefore, I do not stick to pre-established models that emphasize the reproduction of movement through a logic of the 'dance step', but rather the knowledge of the body. With artistic-pedagogical intentions, these fundamentals are organized into Diversifying Parameters of Body Action: Movement, Space, Form,*

Dynamics and Time and, in this way, through a selective focus, they help in the understanding of the factors that involve the danced movement. Having the body as a reference, it proposes an interplay between these parameters that help in the structuring of a consistent body vocabulary and based on the creative investigation of its movements. The separation of the study into distinct parameters aims to highlight specificities contained in each of them, but it is understood that they are in constant relationship, each movement of our body permeates all parameters.

(TEIXEIRA, 2018, p.6)

So, for example, when the experimenter is in an experiment chipping lithic material, sitting on the floor cross-legged, having the lithic material resting on their left leg and with the tool for chipping in their right hand and starting the movement of flexion and extension of the elbow with simultaneous abduction of the shoulder in a proper level for striking the piece of lithic material we can observe and described thus, with all these parameters and diversifying agents. We analyse from 1) Space: plans (frontal, sagittal and horizontal), directions established by the axes of movement and vectors, level (low, medium and high), trajectories (linear, angular, meandering or curved), joint ranges and support base; 2) Time: pulse, beat, tempo and rhythm of the movement; 3) Form: foot positions, body lines, body angles and body symmetry; 4) Movement: all the anatomical description such as flexion, extension, adduction, abduction, rotation, etc of each part of the body involved in the movement and the body as a whole; 5) Dynamic: Connection of movements, intensity, how the experimenter used the energy of the body to be able to execute the experiment, beginning and passage of the force needed to do the movement, weight and movement execution modes. All those elements will help to create the artifactual movement. Later, when the archaeologist analyses all the pieces and chooses the one that best matches the ancient one, the archaeologist can ask the experimenter to try to repeat the body technique coming closer with the artifactual movement accessed to (re)create the piece. The archaeologist can, with the artifactual movement already analysed, instruct other types of experimenters such as trained artisans, bricklayers, painters, children, teenagers, archaeologists et cetera, to repeat the artifactual movement and compare how they did or did not adapt the body technique. We can also, using Kinetography (Labanotation), create a library of artifactual movement that can be compared and analysed from a very visual and logical perspective. In this imaginary example, we used a small part of the parameters and diversifying agents to describe the action of chipping a lithic material, the real movement analysis will be much deeper and more complex and even more subjective body issues can be observed.

One thing that we observed working with this perspective of artifactual movement analysis in this research is the importance that repetition acquires when leading our attention to the experimenter's body movement. Using the example, in traditional experimental archaeology research, if the purpose is to build the objects studied on a 1:1 scale and three-dimensionally

one may stop the experimentation when one succeeds in (re)creating one piece similar to the ancient one. But if we also want to understand the artifactual movement a single experiment will not be enough.

Conclusion

In this article, we argue that experimentation has been linked to archaeology since the beginning of its consolidation as a discipline, but it was only in the 1960s that scientific approaches were explored and we observe a great focus on technological research. We pointed out that this scientific approach, ultimately, ended up in a dichotomous situation where technology and the body needed to be in a dialectical relation because of the subjectivity of the body experience. In the 2000s, new perspectives emerged in experimental archaeology. Now, the people behind the artifacts became important and the body reappears as a question. But how to work with the body remains with no apparent answer and the experimenter's body continues as a problem.

In this research, we propose two ideas to explore the experimenter's body: 1) To understand the experimenter's body as a group of body techniques (Mauss, 1973) that can be explored as extra-daily or daily body techniques (Barba, 1995). This idea allows us to identify the specific movements that were needed to produce the experiment. Then, when we are conducting an archaeological experiment, we are also dealing with body techniques possibly performed in ancient times. We are calling these body techniques artifactual movement; 2) we propose to approach theories and methodologies of the Dance field, from a transdisciplinary perspective, to analyse body movement. We are working with Rudolf Laban's Choreology and Helenita Sá Earp's Fundamentals of Dance Theory to develop our archaeological analyses.

As this research is the conclusion of a MA, we understand that we have a lot to deepen and develop, but we believe that these proposals can already bring some interesting possibilities to experimental archaeology, and we are hoping to engage with other researchers to add complexity and improve our analyses.

Keywords dance
theatre
presentation
interpretation

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