Research Article

One Archaeology of Knowledge Constructs

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The paper aims to analyze the symbolic and ideological inequalities present in the process of constructing archaeological knowledge, both consciously and unconsciously, from the perspective of the archaeologist. The focus is on the epistemological aspect, examining what constitutes archaeological knowledge, its formation, limitations, accuracy, and validation. The author also highlights that the study of the epistemology of archaeology is a central theme in the philosophy of archaeology.

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Introduction

> "Inasmuch as theories are undetermined by data, that 'data' are theoretically constituted and that ideas with which archaeologists approach their material are only very partially based on the material which they study and very heavily on their interests, in all sense, it becomes essential to take theory seriously and to subject the concepts and categories we bring to the archaeological material to critical scrutiny. The ideological and cultural determinism that produces our interpretations cannot be ignored, and our disagreements with our colleagues are only rarely about empirical questions alone." (Shennan 1990:86)

The construction of knowledge in archaeology has been a subject of interest for the archaeological community since the processual archaeology of the 1960s. The questions of what constitutes

knowledge of the past, the connection between past and present, and the significance of material culture remains a focus of inquiry. The post-processual approach also highlights the role of scientific discourse in the production and reproduction of social knowledge (Wylie 2002). In archaeology, the term "theory" is applied in a broad sense to refer to abstract discourse, and more specifically to refer to structured concepts, statements, or models that aim to explain data. An archaeological theory ultimately seeks to explain the causes and consequences of archaeological phenomena.

The focus of this paper is on the work of French archaeologists Alain Gallay and Jean-Claude Gardin, and disregards the numerous papers and books on symbolism, interpretation, and the archaeological record by processual and post-processual archaeologists. The choice to concentrate on the "interpretative island" of empirical French archaeology is not meant to ignore the important contributions of Ian Hodder, John Barrett, and Linda Patrik, but rather to showcase a different perspective on the construction of archaeological knowledge. This perspective not only recognizes the social and political aspects of scientific research but also incorporates a subjective and humanistic approach to the interpretation of the archaeological record.

Following the ideas of Alain Gallay, the paper starts by exploring the concept that the artifacts and remains recovered by archaeologists are a spatial and temporal part of the social system that produced them, and how information is lost at various levels from the living society to the archaeological remains. The archaeological remains can therefore be understood as a symbolic representation of the past society, as symbolism involves the systematic or creative use of arbitrary codes as abstract representations of ideas or concepts, each distinct in their meaning. The distinction is often defined by context and can result in an artificial construction of archaeological knowledge. Symbolism is commonly used as an iconic representation of archaeological data and conveys specific and conventional meanings.

Next, the paper will briefly introduce the logicist analyses proposed by Jean-Claude Gardin and discuss how this approach can be used to identify mental constructions created by archaeologists during the process of compiling and explaining the archaeological record. These constructs can also be considered ideological, meaning they are belief systems that vary according to multiple variables and are largely shared by individuals with a connection. Adherence to these belief systems is a prerogative for membership and a means of communication among them. Ideology can be identified in many ways, but the focus here is on its reproductive character, or the set of ideas and practical outcome, represented by much of the archaeological construction of knowledge.

Finally, this essay considers the presence of symbolic and ideological inequalities in the archaeological construction of knowledge. It recognizes that archaeological writing is, in essence, a representational game that can also be an ideological and symbolic act of language. The aim is not to make a critical evaluation or to identify flaws, but to raise awareness of the limitations and potential solutions in minimizing the ideological and symbolic aspects of the mental or "artificial" construction of archaeological knowledge.

The symbolic aspects of archaeological knowledge

> "We know that the explanations provided by archaeologists are for the most part only plausible and not genuine, and more often than not is impossible to choose between several interpretations of the same phenomenon. We know that this situation is due to the limited nature of archaeological remains, a fact often emphasized in archaeological discourse. It is also due to a much more general epistemological situation which is encountered in many other disciplines." (Gallay 1992:115)

According to Gallay (1986), some aspects of material memory are practically indestructible, however other components disappear under the effects of time. In front of this, a question always emerges, how minimize this loss of information?

First, the researcher always must keep in mind that the materials remaining are a limited reflex of live cultures because this does not possess more of a direct relationship with the community to which belonged. In this case, the material remains are only a small part of the constituted society that before animating them, and they do not have more present the actions or intentions that compounded the relationship between the human and the object. Second, the conserved material remains are only a fraction of the total material culture made, and it depends as much on: the natural conditions of conservation, as the material type composed it. Here, the limits to archaeological interpretation are also imposed by the time and space that these remains were deposited.

Third, the materials discovered by the archaeologists are a tiny part of the material remains left by any population. At this moment, the research and techniques employed are fundamental, not only as a methodological trend but also as objectivity and conscious studies. At last, the studied archaeological

vestiges are always a sampling of the remains collected, by the knowledge of the researcher or the techniques employed. In this way, Gallay affirms that we should wonder if the remains studied are representative of the culture studied, because: "...it is important to reduce our ambitions and shown that the archeologists' restitutions almost always belong to the domain of plausible, and not to the domain of right." (Gallay 1986:127)

Therefore, this form of characterizing the limits of our analysis shows us how the material manifestations are displayed in the archeological domain of the observable remains. On the other hand, it also shows us that the interpretations of those manifestations are concerned with different universes that are not equally accessible to the archeological investigation. While the preserved material remains are only part of a road that goes from the life of real society to the artifacts studied in the soil, it is necessary to understand the reduction of this information, and how it occurs to symbolically substitute the raw data for the mental conceptions that represent it.

These limited characteristics of the archaeological remains, demonstrate above, lead to a reflection on the natural sense of archaeological constructions, which may be interpreted as mental constructions, or a transformation of past societies' material remains in a conditionally scientific information. It is necessary to be clear here that this scientific information is not totally a conscious act, and that it is also formed by association of innumerous levels of other symbolic representations that in majority terms can conduct an ordinary language or logically simplified schemes, as spreadsheets or graphics.

Likewise, the elaborated constructions are fragile, since a contradiction exists among the observed facts, which it never cans to know if are representative of the conserved facts, and the need to propose always general explanations on the specific hypothesis for the reference population observations. Mainly when "symbolic" aspects of the objects are arrested at the "time" in which it was used. The archeologist can choose the observations that will be registered. Considering that scientific progress results from a conscious and methodical orientation of the observations towards defined objectives; or verifying that the knowledge gets rich in an anarchical way and that the chance of the discoveries assumes a fundamental paper of the progress of the knowledge.

In this way, it is strongly recommended that archaeologists have in mind what fragmentary corpus of archaeology remains and that the possibility of archaeological constructions about the past is limited much more in the domain of plausible than of certain. At this point, the symbolic representation of the archaeological information acquires an essential character, one time, that these representations are the first step in the construction of archeological knowledge – also called the compilation process.

Here the dominant principal needs to be most economical in a broad sense, when the accuracy of archaeological construction is measured by the distance between the archaeological object and a knowing external referential – historical, ethnological, technological - used for explaining it, for example.

Therefore, do we need to stop and answer another terrible question; are the studied remains representatives of the population of its origin? According to Gallay, the most moderate "answer" is based on other four points: (1) Certain aspects are accessible, some partly and others not, then it becomes evident that technological and economical domains are more easily reached than the social relationships or the emblematic codes; (2) Because the losses in each level of our constructions are plausible, since that the constructions that we propose are questioned by each new discovery; (3) To reduce and to control the uncertainties, it is necessary a reflection that establishes a relationship between hypothetical-deductive and empirical-inductive approaches. Where the first confirms the observed facts and its hypotheses; and the second, the observations owned to produce its hypotheses; (4) The interpretation always needs to reference an external context, and those references must be of different natures; one time that the reference knowledge presents two facets: the properties, and the attributes.

However, if the archeological remains are a limited view of past societies, with losses of information as demonstrated by Gallay; it is possible for the archaeologists to reconstruct the past? What do we need to transform these partial remains into valuable knowledge? I believe that here it is necessarily more than a simple technique or methodology, but an epistemological framework that guides the process of archaeological inferences, and conducts the archaeological constructions to a new level, beyond simple descriptions or subjective discourses. But, according to this author, other countless problems come when we intended an ordination and explanation of the archeological facts i.e., the interpretative problems.

The first factor that we need to consider about the "interpretation problem" concerns the opposition between the properties and the attributes; what establishes a difference between what we know about the object - that is the acquired knowledge of the own object – or their properties, and the wealth of information acquired from an external referential – or their attributes. Second, another subject that is also present is the "formalization of the information" is the explanation of the intrinsic and extrinsic characteristics of the objects, that second J.-C. Gardin are: "intrinsic characteristics as physical, geometric and semiological properties; and extrinsic characteristics as the information regarding the

place, time and function of the object (1980:68). And third, we have the problem of the "collection of information", which concerns directly to the acquisition of data through the excavation, and where the characteristics of the objects can be apprehended in the own remains – or their internal characteristics, and in the context in which it is inserted – or their external characteristics.

Therefore, for our objective here it is indispensable to make a reflection on the "symbolic problem" of these representations and understand that the construction of archaeological knowledge needs to be based on common referential that produce a unique scientific corpus of knowledge. In this way, the transference of archaeological artifacts from the material plane to the mental concepts needs to follow shared principles of construction; and not only the uniformity of knowledge but also the clear options done by the archaeologists towards the research conclusions. The objective of the interpretative archaeological work is to remove the timeline to recover the initial organization of the artifacts. Will it be?

That kind of seeing things could make us think that there exists an "order" that is opposed to the "disorder" provoked by time. The first observation concerns the reality of the evidenced order. Nevertheless, it is necessary to insist on the fact that the order is an intellectual construction of the archeologist and imposed in symbolic aspects; it is treated as a model that gives a bill of the observed reality, and it allows a certain control over that reality in the chosen section for the own researcher. The second observation elapses of that restrictive conception of the order notion, the opposition between structural order and historical disorder only has value in relation to an explicit objective. It is then indeed necessary to distinguish the events and the structures significantly linked to the history of the group of the "uncertain" events that it is affecting the things over time. Therefore, the search for an order in time necessarily also involves defining the space, in which that order is significant. Reciprocally, the space analysis is only realizable after defining the unit of time in which it will grow.

In another moment, Gallay exposes that we should examine how the definitions of the material properties are approached and which interpretation is based. Second, the way of archeologist work always follows the same outline: first the excavation methods; second the object description; and third the interpretation. But according to the author, an alternative exists and consists in seeing how it is possible through the excavation to solve the problems of the interpretative level. In other words, through a larger rigidity in the empiric procedure of data acquisition, it allows selecting the better materials to be analyzed, using what he calls the "economy principle"; where the interpretation leans

on the meeting of two groups, one of the studied properties objects and the other the compared properties objects.

In this way, two hypotheses: a) the object used for comparison possesses identical or similar properties to the studied; b) the functional interpretation determines the way the archeologist describes the object. Like this, the typological structures built are based on a certain order introduced inside the intrinsic and extrinsic characteristics of the objects, or a symbolic construction. Therefore, Gallay proposes that initially, we should distinguish the ordinations based only on the characteristics of the objects – or their intrinsic characteristics. For the construction of plausible interpretations of the past, the first step is not to lose the relative character of the dialectics between the practice and the theory. Even so, research badly based on the epistemological point of view can be effective in the same way research articulate and formally blameless can be sterile in their results. Because, according to Gardin (1990) they are necessary two components for the construction of an interpretation in archeology: primarily a semiological system for the empiric representation of the facts as in a database – or universal archaeological symbols; and secondly the operation of redrafting the arguments, the hypotheses and the conclusions in a perspective multivariate, or in other words, that it forms a mechanism of the representation of the data, and of the process formulations, and vice-versa.

However, the mental representation used in these interpretation insights is a topic that we need a better explorer. On the problem of explanation in archaeology, Gallay (1992), presents that the analysis of regularities implies a structural approach where all relationships between variables must be precisely specified. And that is not a way of evaluating the degree of truth of an explanation beyond searching for a univocal relationship between the proposed hypothesis and material fact susceptible to being brought to light by archaeology. On the other hand, given this situation, it is advisable to limit the ambitions drastically, to only those hypotheses capable of supporting validation of this nature. Trough other type of autonomous knowledge, as computer simulations or IAs for example (Costa, 2022), which try to discover the mechanisms that lie at the origin of observed regularities; and that, consequently, the only realistic high-level interpretations at those of a functionalist type.

The ideological inferences of archaeological constructions

> "Logicism is a reflection on the epistemological nature of archaeology, and further, of all human sciences. It is based on the analysis of archaeological 'constructions,' or more simply of archaeological publications. Thus, logicism does not concern, in the first step - at least, the archaeological remains themselves, but what archaeologists say about them." (Gallay 1989:28)

For a broad compression of the mechanisms that work in the ideological inference process in archaeology, we will make a trip between the elaborate constructions realized by archaeologists and the ideological character that the "agencies" may be acquired, using for this the "logicist approach" as an intellectual tool for explicit these mental creations.

According to Gardin, (1992) archaeology, like many sciences, is dependent on the use of *ad hoc* languages or semiological systems for the "formulation" of its objects of study and their representation. These systems are first identical with or closely related to natural language but tend gradually to evolve into an autonomous system, as the descriptive and interpretative tools of the discipline become more complex. Thus, to any archaeological commentary, we can associate a system of knowledge representation, descriptive data, and interpretative concepts-, widely shared, which belongs to the set of "systems of signs" encompassed in semiology. "We should finally recall that our languages or systems of representation themselves play an essential part in the reasoning processes, as we use them in more or less self-critical fashion to formulate empirical or theoretical propositions in the course of interpretation." (Gardin 1992:91)

According to Gardin (1980), the intellectual process at work in archaeological studies could be divided into two categories. First, those are related to the acquisition and manipulation of materials objects, such as: excavation practices, survey methods, sampling techniques, etc. Second, comes the mental operations by which the archaeologist moves from the perception of the collected data to the formulation of verbal statements, such as: chronological or geographical attributions, reconstitution of historical events, inferences about social organization, etc. This level of prepositions may be characterized by some examples of mental processes of observation and inference, such as: cataloguing – or description of archaeological objects; classification – or grouping of physical remains into "bundles" of various sorts; pattern recognition – or identification of individual function or meaning; and historical inference – or correlations between different objects and matching with other information sources.

The following archaeological constructs are constitutive of three major patterns, such as: the initial set of objects or raw materials selected by the researcher, in accordance with his objectives – or *M*; the terminal propositions that express or summarize the end product of construction – or *P*; and the intermediate data and operations involved in the transition from *M* to *P*, the explicitly or/and implicitly elements present in the commentary – or *C*. Like this, "...the goal of logicist analysis is to express in the form of chains of explicitly defined operations the reasonings that underlie the constructions of archaeology." (Gardin 1980:15-16)

In other points, the author explores the two poles of construction in the form and substance of archaeological writing: the Construct Compilation – or *Cc*, and the Construct Explanation – or *Ce*. One of them comprises works of compilation, in which the primary goal is to disclose materials hitherto unpublished, or not easily accessible, while the other group is made up of more speculative texts meant to diffuse innovative ideas on various aspects of life in determined times. In resume, the compilations are related to objects, while the explanations are related to people; therefore, complementary these constructions have not excluded each other or are necessarily sequential.

For Gardin, the archaeological Compilations (Cc) are constructions that have a truism and postulated that they are a symbolic representation of collected data. In the operation of this "machine", three major theoretical problems are rise: what criteria are "chosen" in the raw material; what is the "type" of representation language; and what is the "order" of selection imposed? With the assumption of solving these questions, the author first presents that the selection of materials can be divided into two groups: the origin or location of material remains, and the nature of material remains. Second, that the symbolic representation problem passes by the choice in archaeology of natural language – or *NL* and more ordinary, the special languages – or *SL* and more scientific, or the information language – or *IL* and more technical, all as a vehicle of divulgation; and in last and third case that the ordering of symbolic representations may be made, a priory, in the geographical, chronological, or functional terms.

Nevertheless, for Gardin, the archaeological Explanations (Ce) are classified, which may be a character of *typological constructions*, not only to the constitution of homogeneous groups of objects based on their attributes, both intrinsic and extrinsic, but in complementary and combination systems. All these attributes can be identified; as intrinsic features: - *P or* physical to raw material, technique fabrication, *G,* geometry to shapes, profiles, volume, and *S,* semiotics to ornament, signatures, and

inscriptions. And as extrinsic features: T, time to chronological transformations, L, location to spatial, geographical, or anthropological, and *F,* function to sociological, political, or symbolic.

So according to the author, the typological game may be played in two ways, as an inductive sense, from effects to causes, when the variability of intrinsic properties – or *P, G, S* is related to the circumstances in which the materiality have been used in time, local or function; or as reverse in a deductive game, from causes to effects, when the extrinsic attributes – or *T, L, F* are related to comparable objects with physical, geometrical or semiotics properties. On the other hand, the explanations may be too *interpretative constructions*, and how Gardin defines which meaning is attached to any kind of order, such as a series of objects formed based on their similarities, or a class of objects attributed to the same time and space unit. Therefore, all interpretative constructions presuppose a prior phase of typological or quasi-typological ordering.

Like this, the logicist analyses of interpretations are divided, again, by the author into two segments, the inductive and deductive approaches. The case of induction is characterized from *explanandum* to *explanans*, or the attempt here is to make explicit all the links of the chain of inferences that connect the empirical observations with the interpretative propositions derived from them, whether the latter are couched in systemic terms or not. On another hand, the case of deduction is marked from the *explanans* to *explanandum*, or the idea here is to discover possible archaeological manifestations of the concepts that enter the fabric of explanations, beginning with the more basic and ending with the more abstract.

Therefore, according to Gardin, the inductive process is the majority in the archaeological work because the circumstances of observation do not leave them any other choice; and we shall see that the reverse course is often a mere rationalization of constructions that have, in fact, evolved in the other sense. The initial propositions, in this inductive case, are descriptions of properties of the raw material on which the constructions will be based in - P0 or Compilations, and the subsequent propositions - P1, P2... are derivations or Explanations, until the conclusion or - Pn. The deductive approach, as reverse, starts as several implications or 'deductions' in the form of propositions as - Pn-1, Pn-2..., until arriving at the category of statements P1 which can be translated in terms of probable and necessary archeological correlates, or P0.

Therefore, for Gardin, analysis of the archaeological constructs presents the epistemological nature of archaeology, since the selection of the raw materials, passing by the intermediate data and chains of operations, until the terminal propositions. This demonstrates that the archaeological compilations

are symbolic representations of collected data and that the archaeological explanations are interpretative constructions, using wherever inductive and deductive approaches. And what, consequently, we are summarizing this archaeological knowledge exercise on the regular series of propositions – IF...THEN – that the archaeologists daily employ in their work.

> "The archaeologist's function is to reconstruct the history and ways of life of past societies on the basis of tentative interpretations of their material remains. Archaeological publications should then be regarded as symbolic constructs made of propositions that necessarily belong to one of the three following categories: a) the 'factual' basis, i.e., descriptions of material remains, as well as abstracts statements presented as established truths or tentative presuppositions in the argument; b) the theoretical outcome, i.e., hypotheses or conclusions submitted as end-products of the construct; c) the argument that links these two components in either of the two standard ways: empiric-inductive from *a* to *b* or hypothetic-deductive from *b* to *a*, the form of the argument in both cases is basically a successions of rewrite operations: having stated or established a given set of proposition(s) – *Pi*, the author feels authorized to derived another set of proposition(s) – *Pj*." (Gardin 1995:143)

A Symbolic and Ideological Archaeology of Inequality

> "Other signs, more revealing in our view, come from the human sciences themselves, which seem to be discovering little by little the astounding subordination of their literature to this rhetoric, or more generally to a system of habits and values inherited from another age, which is hardly for the cumulative progress of knowledge as understood in science." (Gardin 1988:223)

Therefore, if, according to Gallay, the archaeological data are a partial view of any society, also to Gardin, the archaeological discourse is an ideological and symbolic construction. However, what guides our research interests?

The interpretation of inequality also assumes a regular character, when the power exercised here is a series of relations of autonomy and dependence of subaltern groups compared to dominant groups that make their own sectional interest appear to the others as universal ones. Like this, the inequality aspects inside the archaeological knowledge constructs assume a social and humanistic character too: when the archaeologists in the exercise of construction of archaeological knowledge, by the embodiment of their own empowerment, determine the discourse of research in accordance with some social agenda, or political and economic distinct objective.

However, the epistemological inequity of scientific practice cannot be an excuse for the construction of discursive narratives. In this case, the difference between the limits of archaeological data and the archaeologist's subjectivity in the construction of archaeological knowledge must be a point of scientific diversity only. For in another sense, the archaeological work becomes only symbolic, and not effectively active in our society, regardless of the natural, scientific, or technical language used. That is why the free translation that we do every day, when transposing materiality into discourse, must be guided by a structure that is not reproducing current domination (whether social, political, economic, or even scientific), but libertarian in every sense.

In this way, the archaeological work is a set of mental constructions from the initial objectives of collecting data to the final production of the scientific text; through certain constructions of a materially compilatory or personally explanatory nature. Therefore, it is this intricate game of inductive or deductive in scientific practice that unites us, and which is, to a certain extent, also symbolic and interpretive. On the other hand, the nature of archaeological knowledge is limited information. Either by its own material constitution or even by the techniques and methodologies used in its study. Therefore, it is based on the properties and attributes of materiality, that is, on what is informed to us by the object or about the object, that the archaeologist builds his scientific corpus.

> "If properly understood, in those terms, the logicist perspective should not be regarded as another manifestation of scientism or neo-positivism in the humanities, notwithstanding current claims to contrary. The confusion probably arises from an inability to take our position in favor of literature seriously. Far from being an apology for science, the logicist program is an attempt to demonstrate its limitations in the humanities. Other schools seem to pursue the same goal; the difference, however, is that our motivations are not ideological, but strictly epistemological: we want to see more

> clearly where the frontier lies between that part of our interpretations constructs which follows the principles of scientific reasoning and another part which ignores them." (Gardin 1990:26)

In addition to these practices, the supremacy of the archaeologist agency has an important action over the dominant structure. Not only as a source of drivers and strategies of adaptation, resilience, and resistance but also as a reshape to frameworks of power or disclosure of overt or hidden dissent. Consequently, according to Gallay and Gardin, we totally perceive this 'inequality of discourse" only in the final propositions of these archaeological exercises, or in archaeological publications. As for this text that is still under construction...

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