

I

The analysis of archaeological constructions

‘An analysis of intellectual processes in archaeology’: this introductory sentence in the Preface summarizes my purpose, on condition that we agree on the exact meaning of each word: what is the scope of *archaeology*, as compared with other disciplines such as history, the ethnology of past societies, or palaeogeography? Which *processes* should we examine, under a heading which may well seem redundant (are not all research processes *intellectual* by definition)? And to what form of *analysis* shall we submit them, of all those methods which might be so termed? Let me first answer these three questions.

I.1 *The scope of archaeology*

I shall not undertake to define again the specific nature of archaeology, considered as a discipline in its own right: definitions of this sort are to be found in all handbooks of archaeology, as well as in the various methodological treatises that have appeared in several languages and countries during the last ten years (Chang 1967a, Deetz 1967, Clarke 1968, Moberg 1969, Binford 1972, Redman 1973, Malina 1975, Kamenetskij *et al.* 1975, Schiffer 1976, South 1977, etc.). What I need for the purpose of the ensuing discussion is rather to considerably broaden the semantic field of the word, so that we may be allowed to consider as Archaeology a wide variety of works which differ in their areas, their goals and naturally in the kind of objects studied.

I.1.1 *Areas*

A broad vision of archaeology with respect first to the areas of observation: I refer here not only to the space and time coordinates of a given investigation, but also to the kind of human entities to which the material remains are attributed – e.g. an ethnocultural group of varying specificity (Hopi Indians, Byzantine blacksmiths), an organized society, again observed at varying levels (ice-age hunters of the Ukraine,

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the kingdom of Pergamon), an individual or a specific community (the Greek painter Sophilos, Assyrian merchants in Cappadocia), etc. The diversity of the more or less established fields of archaeological research is the product of conventional divisions on one or the other of these three planes: the local (*L*) and temporal (*T*) domains, and the human entities (*H*) under study – for example:

- Archaeology of South America, Oriental archaeology (division according to *L*)
- Prehistory, Industrial archaeology (division according to *T*)
- Medieval archaeology, classical archaeology (division according to *L* and *T* combined).
- Islamic archaeology, Archaeology of the Eskimos (division according to *H*)
- Archaeology of Celtic Ireland, Palaeochristian archaeology (divisions according to combination *LH* and *TH* respectively).

A number of these distinctions result from the strength of usage or tradition rather than strict reason; yet many archaeologists still believe in the specificity of certain branches, such as prehistory *vs.* the archaeology of literate civilizations, or again classical archaeology *vs.* all the others, etc. Opinions may well differ on this matter; I wish only to stress that *for the purpose of the ensuing discussion*, classifications of this sort are irrelevant, in the same way as judgments of value between the more or less esteemed sectors of archaeological research, are irrelevant. We shall here regard as pertaining to archaeology all research works or publications bearing on the material products of an activity carried out by men of the past (*H*), in a given geo-historical setting (*LT*), without any restrictions on the possible values of *H*, *L*, or *T*.

1.1.2 Goals

I shall take the same broad view with respect to the diversity of goals which may be envisaged in archaeology. Besides the so-called scientific publications which are meant to present the material remains and the ideas held about them by specialists, there are others which are not considered worthy of the same consideration because they are written by amateurs (travellers, collectors, etc.), or intended for a wider audience. It is difficult however to find criteria upon which this distinction could be based. To some, the difference lies in the essentially descriptive character of amateur publications, as opposed to the strong interpretative trend of scholarly works. Examples are numerous, however, in which the professional archaeologist stops at descriptions which do not call for a wider knowledge than is available to enlightened collectors, whereas conversely the amateur shows a gift for historical constructions which professional archaeologists do not all possess. We are therefore under no obligation to follow those prejudices and I shall tend towards a broad

definition of archaeology, in which the depth or strength of the proposed constructions is of more import than the academic status of the author, or the nature of the public to which they are addressed.

The diversity of goals is also manifest when the study of material remains is the basis of inferences of all kinds on the nature of the activity which produced them, the circumstances in which it took place, the system of social relations which made it possible or necessary, the role of natural forces in its genesis or evolution, etc. Let us take for instance the case of a survey of traces of ancient settlement in a given area; if they are abundant enough, some insight can be gained into many subjects, such as historical demography, architectural techniques, patterns of soil use, social functions and technical activities at different periods, the nature and distribution of political power, etc. (e.g. Willey 1953, Nelken-Terner & MacNeish 1971). Shall we then declare that we have left archaeology proper, and entered the fields of history, sociology, geography, technology, ecology, with a prefix 'palaeo' where needed . . . Opinions here again differ; but we have no more reason than above to become involved in such debates. Given the purpose of this book, we must clearly be concerned with the whole reasoning process, from the initial description of the materials to the final interpretative propositions, whatever discipline may be chosen to account for it: history, sociology, geography, etc. The most convenient stand then is to accept that all such constructions be assumed under the title archaeology, because of their common material basis, without bothering too much about the various secondary labels that might reflect the diversity of the end products.

1.1.3 *Objects*

Let us finally consider the variety of objects that are often comprised under the heading 'material culture': chipped stones, post holes, beads, slags, temples, potsherds, wall-paintings. It is taken for granted that archaeology can deal with all the paraphernalia of ancient man, without limitations. Yet, some restrictions are still common, if only implicit. One of them is a result of a current opposition between objects and monuments proper, of any category, and the inscriptions which are to be found on some of them; or more generally, an opposition between inscribed materials and ancient texts on the one hand, to be studied by epigraphists or historians, and material objects on the other hand, left to the competence of archaeologists or prehistorians. We shall once more dodge the issue, which is largely a matter of convention: the discovery of inscriptions or literary sources pertaining to ancient societies hitherto known through material data alone is obviously of interest to the archaeologist immersed in a study of those societies; and it is of little avail to discuss whether he deserves a new name, or a compound one,

when he erects his constructions both on the analysis of inscribed materials and on the study of material objects. I shall therefore adhere to the same broad viewpoint as above: for my present purpose, archaeology is the universe of intellectual constructions based on the study of objects of all sorts, with or without inscriptions, as well as on the study of inscriptions themselves, or for that matter any other written sources which may enlarge the knowledge drawn from the analysis of monuments.

Another current opposition concerns two broad categories of material remains: those which are considered as works of art, according to any criteria (the creator's intentions, the function of the monument in its original context, the traditions and taste of the modern commentator, etc.), and a residual group which can best be defined as the complement of the former, viz. the set of material remains that are *not* considered as works of art. This distinction is so unstable through time and space that I shall eschew it also: the archaeology of works of art will not be differentiated from the archaeology of other monuments, and we shall not attempt to decide whether a study of the most ancient churches in Italy must be considered Palaeochristian archaeology, subheading Architecture, or History of Western Art, subheading Religious monuments . . . The only point of interest to us is the nature of the reasoning followed by the commentator in order to proceed from the initial perception of a set of objects to whatever he has to say about them on a higher conceptual level, including the level of aesthetic judgments when that is relevant.

Let us finally recall that the material objects which archaeologists have to be concerned with are not only the so-called artifacts, from chipped stones to cathedrals. Especially in prehistory, but also in the archaeology of historical periods, the study of natural remains is just as important for the reconstitution of past events and behavioural patterns: human and animal bones, ancient soils, fossils, pollens, sediments, in brief any material which may throw some light on the natural *milieu* in which ancient men conducted their activities, and on the ways in which they exploited it for their own needs and pleasures, in a given time and at a given place. A new word has been proposed to designate this category of data: 'ecofacts' of nature, modified or not by human action, as opposed to the 'artifacts' of material culture, produced by men. The wide range of objects or remains to which we shall refer should hence be quite clear: ecofacts are part of it, whenever they are instrumental in an archaeological construction.

1.1.4 *Definition*

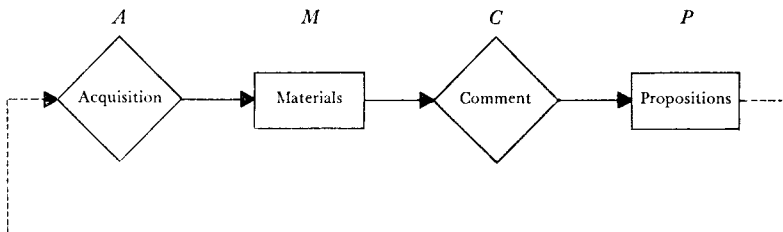
Speaking of the manifold variety of objects which archaeology may embrace, we have reached the same broad position as above à propos of the diversity of research goals: sociological, economic, aesthetic, etc. . . . An objection immediately springs up: in asserting that any construction

based on the study of material remains is related to archaeology, do we not run the risk of obscuring the more specific processes of that discipline, intellectually speaking, to the benefit of a much wider inquiry into the constructions of anthropological or behavioral sciences in general? Nothing could be truer, but in the following sense: the schematization of archaeological reasonings to which we shall be led will indeed prove fairly unspecific, and I hope to bring out the case for extending it to constructions of many other kinds in the sciences of man, in order to satisfy the same epistemological requirements (see § 7.2). But we first have a long way to go; let us for the moment summarize the results reached in this section, in the form of a deliberately broad definition: archaeology, for the purpose of the present book, is *the sum of studies bearing on material objects which may throw some light, in conjunction with other data, on the history and ways of life of ancient peoples (specific events, daily activities, institutions, beliefs, etc.)*.

1.2 Intellectual processes in archaeology

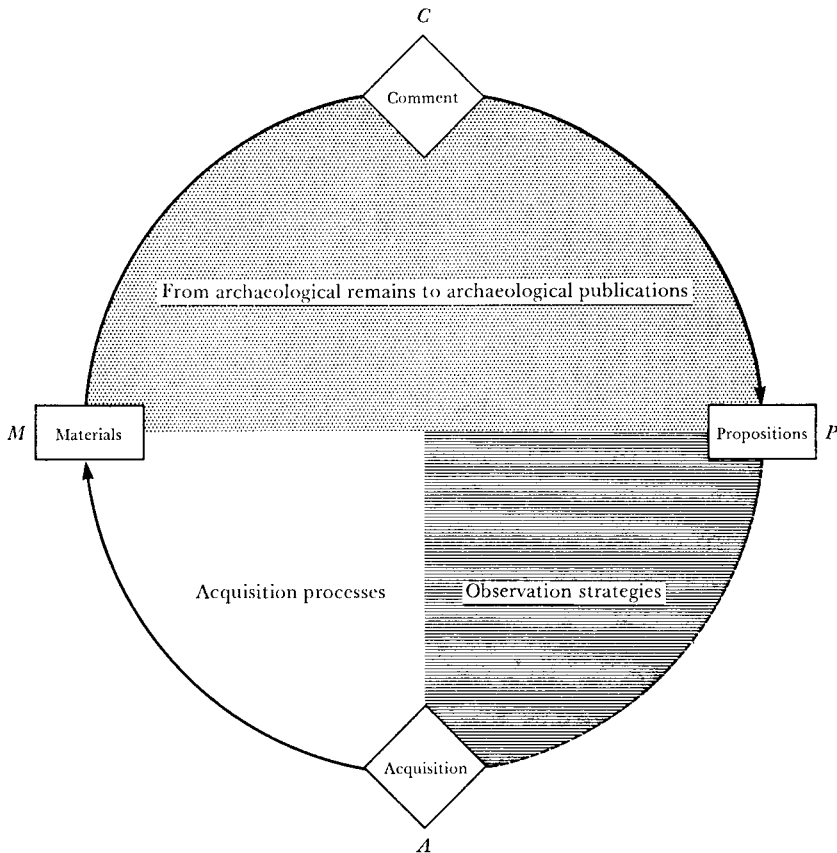
The intellectual processes at work in such studies may be divided into two categories. A number of them are related to the acquisition and manipulation of material objects, in the broad sense indicated above (§ 1.1.3): excavation practices, survey methods, sampling techniques, conservation methods *in situ* or in the laboratory, etc. Then come the mental operations by which the archaeologist moves from the perception of the collected data to the formulation of verbal statements concerning them, on various levels: chronological or geographical attributions, reconstitution of historical events, inferences about social organization, about the economy, religious behaviour, technology, etc. (§ 1.1.2). Figure 1 indicates the relative position of these two categories of intellectual activities in a simplified linear chain of information processing, (a) beginning with 'acquisition' processes, that lead to the constitution of a material corpus (objects, monuments, sites, physical samples, etc., with contextual indications attached, in terms of various locational

Figure 1 The chain of information processing in archaeology: from the *acquisition* or collecting of *materials* (objects, monuments, physical remains of all sorts, etc.) to their *comment* in terms of discursive *propositions*.



units), and (b) finishing with 'comment' in a broad sense, i.e. the formulation of verbal statements as above. At first sight, the intellectual processes which are of concern to us are manifest in those comments alone, but with two reservations. First, it goes without saying that acquisition processes are not confined to material operations; they are the province or product of reasoned considerations bearing on the techniques of data acquisition, as with all observation procedures in the sciences of man or nature. In addition, there is an obvious interaction between the two categories of activities, which is not apparent in the linear representation: acquisition procedures, in libraries or museums as well as in the field, are or should always be subordinated to more or less explicit strategies of observation, based on states of knowledge and

Figure 2 Another presentation of fig. 1 showing the parts of the cycle studied in this book: first and foremost, the transition from *M* to *P*, i.e. the production of archaeological writings, and subserviently from *P* to *A*, i.e. the design of observation strategies. The actual acquisition processes, *A-M*, are not included in this investigation.



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selections of research goals that are in turn the product of reasoned comments, past or present. We must therefore add a feedback arrow to our diagram, viz. a loop from right to left (dotted line on fig. 1), and include the strategies in question among the intellectual processes under study.

Segment *A–M* in this diagram covers the various observation procedures, considered from a technical or tactical viewpoint (e.g. sifting practices, degree of stratigraphical differentiations, scope and nature of conservation steps *in situ*, number of geophysical measurements to be taken in a given survey, etc.): nothing will be said about them in this book, nor of the underlying rationales, technical or tactical. But we shall have to include loop *P–A* within our compass, because of the essential part which observation strategies are going to play in the following discussion.

Figure 2 brings out the parts of the cycle considered in this book. The upper half indicates our primary concern: by which intellectual processes do we move from the apprehension of a set of archaeological materials, *M*, to the formulation of verbal statements, *P*? The lower half of the diagram is divided into two segments. The first one, *P–A*, recalls that the process of data acquisition is, or should be, determined by some kind of consideration for the relevant *P* statements, namely propositions expressing the state of knowledge in the domain under study, as well as the hypotheses or goals of the research project undertaken in that domain. We shall have to give some thought to the relation between these observation strategies *P–A* and the antecedent or subsequent phases *M–P* of the cycle. The second segment, *A–M*, corresponds to the actual application of the acquisition processes or techniques in order to collect the required bodies of data; it is not part of our present investigation.

1.3 'Analysis' under the terms of logicism

The kind of analysis to which the above processes will be submitted, and the goal of the exercise beyond the cursory indications given in the introduction, remain to be clarified. I shall first make sure that figure 2 is well understood, through examples intended to demonstrate its general applicability, as well as the relative *monotony* of the theoretical problems that are met whenever one goes through a complete cycle of reasoning leading to a set of *P* statements.

1.3.1 Example 1: cataloguing (fig. 3, line a)

The more simple propositions, at first sight, are those which we formulate when describing archaeological objects, with no other goal, it would seem, than to reveal the existence and nature of the latter before or while

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they are submitted to investigations of a higher order. The publications which are supposed to serve that goal are of several kinds: excavation reports, archaeological inventories, museum catalogues, national or international corpora, etc. What they have in common is the room given to lists of descriptions that concern sets of objects or monuments selected on the basis of similar characteristics, such as the place of discovery (e.g. excavation report), their physical nature or function (catalogue of sculptures, tools, etc.), the place of conservation (museum catalogues). Let us for the moment ignore the diversity of such publications, and group them under a simple heading, for instance 'catalogues' in a broad sense; and let us now go back to figure 2.

The *P* statements are here the descriptions: descriptions of sherds in the chapter 'Pottery' of an excavation report, descriptions of coins in the numismatic catalogue of a museum, descriptions of painted representations in the *Corpus Vasorum Antiquorum*, etc. Clearly, the nature of these descriptions reflects the knowledge which cataloguers have of the materials under consideration; but it should also bear the mark of the kind of usage for which the catalogue is intended – which is, curiously enough, far less clear. The same head of Athena may legitimately be described in different ways, depending on the function of the catalogue: museum inventory, auction, scientific corpus, etc.; but no one would dare to assert that we have a clear idea of the relations that should exist between the various formulations.

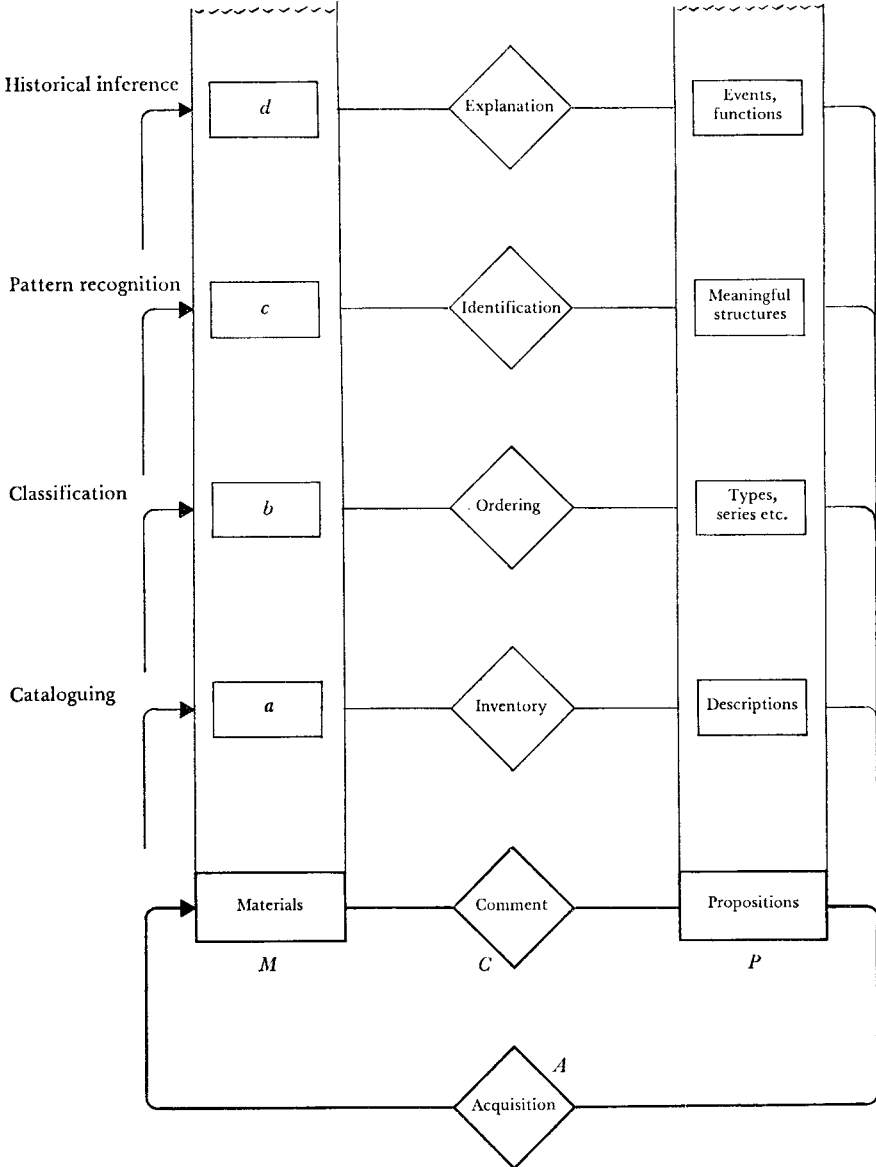
Our problem will therefore be, in this context, the rationality of decisions taken with respect to the representation of a given object in terms of any descriptive system or language: are there arguments that can justify the differences observed from one catalogue to another, when both the objects and the objectives are comparable if not wholly identical? Or, conversely, can one think of any procedure such that different observers could produce the same descriptions when confronted with the same objects, assuming that they were all agreed upon the purpose of these descriptions?

Seen from this angle, the process of cataloguing in archaeology is clearly an instance of the situation illustrated in figure 2: the comment stage comes down to the problem of finding an adequate representation, in the above sense, while the propositions are to be identified with the descriptions themselves (fig. 3, line *a*). The process may seem quite elementary: its rationalization, however, is not, as we shall discover in the chapter devoted to this major category of archaeological constructions (chapter 3).

1.3.2 Example 2: classification (fig. 3, line *b*)

The representation of archaeological remains, as understood above, is generally regarded as an intermediate operation between the initial

Figure 3 Four examples of transfer from physical materials to discursive propositions, according to the basic process shown in figs. 1 and 2. Examples *a, b, c, d* are discussed in § 1.3.1 to 1.3.4 respectively.



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perception of material objects and the formulation of propositions of a more sophisticated nature than the mere description of every one of them, taken separately. Classifications are a good example of theoretical constructs of a higher order, even though they do not constitute the ultimate goal of archaeological research. We all know that the grouping of physical remains into ‘bundles’ of various sorts – classes, types, modes, schools, styles, workshops, cultures, etc. – is a common exercise among archaeologists, and quite a legitimate one, as in any science where the multitude of individual entities (plants, chemical bodies, fossils, etc.) makes it necessary to organize them into a smaller number of groups, each characterized by a set of attributes shared by all members of the group. The classification thus formed may in turn exhibit distinctive features of its own, from a structural viewpoint, to which various technical names are given: hierarchies, trees, polythetic classifications, etc. The diversity of those possible classifications need not detain us at this stage, except in so far as it reflects the variety of ways in which perceptive or descriptive data can be arranged, in a given field of observation, according to the goal of the classification. For example, a classification of coins based on the time and place of issue may provide for convenient retrieval, in the same way as the organization of stamps in philately; but it is likely to conceal subtle affinities between, for instance, the motifs or inscriptions engraved on those coins, which transcend distinctions of cities and dates. Conversely, a classification based on such affinities may provide the basis for distinguishing a number of ‘styles’, each assigned to a particular slice of time and space; but the proposed groups may be so questionable that the classification will be considered as inadequate for documentation purposes. Both forms of organization are thus admissible, and more generally *all* consistent forms of organization, provided that every one of them meets with equal success the different requirements of the users for which it is intended. The only question which may then be raised, from our standpoint, is again that of the rationality of the operations that underlie each classification: are there well defined procedures, applicable to any kind of material objects, that generate ‘successful’ organizations in the above sense? Or, to put it in the terms of figure 2, what are the intellectual processes involved in moving from the observation of unordered ‘materials’ to the formulation of ‘propositions’ that define the various groups in each of the suggested classifications? Figure 3, line *b*, shows the formal analogy between this problem and that of description, in the preceding example; we shall examine in chapter 4 a number of possible answers to that basic question.

1.3.3. *Example 3: pattern recognition* (fig. 3, line *c*)

In the two preceding cases, we have assumed that the perception of the