ARCHAEOLOGICAL FIELDWORK

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Contents

Summary

Archaeological fieldwork is a body of scientific method for the responsible investigation and management of a limited and endangered resource. Historical and theoretical overviews explain the aims and goals of archaeology within the present legal structure known as Cultural Resource Management (CRM).

1. Introduction

Archaeology is both a body of knowledge about the human past, and a methodology for obtaining that knowledge. Like geology (which is concerned with the non-human past) but in contrast to history (where the past is investigated using written documents), archaeology is primarily concerned with information gained from material objects (including their context and relationships).

Although theoretical debate continues to revolve around the question of just what these objects tell us, in contrast to pothunters and other treasure hunters, archaeologists intend to infer meaning from them. Archaeology fieldwork can therefore be seen as the detective work by which this information is gathered, a process that has been revolutionized by recent technological and theoretical advances. The reasons for doing archaeology have also undergone changes. Both within the archaeological community and -- as a result of increased contact with the public -- emphasis has shifted from research towards rescue and what is known as Cultural Resource Management (CRM). (See also chapters *Preserving Sites and Monuments* and *Rescue Archaeology*.) The latter recognizes that our archaeological heritage is a limited cultural resource, which must not only be passively protected but also actively managed.

The present discussion, in its presentation of archaeological fieldwork within this CRM framework and in terms of the scientific process, seeks not only to describe the methodologies of archaeological fieldwork but also to explain the reasoning behind them. This is important partly because the nature of archaeological investigation requires flexibility in response to a very wide range of possible circumstances, conceptual guidelines instead of hard and fast rules.

2. Theory

It is important to examine archaeology within a theoretical and historical framework, not only to trace the development of field techniques and their relation to contemporary technologies, but also to see the relationship between method and theory. Both traditional research and modern rescue archaeology seek answers to specific questions, and not only what those questions are but also how those questions are answered is often dependent upon theory.

The present discussion deals mostly with what is known as *low level* theory: the collection of evidence and its interpretation (see section 2.1). Although the details are too complicated to be outlined here, it should be noted that it is not clear whether innovations in field methods and research strategies lead to changes in theoretical and interpretative models, or if theory influences method.

In the discussion on excavation in this chapter (see section 3.4), for example, a

distinction is made between stratigraphic and non-stratigraphic methods. Archaeologists now excavate stratigraphically whereas earlier they often dug in arbitrary levels. What might seem wrong now made perfect sense at a time when archaeology was primarily concerned with crude questions of relative chronology and recording technology was limited to photos and drawings. Arbitrary excavation methods once thought to be suitable for building ceramic typologies cannot be used to reconstruct the unique history of any individual site. In many cases, such advances may only be possible because of the refinement of stratigraphic excavation techniques. These are in turn dependent upon not only such documentary innovations as the Harris matrix and single context planning (SCP), but also the emergence of a body of professional archaeologists trained in applying these methods.

Other examples include the practice of sieving for organic remains or broken shards, which were not recognized as evidence until theory revealed their value. Attempts (often associated with the so-called New Archaeology (See also *Theory in Archaeology*) but also resulting from administrative necessity [i.e., CRM]) to make archaeology more scientific have also led to more systematic, objective methodologies, which enable the construction of regional databases and analysis using Geographic Information Systems (GIS) software. This in turn spurred the relatively new sub-disciplines of Landscape and Environmental Archaeology to focus on relationships among sites and between sites and their landscapes.

Other aspects of technological innovation as a factor for methodological change will be examined primarily in section 3.3 (Documentation).

2.1. The Science of Archaeology

Early formulations of archaeology were necessarily very empirical. Early archaeologists had little or no theoretical framework for their material. In many cases, they did not know what they were collecting: prehistoric artifacts were sometimes labeled fairy arrows or thunderbolts. The empirical method sought -- through simple observation and documentation (collection, description and classification) -- to amass a body of data from which a theoretical framework would evolve, thus eventually leading to explanation.

The past 100 or 150 years of scientific investigation have not only given archaeology a fairly strong theoretical basis, but also led to an often-confusing profusion of labels (such as Marxist and post-Marxist, processualist, and post-processualist). Although questions about gender, social organization, and cognition are now common topics for discussion, many conclusions are still based on data that may be of limited objective scientific value.

Debate also continues over whether archaeology is actually a science or not. In order to bypass this dilemma, the present study considers the discipline in terms of two approaches, as an *earth* science (investigation of finds and sites) and as a *social* science (what the conclusions reached about the finds and sites say about the people who made them). One approach to resolving problems with the latter -- which relate to the fact that archaeology is one of the few social sciences where the subjects cannot be interviewed -

- will be discussed briefly under 4.2.

Otherwise, archaeological fieldwork is presented here as an earth science (e.g., geology). Although archaeology involves more than excavation, excavation is the focus in this debate and is commonly contrasted with the role experiments play in other sciences. According to one definition of science, the results of an experiment must be reproducible if they are to be scientific. That is, the experiment can be repeated with the same results. It has been argued that archaeology is not a science because sites are destroyed by excavation, can only be excavated once, and the experiment (excavation) therefore cannot be repeated. Besides giving too much weight to the role excavation plays within archaeology, this is a false analogy, which ignores many examples of irreproducible results from other scientific disciplines: earthquakes and certain astronomical events are similarly unique. Thermoluminescence, radiocarbon, and other absolute dating methods used by archaeologists but developed by physicists also destroy evidence (see also *Dating and Chronology*). On the other hand, many non-intrusive investigative techniques have been -- and continue to be -- developed for use by archaeologists (see also 3.2 in this chapter). To a large extent, any difference between archaeology and other sciences lies in the quality of -- and an understanding of the role played by -- documentation in the scientific process.

The latter is relatively controversial, in part because recent post-modernist debate questions the very idea of objectivity, but perhaps also because of this lack of clarity over archaeology's scientific status. One might argue that in the past, such attitudes as "it's not science anyway" were often used to excuse shoddy methodology. Whether true or not, the results are essentially the same, and new documentation methods that seek to integrate subjective data may actually reflect a belated recognition that much of what passes for archaeological documentation has been less than ideal.
One point to consider in this light, which relates both to this scientific approach to archaeology and to limitations on the present discussion, is archaeology's diversity. The present discussion is necessarily somewhat generalized, since archaeology has developed neither unified, pan-national method nor theory, and the different characteristics of national archaeologies cannot possibly be outlined here in detail. Whereas one might speak of organic and inorganic – but not of German and British – chemistry, disciplinary differences between British archaeology and German *Archäologie* (concerned mostly with Classical Antiquity) or *Vor- und Frühgeschichte* (early- and prehistory) are very real. As a result, even something as apparently straightforward as site documentation was never fully systematized in the way that allows, for example, chemists the world over to speak of the same elements and compounds.

Another example can be seen in archaeological publications, limited by high costs to what often amounts to interpretation with little or no supporting evidence. Reproducibility is especially difficult without access to the original – and often voluminous – site archives, a problem of transparency that widespread use of databases and the internet can remedy, thus bringing archaeology one step closer towards normalization as a scientific discipline.

In scientific terms, then, the results of an archaeological excavation are often

irreproducible not because the site has been destroyed, but because of a failure to follow the scientific process. In this sense, reproducibility might be equated with the concept of preservation by record used in CRM. To some degree, and as outlined in the following section, 2.2, one of the implications this lack of system has had both in terms of scientific method and public accountability has been the introduction of legislation that holds archaeologists responsible for their actions, essentially forcing them to be more scientific.

2.2. Legal Framework

Laws protecting ancient and historical monuments are not intended to serve the needs of archaeologists. (See also *Preserving Archaeological Sites and Monuments*). Although these laws are not directly responsible for the distinction between research and rescue archaeology, legislation has focused attention and debate on the divide. Many argue that there should be no more research excavations, since finances and resources are too limited to deal effectively with all the sites threatened with development or other undocumented destruction. Academic archaeologists, on the other hand, tend to discount rescue work as either not real archaeology or not as good as research archaeology.

This is, however, a simplistic overview of a complex debate, and need not be of concern except for the light it sheds on the role science plays even in academic archaeology. One unintended result of the diversity mentioned in the previous section has been a greater degree of freedom for the individual archaeologist than is possible for a chemist, geologist or biologist. Not only methodology and terminology but also rules of inference and evidence are relatively flexible. Public archaeology transforms archaeology from a pure to an applied science, making archaeologists accountable to those who pay their bills, and turning scientists into public servants. It also systematizes the investigative process, placing constraints not only upon financing, academic or other professional qualifications but also upon methodology and documentation.

Thus bureaucratic necessity (e.g., standardized forms) may force archaeologists to be more scientific. From a strictly managerial perspective, it might be argued that many such changes would have been necessary as a means for handling the mass of information collected in the face of rapid development. Legislation, however, has often brought about reform, which archaeologists themselves and the archaeological community as a whole have failed to enforce on their own. Publication of reports is a good example. Archaeologists love to dig holes but are notoriously slow when it comes to disseminating their results; they may now be required to do so by law.

Overall, such concepts as ethics, public accountability and professionalism are new to archaeology, which became an academic discipline relatively recently, and is now painfully making the transformation to a profession. Gentlemen antiquaries could previously state their findings and be believed because they were, after all, gentlemen. Since certain questions arose regarding Schliemann's excavations at Troy, there has been a slightly more rigorous demand for proof. This manifested itself in certain documentation methods that aim less at recording observations than in proving that evidence has not been faked (e.g., photos of important finds *in situ*). An equal degree of

methodological rigor in the recording of observations (e.g., strict separation of description from interpretation) combined with general questions regarding the authority of the investigator have been more recent developments. This reflects not only liberalization within academia but also archaeology's move into the wider community.

In this light *preservation by record* has given cultural resource managers a tool for dealing with what amounts to being the destruction of the monuments under their protection. This is a conceptual standard of documentation whereby a site is preserved as a paper or virtual record, thus conceivably allowing its eventual replication. In terms of the scientific model presented here, this can fulfill one sense of reproducibility, that of independently verifiable interpretations. Although theoretically the goal of all archaeological documentation and the obligation of every responsible excavator, this essentially has had to be legislated and has led to a number of significant consequences.

3. Practice

All archaeological fieldwork is now subsumed under what is known as public archaeology or Cultural Resource Management (CRM), which provides the long-term strategic framework for the protection (ideally preservation in situ) of archaeological sites and other cultural monuments. (See also *Preserving Sites and Monuments*.) The preservation of cultural resources and mitigation of the unavoidable consequences of development are thus seen as more important than any narrowly defined, short-term academic interest in data collection (pure research). Cultural heritage belongs (depending on the level of jurisdiction) to the locality, nation (National Monuments), or (as in the case of UNESCO World Heritage Sites) to the world. The destructive act of excavation is therefore seen as a last resort.

When any given site is threatened by development, the preferred response is mitigation: altering plans so that development either does not -- or causes only minimal -- impact on archaeological remains. Failing such preventative measures (or in cases where sites are not deemed important enough to save), rescue excavation may be necessary to rescue information that will otherwise be destroyed; this is sometimes known as preservation by record. Limited financial and other resources often necessitate a form of triage -- evaluating which sites are worth documenting and which are not. Such decisions are often dependent not only upon long-term research goals but also upon detailed knowledge of sites and their contents based on information obtained during site assessment.

When this system fails, a further response -- salvage excavation -- is sometimes necessary. (See also chapter on *Rescue Archaeology*.) In spite of all the methods used for site survey and assessment, sites are all too often discovered by accident during the course of development work. In contrast to rescue excavation (which either rescues information before a site is destroyed by development or performs planned documentation during development), salvage excavation salvages any finds and/or information possible while a site is being developed. The main difference is that under planned rescue conditions, a developer will make allowances to permit documentation. Since a site will normally only be salvaged because of mistakes by archaeologists, their work would not usually be allowed to impede development unduly.

3.1. Project Design

Excavation is a small part of a larger multi-disciplinary framework, which includes pre-excavation research design and post-excavation analysis. Since organizing an excavation is like planning a military campaign, it's not surprising that many of the earliest -- and most successful -- archaeologists had military backgrounds. Their ability to lead -- and coordinate the logistics for -- large-scale teams working in the field have not been replaced by such modern concepts as project design, management, and quality control.

When planning any project, certain points may not be negotiable. Besides such constants as the availability of trained excavators, standardized documentation systems or other legalistic restrictions, the choice between stratigraphic or non-stratigraphic excavation methods (see also section 3.4) depends ultimately on whether or not a site is stratified.

Overall, though, research design aims to integrate planning into an established CRM framework, a systematic approach linking site-specific research goals into a larger regional strategy. A comprehensive, systematic research strategy will also plan (and make allowances within its methodology) for:

- the storage, restoration and/or conservation of artifacts and sites;
- interpretation and display of artifacts and sites; and the
- publication of results.

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Biographical Sketch

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The author's interest in field methodology derives from experience excavating in Canada, England, France, Denmark, the Netherlands, Germany and Israel. He is currently writing a PhD on stratigraphic theory.