

The background of the cover features a red car, possibly a truck or van, tilted at a steep angle. The car is heavily decorated with Christmas ornaments, including a large red bauble, white and gold tinsel, and various colorful decorations. The car is set against a background of soft, abstract shapes in shades of blue and white, suggesting a sky or a snowy environment. The overall composition is dynamic and festive.

Conservation

Principles, Dilemmas and Uncomfortable Truths

EDITED BY

Alison Richmond • Alison Bracker



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V&A

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Archaeological Conservation: Scientific Practice or Social Process?

Elizabeth Pye

Introduction

Archaeological conservation is concerned with sites, structures, and associated artefacts that are the focus of archaeological study. This chapter concentrates on conservation applied to objects discovered through excavation, and aims to examine the extent to which archaeological conservators are bound by the same general principles as other conservators. The constraints of the context (conservators often work in the field) and the condition of the material (frequently highly deteriorated and sometimes unrecognizable) may limit the ways in which accepted conservation principles can be applied.

Principles represent the agreed philosophy of a profession, but achieving agreement and definition of principles takes time, so existing codes may lag behind current practice and evolving thought. The philosophy typical of archaeological conservation has a scientific focus reflecting the way in which this branch of conservation developed in the late nineteenth and the twentieth century as a scientific practice (linked to a scientific approach to archaeology).^{1,2} However, since the late twentieth century there has been a shift in archaeology, and more recently in conservation, towards a more inclusive social approach. A second aim of this chapter is to examine the extent to which archaeological conservation is scientific practice or social process.

The archaeological context

Archaeology aims to develop hypotheses about activities and life in the past through interpretation of material remains. Characteristic of archaeology is a methodology based on excavation and analysis of stratified deposits and the evidence (including objects) encapsulated in the strata.³ Counterbalancing this analytical practice, and increasingly considered important, are the social aspects of archaeology, involving all those with an interest in archaeological activities and the

material remains of the past. ‘Public archaeology’ embraces actions at international and national level in the protection and study of heritage. It also embraces more informal interests associated with tourism, local societies, personal collections, and activities such as metal detecting; these are often exploited and encouraged by the media, particularly television.⁴ Whereas 50 years ago archaeology was a relatively narrow specialist interest, now many people, with sometimes-conflicting views, are involved – including politicians, religious groups or local communities.⁵ The acceptance of multiple views is also linked to the recognition now given to intangible heritage, such as language and drama.

There is a general presumption that archaeological remains are best safeguarded *in situ*, and it is often argued that excavation should take place only when a site is threatened (although research interests may justify excavation of unthreatened sites). However, it is increasingly difficult to conserve sites in this way as they are threatened by land changes caused by building development, drainage, or industrial farming methods. The trade in illicit antiquities, exacerbated by ease of communication through the Internet, and fed by demands of collectors, has also become a major problem.⁶ Increased personal mobility has boosted tourism, which damages sites through over-visiting. Climate change is likely to damage buried sites through rise or fall in the water table, or through erosion caused by storms and flood. As conservators we need to be aware of the role we can play in limiting this damage – for example, by striving to limit carbon emissions or by refusing to work on illicit material.

Archaeological objects

Excavated objects often display more extreme deterioration than other types of objects. Some soil conditions are so aggressive that little material survives, or what does survive is in a very poor state; there is often a bias towards survival of inorganic materials (such as ceramics, metals) while organics (including wood, textiles) leave little or no trace.⁷ Only in particular contexts is there excellent preservation of the whole range of materials, as in waterlogged or under-sea conditions (in the case of artefacts retrieved from wells or ship-wrecks)⁸ or as in the very dry conditions of Egypt (objects displayed in the Cairo Museum show staggering preservation). In many contexts, the generally poor survival of organic materials means that even quite tiny and apparently unattractive traces of wood or textile can be important as sources of information.

The relation of an object to its context, and to other objects in an assemblage, is crucial in developing ideas about types and sequences of activity, and in dating a site, so individual objects can be likened to pieces in a jig-saw – significant as part of a whole. Objects provide the possibility of reconstructing technological activities, and of answering questions such as: How was this made? But this is not simply a dry scientific process of technical analysis and typological dating – it also

contributes to developing ideas about past people's motivations and behaviour. We can begin to consider questions such as: What was it like to be alive then?

An excavated object is likely to be far from its 'as made' state. Its significance as archaeological evidence is intimately linked to its material character embracing not only the original substance but also the indications of all the material changes that have happened as a result of manufacture, use, discard, burial and discovery. We sometimes refer to this totality as the 'physical integrity' of an object, and are cautious about any action that might affect it. Paradoxically, however, investigation and conservation processes may involve either removal or addition of material, and thus modification of the object's form or composition.^{9,10} Changes that happen after excavation, such as renewed corrosion, may not be considered aspects of this integrity, but increasingly we consider earlier conservation treatments to be significant aspects of the history of the object.

For all these reasons, careful judgement is needed to decide where the archaeological significance of an object may lie, particularly because there is probably more information in some objects than we have yet been able to tap. For example, in the last 20 years or so, it has become possible to identify traces of foodstuffs, thereby indicating what ceramic vessels contained, and to examine DNA in bone, thus detecting relationships between buried individuals (and future innovations will presumably enable us to learn even more).¹¹ It is an important principle that the aims, processes and results of investigation and conservation are fully documented so that future re-investigation or re-treatment can take account of earlier work.

Archaeological conservation

Archaeological conservators work in the field where their task is to limit the deterioration that is often activated by excavation. We also work in museums on recently excavated material, or on existing collections, where we normally focus on investigation, elucidation and treatments aimed at preventing further change. Apart from spectacular discoveries, comparatively few objects from current excavations are considered suitable for public display; so restoring objects is a relatively minor aspect of many archaeological conservators' responsibilities. By contrast, conservators working on major archaeological collections, such as those of the British Museum, are routinely involved in preparing significant material for exhibition. However, in this as in other fields of conservation, there can be overlap, both in intention and effect, of different conservation techniques. Reconstructing a damaged object may stabilize it, but also clarify its form for specialist study, as well as making it more visually accessible to visitors.^{12,13,14,15}

Very large quantities of artefacts (frequently highly fragmentary) can arise from excavation, so most objects are studied as populations rather than individuals. This has several effects: we make a preliminary selection (we often use X-radiography to

select particular metal artefacts for detailed investigation), or we treat large quantities of material in batches (regularly the case for waterlogged leather fragments).¹⁶ Although sometimes argued by conservators in other fields that every object should receive the same level of attention, it is simply not feasible for us to apply a uniform standard of conservation treatment to the bulk of archaeological material.

Preventive conservation in the field

An important aspect of archaeological conservation is the preventive measures undertaken in the field. If remains are left undisturbed in the ground, equilibrium is reached and deterioration slows or even ceases. The process of excavation upsets this equilibrium and puts objects at risk: it may induce rapid change through exposure to oxygen, sunlight, changes in humidity, and to loss of the physical support provided by surrounding soil. Exposure is particularly risky for waterlogged organics – loss of water through evaporation may result in fragmentation of surface detail and structural distortion or collapse – or for highly desiccated objects, which may simply crumble.¹⁷

Our objective is to minimize the shock of excavation. As far as possible we replicate burial conditions: so waterlogged material is kept wet, and fragile objects are given alternative physical support to take the place of the surrounding soil. Although we use preventive measures as far we can, some fragile material may need a rather more interventive approach, such as application of adhesive and temporary facing in order to provide support during excavation.^{18,19} We accept that the constraints of working in the field, often with limited time and resources, necessitate adaptability, especially in an ‘emergency,’ when significant objects are discovered unexpectedly. So here, too, we may not always be able to use the ‘best’ approaches and materials.

Artefact investigation: the conservator’s responsibility

The importance of investigation is a consequence of archaeology’s focus on material remains as evidence of past activities. Excavated archaeological objects can be so deteriorated that their investigation is likened to forensic detective work, and may involve X-radiography to elucidate interior structure,²⁰ cleaning to reveal surface detail,²¹ or analysis of accretions. Investigation has become our responsibility because discovery of evidence must go hand-in-hand with ensuring that the evidence is not damaged or lost, or that its elucidation does not distort other actual or potential information.

Investigation plays a crucial role in aiding interpretation of the object for the specialist. Preliminary cleaning can be compared to archaeological excavation and we often refer to it as ‘investigative cleaning’ (as in cleaning a coin in order to

identify and date it). Being destructive it can be a risky and potentially controversial activity, so we must weigh carefully both the benefits and the risks. We must assess the nature of accretions: whether they are extraneous – such as adhering soil – or products of deterioration of the object itself, and we must evaluate the effects of deterioration. In some materials (for example, glass) deterioration changes surface appearance but not volume, so we retain the deteriorated surface, but in other materials (for example, iron) deterioration can result in voluminous corrosion, which we generally remove as it obscures the object. However, metal corrosion may not only obscure surfaces but also contain information, such as tiny traces of mineralized wood or textiles; furthermore, surface detail may lie *within* the corrosion layers rather than beneath them, so we must be vigilant for this kind of information. We also need to discriminate between foreign accretions and original features: a dark material in engraving on a bone object may be ‘dirt’ or black pigment; a chalky-looking deposit on a decorated copper alloy object might be degraded enamel. Deciding exactly what to remove and where cleaning should stop requires careful judgement; so we may clean objects only partially in order to leave material for future re-investigation.²²

We use other forms of investigation in order to understand composition and techniques of manufacture ‘recorded’ only in the objects themselves. Results of examination can be indicative of innovation and evolution in technologies (for example, the makers’ ability to harness fire, or to achieve precise control of temperature) and may contribute to wider archaeological theories about, say, contact between groups. For these reasons we must be familiar with a range of analytical techniques, from simple chemical spot tests to instrumental analysis such as scanning electron microscopy or X-ray diffraction.

Remedial conservation

When using remedial treatments we aim to stabilize existing physical damage and reduce active deterioration. Broadly, we divide treatments into those that involve adding material to enhance stability, and those that involve removing materials that are sources of active deterioration. Examples of added materials include modern synthetic polymers used as adhesives or consolidants, or corrosion inhibitors applied to metals. In practice they are considered to be more or less permanent additions, as attempts to remove them would put fragile archaeological objects at risk; so reversibility has been an ideal, but never an actuality. We aim to choose materials that we can be reasonably confident will not damage the object and distort the known or potential information it carries, so we must have a good knowledge of the properties and effects of these additives, particularly as some have proved to be unreliable or hazardous.

We use many treatments to remove harmful substances, including soaking in order to dissolve soluble salts that have penetrated the pores of a ceramic, or

disinfection of an object affected by fungal spores. An even greater degree of intervention involves changing the material of the object itself. We may use this when degradation has altered the character of the object so profoundly that little coherent form is left. For this reason, electrolytic reduction has sometimes been used to convert lead corrosion to a more homogeneous metallic state on objects that have suffered in poor storage. This approach does not conserve the object as found, and alters evidence of original technology, so is controversial. In each situation we must weigh up the effects of treatments on the perceived archaeological integrity of the objects and use detailed documentation to record both process and effects. We use all treatments as cautiously as possible but there may be situations where unstable excavated artefacts will not survive without an extent of remedial action normally considered over-interventive in other fields of conservation.

Preventive conservation of stored material

A major problem is presented by the large amounts of material being excavated and what is seen, in some parts of the world, as the consequent crisis in the size of the stored archive.²³ This situation has increased our responsibilities since the objective of the archive is that material should be preserved for future study. We aim to create favourable conditions for long-term preventive conservation through providing effective packaging and establishing and maintaining a suitable environment. However, the large quantities of material make it difficult to monitor the condition of objects regularly, so the state of stored material frequently has to rely on the passive effects of good packaging and environmental conditions.

Interpretation through restoration

Relatively few excavated objects are exhibited, thus many remain accessible to specialists alone. We use restoration techniques only where an object is particularly significant or can be used in display to communicate information about a site, period, or activity. Techniques are intended to reinstate something of the original appearance, and normally embrace cleaning, reconstruction from fragments, and completing missing areas or features.

We hold that restoration should not alter materials, or conceal the effects of use, discard and burial. As far as possible, fills or reconstructed features are designed to be readily removable and are toned to the general colour of the fabric rather than matched precisely, the principle being that viewers should be able to distinguish original from restoration.^{24,25} Furthermore, we do not reconstruct or reshape objects if the damage relates to their original use or to their deposition (such as apparent ritual breakage of weapons), or reflects significant events relating

to their discovery. In any case, reshaping can be controversial because of the risk of losing technical evidence.²⁶

Re-conservation and re-interpretation

The archaeological archive includes long-standing collections in museums. Many of these objects were discovered or acquired during the last two or three centuries, and restored according to the practices of the time. Our work can require deconstruction of old restorations that may be failing or causing damage, or re-investigation to understand the objects better. There is a potential conflict here – interest is increasing in the history of conservation, but removal of old restorations removes the evidence of earlier practices.

Conservation as social practice

The scientific, material-focused approach to archaeological conservation has been established for well over half a century, but recognition of wider public interest in the past has exposed us to new views and pressures. It is now acknowledged that excavated objects can have many different intangible meanings (such as personal, political, aesthetic or religious) for people today. What may be a piece of evidence to an archaeologist, or conservator, may have deep spiritual meaning for a member of a descendant community. A particularly telling example is that of human remains – seen on the one hand as specimens stored for scientific analysis, and on the other as ancestors who have been exhumed and denied the right of burial.^{27,28}

We must consider these differing values carefully when working towards conservation decisions. Whereas 20 years ago, scientific factors would have governed our thinking, now, to the emphasis on material or physical integrity, we must add consideration of the values that compose an object's intangible cultural significance.²⁹ Furthermore, we must reach a balance between values that sometimes conflict. Should human remains be investigated and conserved, or returned to the relevant community for reburial? In the USA, the Native American Graves Protection Act (NAGPRA)³⁰ has enforced the return of human remains together with their accompanying grave goods, and much conservation work has focused on preparing material for return. Should a feature that has 'always been there' be excavated, conserved and studied, or simply left alone where it 'belongs'? In one case, local people in a Scottish community were in favour of reburying the long-lost base of a famous stone cross-slab, despite the upper part being a valued exhibit in the Museum of Scotland.³¹

These examples reflect not only the strength of personal feelings, but also a view that objects have lives, and a fear that archaeologists' or conservators' interventions may rupture the natural course of these lives. In fact, as archaeological

conservators we have long understood that objects are not static, that both material and meaning can be changed by events such as excavation, and that it is possible to manage material change, but seldom to eliminate it. Furthermore, we acknowledge that intangible significance may be linked to material change (as in the value given to patina). We now also recognize that conservation practice itself, far from being 'neutral,' contributes to the unfolding life of an object by instigating material change, or by giving preference to a particular meaning. We also accept that views of significance are not firmly anchored in the materials of an object but may shift with new audiences and changing interests.

Public questioning of conservation practice also indicates a suspicion of experts who, certainly until recently, have been seen as exclusive. However, archaeology is becoming increasingly inclusive, as seen in such activities as community excavations. Some archaeological archives are now open to visitors, and rather than guarding their professional expertise, archaeologists and conservators welcome the involvement of volunteers, and work with groups such as metal detector users, identifying their finds and advising on their care.^{32,33} We aim to display conservation activities openly rather than screening them from public view, and visitors' questions are welcomed. Communication with the public has become as important as communicating with fellow specialists; so although we have been accustomed to using formal scientific reporting and specialist terminology, we are now beginning to use everyday language and to 'tell the story' of a conservation project.

Conclusion: principles of archaeological conservation

What can be said to typify archaeological conservation? It has been profoundly affected by an emphasis on material evidence and investigation, and on the desire to re-investigate in the future. The large quantities of material coming from some excavations lead to the necessity of selection for both investigation and treatment, or alternatively to the need for bulk conservation treatments. An understanding of archaeological context is essential in order to focus field treatment and subsequent investigation appropriately (and to discriminate against illicitly obtained material). Although the concept of minimum intervention is important, the nature of material and context may require quite interventive approaches. At the same time, public involvement and new audiences are shifting philosophy and practice towards a greater emphasis on intangible meanings of objects, and provision of wider physical and intellectual access.

For us, conservation increasingly involves negotiating a balance between apparently or actually opposing positions – between protection of and access to objects, between preservation for future use and use now, and particularly between the needs of science and the interests and beliefs of people. In some situations opposing positions lead to controversy and conflict, and human remains

are a poignant example. In 1989, the Vermillion Accord was drawn up in an attempt to encourage indigenous peoples and scientists to respect each other's views. Paragraph 5 states that 'agreement . . . shall be reached by negotiation on the basis of mutual respect for the legitimate concerns of communities . . . as well as the legitimate concerns of science and education.'³⁴ This accord is a useful expression of the need for respect and negotiation in potential conflicts between the scientific and social approaches to conservation. The requirement for respect and negotiation may be increasingly important in the future as climate change confronts us with a conflict between the urgent needs of human populations and our desire to preserve our archaeological heritage.

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