Conservation of Archaeological Materials – Current Trends and Future Directions
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Conservation: Concepts & Reality

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Before any individual, organisation or discipline contemplates its future, it is prudent to know where it currently stands, where it has come from and what the world around it is like. Thus to start a conference on 'Current Trends and Future Directions in Archaeological Conservation', it is surely prudent to consider, if briefly, what we understand conservation to be i.e. the concept of conservation, and something of the history of conservation to show how we got here. We also need to understand the reality of the world in which conservation exists, what others expect from conservation and conservators.

Conservation as a Cultural Construct

The objects and events of earlier times form our past. Lowenthal, Merriman and others (Lowenthal 1996, Michalski 1994) distinguish between two forms of past:

Heritage. A personal inheritance of the past, a past which can be used in the present. It is that subsection of the past which an individual inherits, their family, their ancestry, the traditions of their nation. It is exclusive, it is biased, and its purpose is to benefit the individual. It is personal memory, an attachment to people, places and things, and a past that can be used. It is selective, the symbolic objects of a nation and the personal mementoes of childhood.

History. The whole of the past, raw unrefined events. History is ever expanding and all-inclusive. It explores and explains the past, its purpose is simply to be and be known. This is the past of academic conferences and which fills books. It is all the objects of the past in their actual condition.

History is factual, detailed and can be dull. Heritage is personalised, simplified and is always relevant. Lowenthal (1996) illustrates heritage through the example of the Tiv, a tribe in Nigeria, who first recounted their tribal genealogy and 'history' to anthropologists over 50 years ago. The anthropologist's written record no longer corresponds to the present day genealogy and 'history', which is recited within the tribe. As the oral genealogy and 'history' is their heritage; the past is serving the purposes of the present, it will be continually amended to 'update it' to keep its relevant and useful to the tribe of today.

All aspects of our past, whether Mickey Mouse or Durham Cathedral exist both as a detailed reality (history) and the memories beliefs and images (heritage) we hold in our hearts.

Human beings have frequently treasured unusual objects of antiquity as a memento of their heritage. This is demonstrated by the instances of the use of Roman coins as pendants in the medieval period. However, it was only the development of the discipline of archaeology in the 19th and early 20th century that enabled us to take detailed and logical 'history' approach to artefact studies. The work of Pitt-Rivers, Montelius, Flinders Petrie and others established a series of logical processes such as stratigraphy, typology, comparative

analogy and seriation which enables us to relate objects to activities and events in the past (Renfrew & Bahn 1991). This approach to observing the natural world and using reason to create understanding derives from the Age of Enlightenment. This same methodology drove the 17th and 18th century developments of science and technology, which gave rise to the Industrial Revolution and is the underlying concept of our present 'knowledge based society'. Modern society in both America and Europe is profoundly secular, believing that physical evidence, facts, logical deductions, science and technology provide the answers to its questions.

The desire in the 18th and 19th century to make a known, logical organised and coherent past led to the systematic collection, observation and classification of ancient objects. These generated collections of ancient objects that were displayed in cabinets of curiosities and which eventually gave rise to museums (Lewis 1992). These institutions can be seen to have saved objects both for historic and heritage reasons:

- To safeguard the facts and information of the past – history

- To safeguard the objects (physical proof) which trigger memories and responses e.g. medals, or which prove 'our' version of events that explain, justify and define the present such as national identities - heritage

This activity of collecting and caring for objects does not occur during their initial functional or use phase but later, when an object has become scarce and valuable. It is valuable and worthy of collection because of its age and associations. The most highly prized objects are the oldest and most culturally distinct. They are treated with reverence and receive the highest standards of museum care. This 'care', which involves storage, careful display, cleaning and repair, we term conservation.

There is, however, ample evidence that people of earlier ages cared for objects of beauty and antiquity in a number of ways:

- cleaning objects e.g. 'muntadors' who from 1543 used coarse bread or sponges dipped in Greek wine to clean Michelangelo's frescos on the ceiling of the Sistine Chapel (Colalucci 1991; Mancinelli 1991, 1992)

- reassembling broken objects e.g. John Doubleday who, in 1845, worked in the British Museum adhering together the pieces of the Portland Vase (Watkins 1997, Williams 1989).

However, these activities were undertaken without any recording of the object, or the conservation work undertaken. Nor was there any scientific identification of the causes of decay of the object. The visual appearance of the objects was the only concern. This was noted by Nigel Williams who found that fragments of the Portland vase had been ground down in order to make them fit into the reconstruction (Smith 1992, 56).

This emphasis of the visual appearance of the object was particularly evident:

- In the Renaissance, when nobles and princes collected objects of classical antiquity, especially marble and bronze statuary and employed artists of the day, such as Michelangelo and Cellini, to clean and restore them (Cellini 1878, Sease 1996). This cleaning and restoration work of the Renaissance has been described as 'repristination' (Giusti 1994)

returning an object to its pristine 'as new' state, placing the aesthetic beauty of the object above all other things.

- In Britain and France in the 19th century where 'aesthetic restoration' was applied, especially to churches and other buildings. Architects such as Eugene Emmanuel Viollet-le-Duc and his colleagues sought to strip away much of what they considered to be 'poor quality' later material and to restore the buildings 'in the style of' the Gothic period, from which many of them derived.

Prior to the late 19th century almost all objects of the past were cleaned to make them visually appealing, cleaning occurred to make them correspond with the aesthetic sensibility of the day. Cleaned of corrosion, devoid of paint, emasculated, these objects of the past suffered what can be described as 'the iconoclasm of contemporary taste'; cleaned and 'restored' to a stereotypical view of what the past should look like i.e. 'repristination'. This was the process of cleaning and restoring for the purposes of heritage. It supported and enhanced a personal view of the past and frequently performed the role of demonstrating the wealth and taste of the owner of the objects.

However, by the late 19th century, such cleaning and restoration activity was starting to cause concern. The idea that every building or object of the past contained valuable evidence of that past, its virtues and its values, was an idea articulated by Ruskin in 1849 in his book *the Seven Lamps of Architecture*. This idea was more clearly articulated in 1877 by William Morris (1996) and the members of the Society for the Protection of Ancient Buildings.

'A church of the 11th century might be added to or altered in the 12th, 13th, 14th, 15th, 16th or even 17th or 18th centuries, but every change, whatever history it destroyed, left history in its gap and was alive with the spirit of the deeds done midst its fashioning. The result of all this was a building in which the many changes, though harsh and visible enough, were by their very contrast interesting and instructive and could by no possibility mislead'

Such views increasingly influenced society, which became concerned about the evidence that was being swept away by the extensive restoration programmes. These were consequently curtailed. The idea, that every object is, at least in part, a historic document, which contains a unique record of the past, has now become widely accepted (Pearce 1994, Hodder 1994). As our knowledge of ancient technology has advanced and the ability of science to help us extract information has developed, objects increasingly provide a mass of detailed evidence about the past (Pollard & Heron 1996, Henderson 2000, Caple forthcoming).

Thus it is only from the 1880's – 1890's that there is a clear ethical appreciation of the importance and need for preservation of original material and the scientific capacity to analyse and appreciate the chemical nature of decay. It is consequently hardly surprising that most textbooks suggest that conservation as we know it today began circa 1888 with the appointment of Friedrich Rathgen to establish a conservation laboratory at the Royal Museums in Berlin (Caple 2000, 53; Gilberg 1987).

Conservation with its requirement to record all aspects of an object and preserve it complete deals with objects as part of the history view of the past, rather than the heritage.

Is conservation really an activity unique to our society in the 20th century, or have many previous cultures appreciated the value of objects from the past and cared for ancient artefacts.

Research in this area is currently being undertaken by Clare Hucklesby (Hucklesby 2005; forthcoming), who is looking at earlier cultures from around the world and investigating the nature of their care and repair of artefacts. Her work has identified two phases of repair and care of artefacts.

- One which maintains the functionality of the object. This is the mending of torn clothing, patching the hole in a bucket or rehafting an axe. It usually happens in the early initial use phase (Hucklesby's AIDU, activity induced diminishment of utility, phase) of an object's life.

- One of veneration which maintains the symbolic or representational nature of the object. This may take many forms, usually related to renewing the visual form of the object e.g. repainting the object or blessing it and renewing its spiritual power. It retains or enhances its meaning as a result of this process, which usually occurs later in the objects life (Hucklesby's RU, reinvigorated utility, phase), when it is considered valuable because of its age and associations. The objects are usually stored/located in specific 'special' places and treated by specific 'special' individuals. This appears to equate to the point in our own society when the conservation process takes place.

Her research has produced a number of examples of this veneration activity in almost all cultures.
Examples of earlier cultures include:

- Roman Samian vessels held together with rivets, which thus keep their visual form, though but have greatly, reduced functionality (Marsh 1981, Ward 1983. Booth 2001)

- 17th century wine glasses held together with strips of lead (Willmott 2001), no longer capable of being safely used for drinking liquids, they appear to be retained for an heirloomic role.

In more recent ethnographic contexts we can see:

- Aboriginal cave paintings which are repainted every time a ceremony takes place (Maynard 1973)

- Maori buildings and other objects were repainted as a mark of respect to the spirits which inhabited the building (Barton & Weik 1984; Peters 1981)

- Modern day French Catholic churchgoers who, when faced with 'modern' stabilising conservation of their religious statues, insisted that they be repainted (Molina & Pincemin 1994)

In all these cases the care and repair of these objects appears to be a form of veneration that supports the beliefs of the society that owns or controls the object.

This role for artefacts in supporting the views of the society that holds or controls them is particularly emphasised when objects of one society end up in the possession of another. They are used not to support the original belief, but to support the beliefs of the new owning society. Thus Romans acquired the statues of Greek gods renamed them and gave them identities as Roman gods and heroes. Renaissance princes acquired the same Greek statues, cleaned them

and portrayed them as ideals of human form, marvelling at the clean beauty of the marble and disregarding the fact that the statues were originally painted. Subsequently the Victorians acquired the statues. They continued marvelling at the beauty of the sculpture form, but often modified the object by adding fig leaves and draped cloth to cover the human genitalia, which they found offensive.

Our own society has collected millions of artefacts from ancient cultures and ethnically diverse societies. It places these objects in a museum, displays them for the purposes of education – one of the fundamental ideals of the Age of Enlightenment and preserves them for future study. This represents our belief in a knowledge-based society, retaining and using physical evidence and reason to derive understanding. Throughout the 20th century we have believed that objects are historic documents that must be preserved through storage for future study and analysis. Our form of care for such objects is conservation. Thus conservation equates to the veneration activities of previous societies.

From this conservation can be understood as a social or cultural construct. It expresses the belief by modern society in the importance of knowledge and retaining information for future re-interpretation.

Definitions and Aims of Conservation: RIP

Having identified conservation as a social or cultural construct it is something which must have evolved along with society since the late 19th century. From the 1930's onwards organisations have emerged e.g. ICOM, IIC, AIC to promote and develop the subject and represent the practitioners. These organisations have defined the aims or principles of conservation and the appropriate activities for its practitioners – conservators on a number of occasions, usually as part of codes of ethics (AIC 1964, AIC 1994; UKIC 1996: UKIC 1983, ICOM-CC 1984). The definition of conservation has evolved reflecting developments in the culture, especially the increasing emphasis on science and technology and more recently a greater recognition of other, differing approaches to objects, by other cultures. Concepts such as 'the true nature of the object', 'reversibility of treatments', 'minimum intervention', have all been used as the definition of conservation and then dropped as conservation and society developed and such definitions, which were initially considered appropriate, were subsequently considered insufficiently accurate or in need of further qualification. Definitions of conservation are often highly aspirational, fact or goal based (Munoz Vinas 2005, 18), which, in seeking to define what conservation is in a single phrase or statement, have perhaps failed to focus on the competing nature of the requirements of conservation and the 'area' in which professional conservators make judgements. Caple (2000, 33-35) followed by Munoz Vinas (2005, 173-175) has explored the use of defining conservation as having three competing aims:

Revelation: Cleaning and exposing the object, to reveal its original form at some point in its past. The visual form can be restored to give the observer, typically a museum visitor, a clear visual impression of the original form of the object.

Investigation: All the forms of analysis used to uncover information about the object, from visual observation and X-radiography to complete destructive analysis.

Preservation: The act of seeking to maintain the object in its present physical and chemical form, without any further deterioration. This will typically involve a full range of preventive conservation practices and the stabilisation processes of interventive conservation.

The balance of these aims forms a triangle, which defines the area in which activities can be described as conservation, and in which professional conservators work. Every conservation activity has aspects of these three aims and can be plotted within this triangle, see Figure 1. Cleaning an object may aid its preservation, reveal the form of the object and uncover information about it. Activities such as recording, though dependent upon investigation and used for education and thus revelation, are intended primarily as a means of preservation. The concept of a space, the RIP triangle, in which conservators make balanced judgements has been particularly useful in enabling conservation students to explore the competing requirements of conservation.

There are a number of benefits and some limitations in using the RIP triangle to define/describe conservation.

- It is a relative measure with no numerical scales or absolute values. The relative ratios of the different processes may allow the suggestion that the balance differs for different types of object. Archaeological objects usually have higher ratios of investigation and preservation than revelation, whereas an object with considerable intrinsic aesthetic properties such as a work of art may have a higher ratio of revelation to preservation or investigation.

- It encourages conservators to stand back from the conservation process, to be more conscious of the balance/compromise they make in undertaking their selected conservation treatment.

- It emphasises that the aim of both cleaning and restoration is to reveal the form/appearance of the objects at an earlier point in its life. Substantial discussion on the extent of cleaning and restoration is a matter of detail, if an important one. It is however, only when balanced with preserving all the original material of the object and investigating the nature of the object that cleaning or restoring an object could be described as conservation.

  '*Regardless of whether adding (restoring) or subtracting (cleaning) material, the object moves from a form created by the indiscriminate hand of fate to a truer form, one which the conservator can justify as* (more) *important and informative to the viewer.*' (Caple 2000, 35)

- This model is independent of resources. Thus, even if you are simply repackaging objects in a store as a preservative action, the conscious act of ensuring the objects and boxes are correctly labelled relates the object to its museum record and all the accumulated information about the object. It also ensures it is readily obtainable for investigation and display purposes. Thus you need not be a qualified conservator to engage with the aims and aspirations of conservation.

- The RIP triangle does not provide 'carte blanche' to claim that displaying actively degrading objects, reburying objects to preserve them or cutting them up for investigation, is conservation. Only when there has been consideration and action to provide a balance of revelatory, preservative and investigative processes can it be claimed that conservation is being undertaken. If an unequal balance of resources is revealed this must be justified – this requirement enables a wide range of arguments to be made, entertained and, if appropriate, enacted.

The role of the object as a historic document requires that either it is preserved for the future, or it is investigated and information obtained. The role of the object as part of our heritage is to reveal/provide, to a wide audience, a visual symbol of the past, a piece of physical evidence that supports our stories and ideas about the past. Thus the RIP triangle inherently recognises both history and heritage roles which objects are asked to perform.

Education

Though we may have a clear concept about conservation, the problem regarding a conceptual understanding about the nature of artefacts is much larger and draws in many other professions. It is important that conservators understand how their archaeological, anthropological and curatorial colleagues are using objects and can contribute to their developing 'narratives' of the past. Separate training courses, separate literatures, and the use of different words is creating an increasing distance between conservators, archaeologists and curators. This leads to entrenched positions and stereotypical depictions:

> *'The former, often curators, consider that the latter, often conservators, tend towards the same kind of inconvenient zealotry as Fire Prevention Officers, and lack understanding of the underlying issues, while the latter accuse the former of recklessness and lack of professionalism' (Apollo 1987).*

Theoretical approaches in archaeology, anthropology and curatorship have followed post modern philosophy in concern with the relative nature of objects, considering them primarily as cultural signifiers (Pearce 1994, Dobres 2000). Conservation continues to study objects as physical entities focussing on accurate materials identification and the technology of fabrication. This divergence also exists within the discipline of archaeology. Increasing distance between the factual skilling required by field archaeology and the academic research tradition of universities is becoming evident in the UK. Modern archaeology students are better able to discuss issues such as gender and cultural identity in prehistory than they are to be able to identify and date ceramic sherds.

The need to maintain and enhance communication between these areas of the subject is paramount. It is essential that we learn to place value in the information which can be provided by colleagues and avoid the stereotypical accusations of academic fashionability or commercial necessity. A common educational foundation for object study would undoubtedly help. Perhaps the simplest common framework for all groups is to consider objects as, instruments (functional), symbols (meaning) and documents (history)

- Object as Instruments (Functional, Utilitarian)
  Objects have an initial value because they perform a function for the society or the individuals within it. Thus a hammer hammers and a saw saws. Maquet (1993) suggests that an object's role as an instrument can be inferred from its design and the materials from which it is formed. As such it is independent of its cultural determination.

  'the meaning of an object, what it stands for, is cultural when it is recognised as part of a collective reality built by a group of people. But in most cases it is not culture specific: it is grounded in common human experiences' (Maquet 1993, 31)

- Objects as Symbols (Signs, Aesthetic Entities)
  Depending on the differing experiences of the viewers, the symbol can mean different things to different viewers. A hammer may be an essential tool to a blacksmith, it can be seen as a symbol of oppression or a weapon of war. The context in which an object appears invariably helps define its meaning. Since most symbols are designed to signify to members of the same culture and since the members of a culture will share many experiences and ideas in common, members of that society can normally 'read' the symbol, within its context, correctly.

  'artefacts serve both utilitarian and social/ideological functions; they are both tools and signs. This is the underlying reason for the vision of some historians that all objects, no matter how utilitarian and functional must be considered art. All are signs' (Kingery 1996, 197)

  Examples of the symbolic nature of objects include; their association with spirits i.e. spirit containers or with differential socially ascribed value such as coinage or the objects of the kula ring (Appadurai 1986, 18).

- Objects as Historic Documents
  Every object is a document about its past; it is simply a question of developing the skills and analytical techniques to read this document. It contains information about the materials from which it was made, the way in which it was assembled, and every incident that occurred in its life. In reality we do not yet have the technology to 'read' all of this information such as the fingerprints and DNA of everyone who has handled the object, and much information is lost, obscured by later activities.

It is clearly desirable to discuss and utilise more complex models of the processes involved in object manufacture and use e.g. object biographies (Appadurai 1986, Miller et al 1991, Kingery 1993), châine opératoir (Chilton 1999), flow models for the life cycle of durable elements (Ross 1991, 250; Schiffer 1972, 158), Object Production and Use Sequences (Caple in press) and similar (Tite 2001, 444; Kingery 1996, 176). Such models provide a method of enabling the details about an individual object to feed into larger cultural historical narratives and thus are a potential tool for communication between conservators, curators, archaeologists and anthropologists. To achieve such an aim, such models must be widely taught and used.

The Reality

Modern society places a number of pressures on archaeologists, curators and managers:

- *'Quick Fix' Solutions*. Because modern technology has solved many problems in science, medicine and engineering, it is imagined that there are 'quick fix' solutions to conserving degrading artefacts. Unfortunately, this is rarely the case. The problems are considerable and the funding & research has not yet been made available to understand and solve them. A number of 'quick fix' science solutions of the past e.g. shellac and soluble nylon have proved to be disastrous, creating much larger long-term problems. This has made conservators wary of any new 'quick fix' solution, though such attitudes are frustrating to scientists developing new conservation methods and materials.

- *Short-termism*. Many artefacts need a lifetime of care, but resources are often limited to the short period around the excavation. Many archaeologists primary interest in their finds is in the period until their excavation is published. Too frequently the concern is for the next

2 or 3 years, not for the next 50 or 100. Governments and funding bodies often take a short-term view. The curator and the conservator are often the only individuals working with a view to the longer term.

- *Unreasonably High Expectations*. Owners, curators and archaeologists have seen pictures of beautiful cleaned and restored objects, and imagine that their object can and should look just as good. Their expectations have been raised. They are frequently unaware that such well-preserved examples are the exception not the rule and that considerable resources are often required to achieve a highly cleaned and restored state. The question of whether it is appropriate to so completely clean and restore an object is often unwelcome.

- *Resource Shortage*. Since archaeological finds reveal knowledge that does not have a commercial value, funding for conservation is at charitable/recreational/educational levels. Such funding is frequently limited, however, the expectation about the quality and quantity of information which can be provided especially through science and technology e.g. high resolution CAT scans, is always increasing. The ability to retrieve more information means that archaeologists save more artefacts than they used to, we can now get information out of the scraps that used to be thrown away. Consequently conservators are always being asked to do more with less.

- *Standards*. To keep down costs competition between suppliers of goods and services is encouraged throughout much of the world. Just as it could be suggested that conservation could be done more cheaply by an archaeologist who has read a book about conservation, so archaeology could be done, at a far lower price, by a construction worker who has read a book about archaeology. Both archaeology and conservation could both potentially pass to the cheaper, unqualified and incompetent. The only way to stop this potential damage and loss of information is to set and maintain standards enforced through legislation. This is expensive and we face eternal problems of what are the appropriate standards and who should set them.

- *Financial/Cultural Object Value*. Where the object is a high value item – either in cultural or financial terms, the cost of conservation is seen as small and thus conservation resources can be lavished on oil paintings and rare and ancient archaeological artefacts. Objects which are considered recent and numerous, as many historic, folk art and archaeological objects from the last 300 years (where there are images in catalogues or extant historic examples) are seen as lower value and it is more difficult to obtain the funding for conservation for such everyday artefacts.

One approach to these problems is to recognise that we do not have the resources to conserve all the objects of the past. So we must make some choices. As our museum collections grow, we should perhaps no longer consider objects as individual items but as collections. If we consider RIP with a collection of objects, some could be preserved, some investigated (destructively if needs be) and some revealed (cleaned and restored) for display. Whilst this would not be appropriate with single objects, with collections and the identical mass-produced objects of the 19th and 20th centuries, it becomes conceivable. This allows a wider variety of conservation approaches. It is in this way that some measures such as preservation in situ and reburial can be seen as justifiable, since there are other examples that remain revealed on display and enduring the degradation that this entails.

The disparity between high expectations and the reality of increasing numbers of objects and limited resources leads to frustrations both by archaeologists, amateur enthusiasts, object owners, metal detectorists, sports divers, the public and private heritage funding agencies as well as conservators. The high costs of conservation, especially for steps such as recording, scientific investigation and long term preservation – can be seen by some as unnecessary. 'Why should I pay for that?' or 'I don't think that is really necessary' attitudes develop. Such attitudes encourage archaeologists, metal detectorists, divers, owners and enthusiasts to 'try their hands' at conservation. Though they frequently suggest that they are trying to 'save' the object, there are few that rebury objects or store them away from view in controlled conditions for decades. In reality what many enthusiasts want to see is a 'nice' looking objects, something which corresponds to their idea of what such an object of the past should look like.

This is what the Renaissance princes who employed Benvenuto Cellini to chisel off the corrosion from bronze statues wanted. It is also what Violet-le-Duc and the Victorian restoration architects wanted – they knew what the past looked like, they wanted to see it in physical form. This is repristination, not conservation. This sees the present as important rather than the future. It uses objects only as heritage not history.

However, heritage is a very real and powerful cultural force. It can be characatured as the myths and legends of the past, rather than the reality. It is however, a reasonable question to ask, 'does society need the myths and legends more than it needs real history?' Powerful societies have been created on myths & legends, if military and economic strength is seen as of paramount importance in a society, maybe myths and legends are more useful than truth. Perhaps what every government wants is heritage, what archaeologists and conservators are providing is history.

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Figure 1: Mickey Mouse, a 1960's foam rubber toy, the heritage of its original child owner, but now part of the history of the era, recording the decay of plastic as well as the toys and images of the period.

Figure 2: Hucklesby's Theoretical Artefact Value Curve. Showing the decline in the changing value of an object, which may attract care both in its initial high value phase to maintain its functionality or its later and in its later high value phase to conserve its social meaning and ancient associations (Hucklesby 2005).

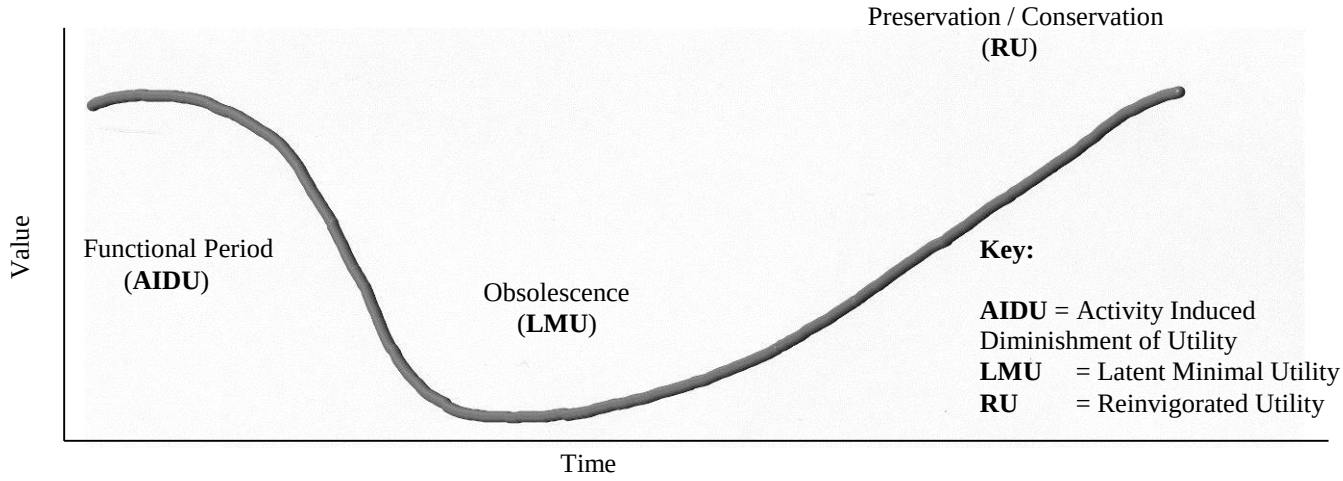
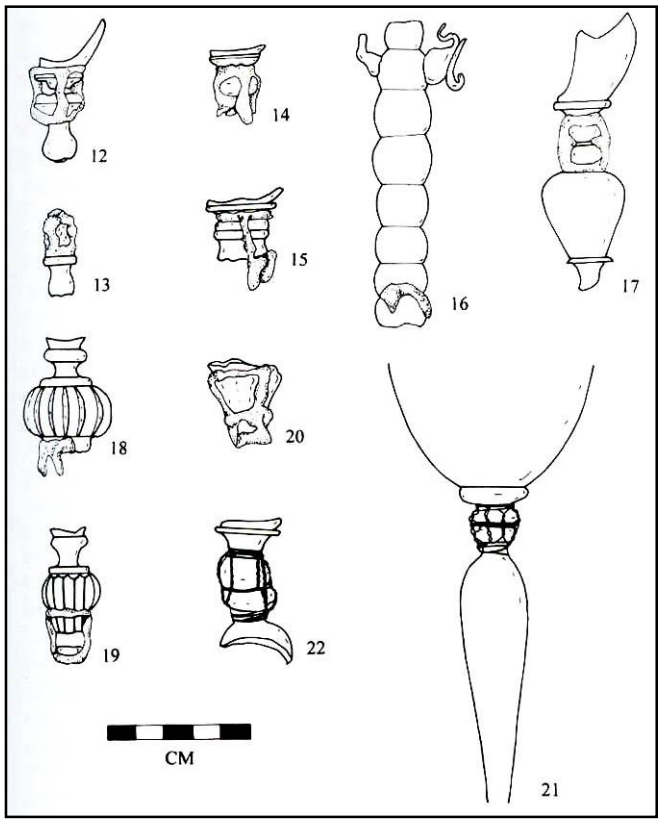


Figure 3: The stems of 17th century wine glasses repaired with wire to restore object form, but no longer safe to use, suggesting an heirloom or representational role in this repaired 'conserved' state (Willmott 2001).



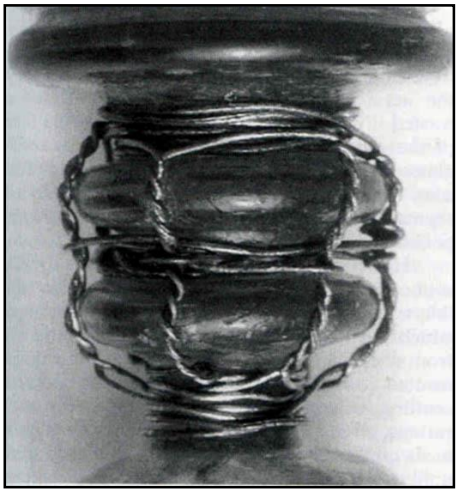


Figure 4: The Conservation RIP Triangle (Caple 2005)