Introduction

LINDSAY ALLASON-JONES

Archaeology is the study of our predecessors, using the evidence of artefacts and a wide range of other techniques. It can cover every period from the earliest prehistory to the present day, and in every period artefacts can be found which can be described as diagnostic to that period whilst others appear regularly throughout time. What all these artefacts have in common is that they were all made or adapted by a human being, with or without the help of machinery or tools.

In order for an artefact to assist us in our quest to discover as much as we can about our ancestors it must be correctly identified. In order to do this, certain questions need to be asked which will aid not only identification but also our ability to use the resulting information constructively. These questions divide into six groups:

- Appearance: what does the object look, feel or smell like? What are its colour, shape and size? What material is it made from? Is it made from one material or several? Is it complete? Has it been well used, altered, adapted or repaired?
- Construction: has the object been made by hand or by machine? Which techniques have been involved in its manufacture? Was more than one person involved? How has the object been finished?
- Function: for what purpose was the artefact made? Was its use changed at any time?
- Design: is the object well designed? Was it made with the most appropriate materials available at the time? Is it decorated and, if so, how and why? Is the decoration functional or merely aesthetic?
- Significance: is this a symbolic and/or practical object? Would it have had sentimental or social significance for its owner? Does it provide any clues as to its owner's economic or social status or gender?
- Context of discovery: where was the object found? Is this likely to indicate the object's primary or secondary use or does it represent a post-depositional context which will throw no light on the object's intended function?

Many of these questions are inter-related. Some demand accurate observation on the part of the archaeologist, others require the application of previous observations and an individual's databank of experience, whilst others rely on the archaeologist being able to empathise with the people of the past.

Before considering those artefacts that tell us about life in Roman Britain, let us consider what any artefact can tell us, regardless of period. Let us, as an exercise, use the six groups of questions to discuss a modern ballpoint pen.

Appearance

In order to answer the first group of questions it is necessary to use all five senses. Touch and sight are the most important of these in identifying an object but smell and sound may also be required; the ring of a fragment of stone when tapped against a hard surface, for example, is very different from the sound of a sherd of pottery similarly handled, whilst the smell of excavated leather can be very distinctive. It is not recommended that the sense of taste is brought in to play as a regular methodological tool, for obvious reasons, but there are occasions when the taste of an object has aided an initial identification of its material. Discovering the material an object is made from is usually a simple matter of assessing its colour, weight and texture, based on experience, to arrive at a superficial conclusion that an object is of iron, stone or bone, etc. At a more detailed level, however, scientific analysis may be required; for example, whilst it is often reasonably easy to identify that an object is made from a copper alloy, to state precisely which metals and trace elements make up that alloy needs further assessment in a laboratory. Such evidence can be essential in dating an artefact. In the 1990s, an iron helmet of Anglo-Saxon type, found in a river in Northumberland, was only proved to be of nineteenth-century manufacture by the discovery of manganese in its surface treatment, a metal only introduced into metalworking in the 1870s. In the case of jet, it is only through scientific analysis that black, shiny artefacts can be confidently identified as being carved from jet, shale or cannel coal; even burnt bone and dried leather can fool the casual eye. Accurate identification of the various black materials has only been possible in recent years, and through this identification archaeologists have been able to recognise previously unknown sources of the raw materials, individual workshops and trade patterns (Allason-Jones 2002a; Allason-Jones and Jones 2001).

Observation of a ballpoint pen reveals that it is made from several different materials, some of which might survive better in the ground than others. How easy will it be for archaeologists in the future to identify such a pen if all that survives is the plastic cap or the metal tip? Archaeological artefacts can also be composite objects and a great deal of lateral thought may be required in order to work out what the missing components were made from or looked like. The excavations at Elginhaugh fort, for example, produced a copper-alloy bar 92 mm long, 11.5 mm wide and 5.5 mm thick, with a T-sectioned channel down one face. The back of the channel had a series of transverse angled ribs. Both terminals were broken but appeared to continue only on the flat face and each had been pierced by a large circular hole. To work out what this had been used for one had to presume that it was just one element in a composite item and then go through each part of the object to work out how those parts would relate to the complete object. The flat, pierced terminals indicated that the object had been attached to another material by rivets; the T-sectioned channel suggested that a rod or bar with a T-shaped end had been fitted into it, but loosely so that it could move up and down; the angled ribs at the back of the channel implied that the T-bar could be arrested at various stages. All these observations led to the conclusion that the object was some sort of ratchet. Consideration of which artefacts in the Roman period might require such a ratchet led to the identification of the Elginhaugh piece as a linear ratchet for a catapult. As this was the first linear catapult ratchet to have been found in the Roman world, looking for parallels would have been fruitless – deduction was the only available tool (Allason-Jones 2007: 405–7, pl. 10.5).

Catapults are very large wooden objects but when the wood decays the various metal elements are all that are left. Most of these provide valuable recycling material and thus may be melted down, leaving little trace of the original catapult. Even quite small objects may have fragments or vital pieces missing, either because they were made from a different, more fragile material or because they were made up of individual elements that have become separated; the various sections of a bone composite comb or the individual tesserae of a mosaic are cases in point. In the latter case, the discovery of tesserae suggests that a mosaic was present but unless a section is found *in situ* the patterns and motifs are impossible to reconstruct. It may not even be possible to tell if the mosaic was on a floor, wall or ceiling, or even if it formed a decorative feature on furniture.

Ballpoint pens can be made from a variety of materials – precious metals, enamelled bronze, even wood – but are mostly made from plastic because that is an easily obtainable material that can be mass-produced through

moulding, yet is still hard enough to withstand the pressures applied during writing. For most modern objects different materials are used for the different elements that make up the whole because each material has its own characteristics that make it fit for purpose. This is not always so with archaeological objects, because the ideal material either had not yet been discovered or was not available. This did not necessarily matter for the appearance and usefulness of the final object, but can lead the unwary archaeologist into making false judgements. As has already been mentioned, black shiny artefacts usually look as if they are all made from jet. Today the various materials may look different because they have not reacted in the same way to the ravages of age or burial in the ground; while good-quality jet will look exactly as it did when first sold, shale will often have lost its shine and split along its bedding planes, cannel coal may have disintegrated into small blocks, and the surface of poor-quality jet may have 'crazed'. This difference in long-term appearance does not seem to have concerned Romano-British jewellers; indeed they were probably not aware of it. They were quite happy to use jet, shale and cannel coal beads to create a necklace and even make up numbers with grey/black glass if necessary (Allason-Jones 1996; 2002a).

Often an archaeologist has to rely on the shape and size of the object plus its material to identify it. Ballpoint pens can vary in size but are mostly about 16 cm long and 1 cm thick because that makes them comfortable to hold and to use. A ballpoint pen only a centimetre long would be impossible to hold comfortably and would not contain enough ink to make it useful; equally a pen a metre long would make writing a letter an unwieldy matter.

When considering the colour of an object it is important to remember that it may not be its original colour after its sojourn in the ground or even after conservation treatment. The patina acquired by bronzes, for example, can vary considerably from black to brown to dark green, and this can distract us from recalling that when new the object would have resembled gold and that it would have been this mock gold appearance that would have attracted the customer. The use of inlays would also have depended on contrasting colours to have an effect; even the simple use of niello on bronze would have been more striking when both metals were fresh (la Niece 1983). Enamel decoration on brooches and studs can often be missing or have changed tone through the archaeological process; white enamel, for example, often takes a green tinge through its association with copper alloys. Larger objects may also bear little resemblance to their original appearance – stone altars, tombstones and architectural details would often have been painted in bright colours. The Mithraic altars found at Carrawburgh in

1949 still had traces of red, green and pink pigments on their surfaces when they were first excavated; sadly, these colours quickly faded on exposure to light and air (Richmond and Gillam 1951). It is, therefore, important to imagine what the original appearance might have been when considering why an object was made or bought.

Archaeological objects may appear to have been worn with use if they were found in contexts which were continually disturbed, such as plough soils or riverbeds, even if they were in pristine condition when deposited. If they show signs of wear before deposition this may be because they were essential for day-to-day living or because they happened to be favourite items of the user and thus often used or handled. Wear patterns can, however, provide important information when identifying objects. Whetstones, for example, often show distinct dishing on their surfaces as a result of iron blades being stropped back and forth. Techniques using high-resolution microscopes have been used more with prehistoric objects, such as flints and antler tools, but can still provide useful evidence for Roman objects.

Evidence of wear, or even repair, need not indicate the status of an object's owner. In today's market it is very easy to buy a new ballpoint pen if one's old one falls to pieces or runs dry. In Roman Britain it may not always have been so easy to replace one's belongings if they were lost or damaged, particularly if they were imported or if the supply chain was disrupted. A writing tablet from Vindolanda reminds us that even something as simple as bad weather and poor road surfaces could make it difficult to acquire even the most basic commodities (*Tab.Vindol. I*, no. 343). Cracked pots have been found repaired, rather roughly, with lead cramps (Plate 1; Allason-Jones and Miket 1984, nos. 8.74–91) and several paterae have been found with replacement handles riveted into position. These repairs are not always very attractive but serve to remind us that even the most basic domestic artefacts had an importance to their owners.

Construction

The people of the past used the best materials available to them when making artefacts, but often they were limited by the techniques of the time. A case in point is the working of iron. Iron requires a steady temperature of 1,540 °C in order to reach the pouring consistency required for making an object in a mould and this was not easily achievable until the introduction of the blast furnace in the fifteenth century; consequently, Roman objects of iron were mostly hammered into shape and any iron object with clear

Pl. 1 Cooking pot from South Shields fort, which has been repaired with lead cramps

evidence that it has been made in a mould is likely to have been produced after the fifteenth century (Tylecote 1962: 300–2; see also Chapter 3). On the other hand, iron could provide a good edge, which was sharper and more lasting than was possible with a copper-alloy blade. The hardness of iron, and the fact that it is possible to make very large objects from it, makes it perfect for tools – a fact the Romans were well aware of and used to advantage in making agricultural implements (see Chapter 4).

Mould marks can also be instructive when found on the edges of coins. Roman coins were made by placing a blank of metal between two dies

and bringing them smartly together – a method known as hammering (see Chapter 1). Signs of a mould line around the edge of a coin, or file marks suggesting that such a line has been removed, indicate that it has been made in a mould. This may not prove that the object is a modern forgery as there were many counterfeiters active in Roman Britain (Reece 1970: 69–70, 110, 127; see also Chapter 1). Coins also may have had their surfaces treated by dipping them in another, usually more precious, metal. This was not necessarily a practice confined to coin forgers but was a common feature of the coinage of some emperors, often when the economy was under stress. Similar surface treatment of other finds, such as copper-alloy brooches which often have their surfaces silvered or tinned, was usually intended to make the final product look more expensive.

It is all too easy to fall into the error of presuming that if an object is handmade it must be older or more primitive than examples made by machine or by mass-production. Even today craftworkers often prefer to make their tools themselves in order to ensure that their equipment precisely fits their needs. There is also the economic argument that it is cheaper to make what one requires oneself or adapt what is already available. However, it is a feature of the Roman economy that mass-production, particularly of pottery, became increasingly cost-effective. Samian ware is an obvious example of factory production, involving a considerable number of people as the process progressed from the makers of the wooden motif stamps, to the mould makers, to the potters, to the adders of foot-rings, to those who dipped the products in coloured slip, and so to the final firing.

The manufacturing techniques used to make objects can result in elements that are difficult to identify if they become isolated from the main object. Examples of this are the lead filling which can be found in the end of ram's head skillet handles or bronze statuettes, or the metal rods which act as spacers for objects made by the lost wax method – the ends of these are usually sawn off when the object is removed from the mould and are hard to identify out of context (Atkinson 1979).

The analysis of metals provides another tool when discussing artefacts. David Dungworth's analysis of bronze artefacts from the North of England has shown that identifiable metal 'recipes' were in use in the Roman period, some 'dictated by metallurgical necessity, and some by social and economic factors' (Dungworth 1998: 117). In particular, he has observed that brasses with a high zinc content were being used to make military equipment, such as *lorica segmentata* fittings, some coins and some brooches in the early first century AD, as a result of the use of the cementation process in producing the metal, but he has also been able to show that not all military equipment

was made from brass, as had been previously thought, but that some items were made from leaded bronze. He has concluded that leaded bronze was used for cast objects whilst brass was preferred for sheet fittings (Dungworth 1997; 1998). The work of Justine Bayley and Sarnia Butcher, in analysing over 3,500 brooches from a range of sites in Roman Britain, has revealed a noticeable correlation of alloy composition with brooch type and that the composition is usually independent of a brooch's findspot (Bayley and Butcher 1995; 2004).

Function

When ascribing a function to an object we have to rely on our own experience, either through observation of ancient artefacts found in particular contexts which provide clues as to the object's use, or through our own knowledge of what we use in day-to-day living. Keys, for example, have changed little since the Roman period and a rod, one end of which has a plate with teeth whilst the other has a loop, will not prove too difficult to identify as a key, although more detailed knowledge will be required to decide what sort of lock would have been opened by that key (see Chapter 7). There is, however, a human propensity to use objects for purposes for which they were not originally intended. The average modern screwdriver, for example, unless owned by a professional or by someone who respects tools, invariably has splashes of paint, owing to its secondary use as a paint can opener (Plate 2). Future statistical analyses of screwdrivers could well lead the archaeologists of the future to misinterpret the purpose of this common tool. In the past people were also inclined to adapt existing objects to meet an immediate need or to recycle the material completely. Glass vessels, which were originally imported into Britain as containers for liquids, were reused as cinerary urns (Plate 53), or ground down to make lids, gaming counters or pendants (Allason-Jones and Miket 1984: no. 4.71), or even remelted to make the glass armlets which are regularly found on the settlement sites of northern England and Scotland (Kilbride-Jones 1938; Stevenson 1957).

Some artefacts found in Roman Britain were dual or multi-purpose. Common finds on both military and civilian sites are bronze knobs, sometimes with iron shanks, which are usually referred to as 'bell-shaped studs'. These have been found attaching lock plates to boxes, as pommels for daggers, as hinges for dolabra sheaths, and as furniture or door studs. Unless found *in situ* or in a matching set, it is rarely possible to attribute an

Pl. 2 Modern screwdriver showing signs of multiple use

individual bell-shaped stud to a specific function, even if it is a simple matter to designate the object as a bell-shaped stud and even give it a type number (Allason-Jones 1985).

Deciding an object's function is not the end of the matter; it may be necessary to consider why there was a need for an object to fulfil that function. The importance of the discovery of a key, for example, is that it indicates that its owner had a lockable box or door and wished to secure something of value in that box or behind that door. The noticeable rise in the use of locks and keys in the Roman period tells us a great deal about life in Roman Britain: the increase in material culture and use of coins resulted in there being more valuable items to steal, whilst the influx of new people, and the continual movement of those people around the province, seems to have led to an increasing sense of insecurity and the wish to lock oneself and one's belongings out of harm's way.

Design

All objects, whether ancient or modern, have been designed for the task they are meant to do; by eliminating those tasks they could not have done it is usually possible to home in on what they were intended for. A case in point

Pl. 3 Pair of chained trumpet brooches

is a bow brooch, a ubiquitous artefact in Roman Britain which not only was decorative but also served the purpose of securing the fabric of dresses or cloaks. Each bow brooch can be stripped down into its constituent parts: the head, the bow, the pin, the spring or hinge that links the pin to the brooch, the headloop and the catchplate (Plate 3). The bow needs to be curved if it is to accommodate much fabric: if a brooch is just intended to be decorative or symbolic there need be little space between the body of the brooch and the pin; if, however, the brooch is to serve a useful function it must provide enough space for a reasonable amount of bunched material to be held. For the brooch to be attached to the fabric there must be a pin and this needs to be sharp enough at its end to pierce the textile without tearing it or making a large unsightly hole. The pin has to be attached to the bow by a method that allows it to be adjusted without breaking, either through a spring made in one with the pin and held within the brooch head, or by way of a hinge, held within the head by a hinge-pin; the head is thus required to hold the spring or hinge and to hide either mechanism. If the brooch pin hangs freely then there is the risk of it falling out and being lost; a catchplate is therefore necessary at the end of the bow in order to hold the end of the pin safely whilst also ensuring that the wearer is not continually pricked by the pin's sharp point.