WEST YORKSHIRE ARCHAEOLOGY ADVISORY SERVICE

Beginners' guides to what to look for:

Identifying brick and tile

Identifying and dating clay tobacco pipes

Identifying flint tools

Identifying and dating glass finds

Identifying and dating metal finds

Identifying pottery

A beginner's guide to what to look for:

IDENTIFYING BRICK AND TILE

Brick

Brick was used as a building material in the Ancient World and examples of brick structures can be found in Roman Britain. However the use of brick went out of fashion until the late medieval/Tudor period. Even then its use tended to be confined to those buildings which were indeed to impress such as the impressive Tudor gatehouse at Beverly or Temple Newsam House near Leeds. This was in part due to the relatively cost of manufacture in areas where wood was still plentiful.

It is not until the 1700s that we see an expansion in brick built buildings, although at that time they were still the houses of the rich. It was not until the 1850s and the development of mechanized methods of brick production that it became feasible to build rows pf brick terraces to house the working classes of the growing industrial towns. Even then it remained cheaper to build in stone where quarries were close at hand. This in part accounts for the character of our Yorkshire towns. The suburbs of Leeds feature row upon row of brick terraces. In Bradford housing of an equivalent status is often made of stone.

Bricks can vary quite considerably in length and depth, but the width is never greater than a hand span. Otherwise they would be impossible to lay. They can have a variety of finishes ranging from plain to the elaborately moulded and glazed bricks used to decorate the fronts of some Victorian buildings.

Early bricks were hand made in a clamp kiln. This often gives them an uneven texture due to inconsistent firing. Early hand-made bricks have no frogs (depressions in the top surface to hold the mortar) but some Victorian hand–made bricks may have frogs stamped into them. Hand-made bricks probably went out of production in West Yorkshire after the First World War, and production is uncommon after 1850. Factory produced bricks are more even in texture and generally have a smoother finish. It is sometimes possible to identify the source of factory made brick as the manufacturer's name will be stamped into the frog.

Tile

Roof tiles are a common find on Roman military sites. The Roman army made them in the hundreds to cover their barrack blocks. They are usually quite thick and a pinkish red in colour. The unit making their tiles would stamp their name on its surface in the same way that modern brick makers do. In West Yorkshire only one military tilery has been excavated at Grimscar near Huddersfield. These tiles bore the stamp *COHIIIIBRE* (fourth cohort of the Breuci – a unit originally recruited in the Balkans).

Stacks of tiles were also used to support the floors of hypocausts (the Roman under floor heating system). Two such hypocausts have been excavated in West Yorkshire, one in the bathhouse at Slack and the other at in the bath house at Castleford.

Like brick making, the art of making roof tiles was largely lost after the withdrawal of Roman troops from the British Isles in the early fifth century. However, floor tiles were used in the Middle Ages especially in churches and other religious buildings. In wealthier establishments builders used encaustic tiles to form highly decorative pavements such as those which can still be seen today at Byland Abbey in North Yorkshire. These are tiles into which a pattern has been stamped. The impression made by the stamp is filled with different coloured clay and the whole tile is then glazed and fired.

In the 17th century tin-glazed tiles were imported from the continent to create features such as fire surrounds. They often have figures painted in blue and tend to reflect the same patterns as were popular on tin glazed vessels of the period.

Tile manufacture increased during the industrial revolution and new styles and techniques developed accordingly.

This assortment of tile fragments is shown from both sides. Small pieces like these can be a common find when fieldwalking. Image courtesy of the Portable Antiquities Scheme.

Drains

Large medieval and earlier drains were lined with coursed masonry. Smaller ones are often formed by digging out the course of the drain and lining the channel with a box of flat stones. These are the type of feature which can still be seen at Kirkstall Abbey (Leeds) today.

The first tile field drains appeared in the 18th century. Early examples are in two parts. The upper part, which has a horseshoe shaped cross-section rests on a flat base. Later examples have the two items fused into one unit. However, by the middle of the 19th century cylindrical field drains were being made. Sometimes the name of the manufacturer will be stamped on the side. Later in the century mass production enabled the drainage of vast areas of previously uncultivated land, thus contributing greatly to late Victorian prosperity.

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A beginner's guide to what to look for:

IDENTIFYING AND DATING CLAY TOBACCO PIPES

A brief history

Clay smoking pipes were first used in Britain in the 16th century following the importation of tobacco from the Americas. Early pipes tend to have small bowls as tobacco was relatively expensive at the period. Stems have a larger diameter than with Victorian clay pipes.

Economics and fashion changed the basic shape of the clay pipe. Bowls became larger as tobacco dropped in price. In fashionable circles the length of the stem grew longer culminating in the Victorian churchwarden's pipe which had a stem nearly a metre in length. Sections of broken stem from these long pies are a common find while fieldwalking or carrying out topsoil excavations. They can be distinguished from, for example slate pencils by looking for the bore down the centre of the pipe. This is usually clogged with dirt and will show up distinctly against the white fabric of the pipe.

In the Victorian period bowls were often highly ornate. Patterns such as the bird claw holding an egg or sculptured faces became relatively common. Bowls may also be decorated with the badge or motto of the pub, club or other institution where they were on sale. This, of course, can be very useful in determining the provenance of a pipe, but it can also be very misleading. One Leeds pipe manufacture knew that the clientele of the Irish pubs around town preferred to use pipes from their native country. He therefore started manufacturing pipes with the word Dublin so that he could tap into this lucrative market.

Pipe making

Clay pipes are made out of kaolin (china clay) which has to be imported from the West Country. The basic form is made by rolling out a ball of this clay into a long 'sausage', which will form the stem, with a bulb at one end. A thin metal rod is inserted into the stem to form the bore hole. This is then clamped into a mould and a stopper inserted to form the bowl. The pipes are then left to dry before being fired in batches in a kiln. Once the pipes had cooled they were removed from the kiln and the mouth piece was painted with wax to prevent the smoker's lips from sticking to it. These waxed mouthpieces are often red, but yellow also occurs.

The decline of clay pipe making

Fashion brought a move away from clay pipes as other, less fragile materials, such as briar and cherry wood became more easily available. In the 20th century these would be produced with plastic or metal stems and plastic mouthpieces. The 20th century also was to see a great increase in cigarette smoking, a fashion which in turn has nearly eliminated pipe smoking altogether.

The last clay pipe manufacturer in Leeds was Samson Strong's who went out of production in 1950. The workshops have been recreated in the Abbey House Museum (Leeds). The last commercial clay pipe manufacturer in Brittan was John Pollock and Co, of Manchester who survived in business until 1990.

Further reading

There are many academic works regarding the manufacture and dating of clay pipes. However the most accessible work for the beginner is probably *Clay Tobacco Pipes* by E. G. Ayto published by Shire in 1999. Leeds Museums also have a leaflet *The Pipemaker*, which explains more about clay pipes and the Samson Strong works.

External link

Brief details of John Pollock and co along with other information about clay pipe making are available from the Museum of Science and Industry in Manchester.

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A beginner's guide to what to look for:

IDENTIFYING FLINT TOOLS

Introduction

Stone is a durable material. Often it is the only trace of early inhabitants of West Yorkshire which will survive into the present day. Many of these tools were made of flint, a naturally covering mineral which is found as nodules in chalk. The nodules have a dull stone like skin (cortex), and a smooth glasslike interior. If they are broken, the pieces of the nodules are likely to have razor sharp edges.

Flint in West Yorkshire

With the exception of some small pieces of material brought in as glacial drift, flint does not occur naturally in West Yorkshire. The nearest major source is out on the Yorkshire Wolds. This means that every piece of flint found during fieldwalking or excavation needs to be retained as it may not be a natural object. The piece may not show signs of working, but its very presence indicates human activity in the area at some time in the past. A large concentration of flints might indicate the place where a flint tool was shaped out of a nodule, even if the tool itself is not present.

Making flint tools

Flint tools are made by striking flakes of flint off a central core. Once the cores become too small to be worked they were discarded. They have a cube-like appearance and are occasionally found during field walking.

The flakes may have a *bulb of percussion* below the point where it was struck. This is a slight swelling caused by the impact of the striking tool. For the same reason there may also be ripples spreading outward from the bulb of percussion. These are known as *concentric rings*.

To make a tool the flake will need to be shaped further as smaller pieces are removed. Edges of flint tools can also chip and the tool may show signs of retouching to maintain its working edge.

Archaeologists refer to this type of arrowhead as a *barbed and tanged arrowhead* as it has rear pointing barbs to catch in the flesh of the target and a central tang by which it would be fastened to the shaft. Although made of flint this type of arrowhead was in use during the Bronze Age (2,000-800 AD).

(Image courtesy of the Portable Antiquities Scheme)

A word of caution

Not all flint finds indicate prehistoric activity. People have found uses for flint in relatively modern times and some of your flint finds might be associated with one of these. If your flint is thin, small and square, it might well be a gun flint. These were used to strike a light which ignited the powder in a flintlock gun. This method of ignition remained in use until the latter part of the 1800s when self contained cartridges became common.

External links

A guide to the identification of man-made flint & tool types by Leicestershire County Council

Flint Fact Sheets by Tees Archaeology

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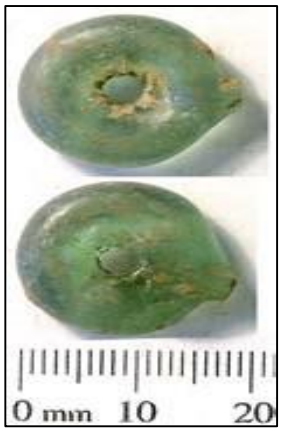
A beginner's guide to what to look for:

IDENTIFYING AND DATING GLASS FINDS

Introduction

Glass was first used in the ancient world for making ornaments and glass vessels. In Britain its use became widespread under the Roman occupation. It was however always a luxury item and the use of glass declined again with the Roman abandonment of Britain in the early years of the 5th century AD. Glass remained expensive during the Middle Ages and it was only with the mechanization of the manufacturing process that glass became the household item which it is today.



[*Photo: People have been making glass objects for a long time. This small glass bead (viewed from both sides) is thought to be Roman in date. Image courtesy of the Portable Antiquities Scheme*.]

Manufacture

The principal ingredient of glass is sand, which, when heated to molten state, can be formed into a variety of shapes. The Romans were familiar with glass blowing by the time they conquered Briton. They also knew that the blowing into a mould would increase the range of shapes which could be easily manufactured.

Techniques for producing larger sheets of glass emerged during the 11th century. This was done in one of two ways. The molten glass could be first blown into a sphere. This was then elongated into a cylinder and split lengthways and folded out to form a single sheet of glass. Alternatively, the molten glass can be spun to form a large flat disc, from which appropriate sized pieces can be cut.

The 19th century saw mechanization of the glass making process enabling both window and vessel glass to be produced cheaply for the first time.

Window glass

In practice it is impossible to identify the method by which small fragments of hand-made sheet glass have been made. Both methods produce an uneven finish. This unevenness has also given rise to the myth that glass is almost a

liquid which flows down over the course of time. This is not so. Panes of glass were set into their frames with their thickest side at the bottom to increase stability.

A major change occurs in 1696 when William III introduced a window tax as a form of taxation on luxury goods. This had several effects including the blocking up of windows in some larger houses. Window glass from this period tends to be thin (less than 1.6mm), while window glass produced after the tax was abolished in 1851 tends to be thicker (up to 2.0mm. The thickness of glass retrieved by fieldwork can be established by using a vernier calliper.

Vessel glass

Glass bowls and containers have been used in Britain since the Roman times, but like window glass, such items would have been luxury goods in antiquity. Again it was industrialization which made glass a common household item.

Fragments of glass bottles are often found during fieldwork. A distinctive feature to look for is a line running up the side of the bottle. This is made by the join in the two halves of the mould in which the bottle was made. Bottles made in the 19th century were often finished by hand, the lip being added after the rest of the vessel was made. If the seam does not run all the way to the lip of the bottle, this is a clear indication that the bottle has been hand finished.

Another feature to look for is a pontil mark, a rough area on the base of the bottle. This is the mark of a pontil rod, a tool that was attached to the base of the bottle by a blob of molten glass to provide a means of holding the vessel while it was being worked on. When the work is finished the rod is snapped off leaving a scar or pontil mark. Better quality glassware may have this rubbed out leaving a small slightly hollow smooth patch.

External Links:

The Museum of London Glass Collection
This extensive online catalogue gives illustrations and detailed descriptions of glassware of all periods.

Trade directories Online
Moulded bottles of the have the name of the business embossed on them. This can often be traced through using a Trade Directory – the Victorian equivalent of the Yellow Pages. This site is hosted by the University of Leicester.

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A beginner's guide to what to look for:

IDENTIFYING AND DATING METAL FINDS

Introduction

With the growing use of metal detectors, finds of metal objects are becoming more and more common. In a short piece like this it is impossible to cover all the types and variety of object which you might find. Here we can only tackle some of the most common questions to be asked.

What sort of metal is it?

Under most situations metal objects corrode relatively easily. The metal from which the object is made can usually be identified by the type of corrosion on its surface.

Gold	Gold does not corrode at all and will retain its shine forever. This was one of the properties which made it so prized in the ancient world as it seemed, in both a physical and moral sense, to be incorruptible. Not all shiny yellowish metal is gold. Copper alloy objects when they are new have a similar look to gold. For this reason copper was often used for decorative items in the ancient world.
Silver	Badly corroded silver objects will be covered in a black patina and the true nature of the metal will not easily be recognized.
Iron	Most people can easily identify rusting iron objects as such. However, the coating of iron oxide can often join different object together into one metallic mass. In such cases the only way to get a picture of what might lie beneath the corrosion will be by X-ray.
Copper	Copper corrosion or *verdigris* is green and often powdery.
Lead	Lead corrosion forms a white crust on the surface of the object. Another good indication that the object is made of lead is that a lead object will appear to be much heaver than you would expect from just looking at it. Lead oxide is poisonous and care should be taken when handling corroded lead objects, to ensure that none of it is ingested.

Some different types of metal object

	A gold coin of Edward III. Gold does not corrode and will look almost as good as new when found. *(Image courtesy of the Portable Antiquities Scheme)*
	A silver coin from the medieval period. Silver usually turns black or purple in the ground. It also becomes very brittle. *(Image courtesy of the Portable Antiquities Scheme)*
	This early medieval copper alloy strap end would have been fixed to the end of a strap or belt to prevent it from fraying. Copper alloy usually turns green in the ground. This object also has iron rivets which have rusted. *(Image courtesy of the Portable Antiquities Scheme)*

	This iron hammer is shown from three sides. Hammers of this form occur at several periods in history, but this example may be medieval. The photograph clearly shows the damage caused by corrosion. (*Image courtesy of the Portable Antiquities Scheme)*
	This lead alloy spindle whorl shows traces of corrosion on its surface. Whorls are also made of stone and ceramic. They cannot be precisely dated because they were in use from the Roman period until after the Industrial Revolution. *(Image courtesy of the Portable Antiquities Scheme)*

Care of metal objects

Every care should be taken to ensure that metal finds are treated in an appropriate manner to ensure that they do not corrode further.

If you wish to report a find, or need help with its identification, you should get in contact with your local Finds Liaison Officer. To find out who your nearest contact is visit https://finds.org.uk/contacts

The Finds Liasion Officer for South and West Yorkshire is Amy Downes, who can be emailed via adownes@wyjs.org.uk

Some common types of find

Nails can come in a variety of forms depending on the job for which they were intended. These include:

- *Wrought iron nails*. These were made by hand and continued in use well past the point at which mechanization was in common use. Wrought iron nails have a tapered shaft and the head will show clear signs of being hammered out.

- *Horseshoe nails*. These can be distinguished from wrought construction nails in that they have one or two clenches instead of a rounded head. These hold the horseshoe in place. The farrier snaps or cuts this off when removing a shoe, so that any nails found with the clenches in place are probably chance losses.

- *Cut nails*. These were developed in the late 18th century as a more mechanized form of nail production. In this method nails are cut from a thin metal sheet in consequence they are not tapered like hand made nails. Heads are generally square.

- *Wire nails*. These are essentially the modern type of nail. Because they are cut from wire, rather than from strips, wire nails are round in section. Their heads are also round. The process was invented in the mid 19th century.

Horseshoes

Archaeologists disagree about when horseshoes were first introduced into this country. However, they were certainly in general use by the 9th and 10th centuries. Dating horseshoes can be difficult especially when such finds are heavily corroded. One indicator is to look at the areas around the nail holes. The nail holes in medieval horseshoes were punched rather than drilled as they are in modern horseshoes. This can lead to a slight thickening of the area around the nail hole or even to a bulge in the edge of the shoe.

Coins

The subject of coins is for too large to discuss in a short article such as this. However, there are lots of websites which can provide detailed descriptions of individual and other coins. These include:

The Fitzwilliam Museum – Medieval Coinage Project

French and English Royal & Medieval Coins

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A beginner's guide to what to look for:

IDENTIFYING POTTERY

Introduction

Pottery is probably the commonest find on most archaeological sites. In most circumstances organic material will decay and metals corrode. Potsherds tend to be more stable. For this reason archaeologists frequently use fragments of pottery as an aid to help them date their sites. There are many different kinds of pottery which people have used over the centuries, and it would be impossible in a short article to describe them all fully. Here we are offering only some basic guidelines – enough, we hope, to get you started.

Pot or not?

For many people the first question to ask is whether the object you have is a piece of pot or not. Children will often mistake flat stones in particular for fragments of broken pottery. There are several things you can do to find out. These include asking:

- **What's the local stone like?** It's not necessary to be an expert in geology to be able to answer this one. All you need to do is look at the examples of local stonework around you. Look at the older buildings in your community. Visit the local churchyard and examine the monuments. Notice patterns of wear and erosion . Compare your find with these. If it's the same, it's probably an example of local stone. Don't throw it away just yet though, it could still be evidence. Even if you decide it's a stone, check for signs of working. It might be part of a building or a statue.

- **Is it curved?** Most pottery vessels are round, especially those made on a potter's wheel. Curves do occur in nature, on some seas shells for instance, but these are unlikely to be mistaken for pottery. If our fragment has a regular curve, and it's not an obvious natural object, then it is likely to be a piece of pot.

- **Has it a regular pattern?** If so it's probably a pot and not a stone. There are one or two fossils which can have the semblance of pattern, but these are relatively rare.

- **Has it a glaze?** If it has, it's certainly been manufactured. Bricks and tiles are sometimes glazed, but in the majority of cases your find will be a piece of pot.

- **What does it look like inside?** When pieces of pot are neither patterned nor glazed it is sometimes easy to mistake them for stones. If you are in doubt look at the edge of the pot to see what the fabric of the pot is like.

If the edge is all worn, it might be necessary to snap a piece of to create a fresh break. This will be clean and crisp enough to distinguish details. If your find is a piece of pottery, you should be looking at something which resembles a crosssection of a digestive biscuit when it is snapped in half. This is not surprising when you consider that both pottery and biscuits are baked objects. Clay and biscuit dough react in similar ways to heat giving a similar appearance to the two cross sections.

Look for signs of how the pot was made

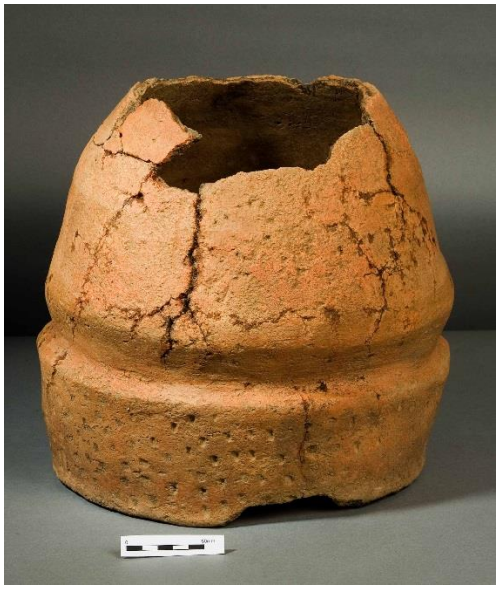
Once you've decided that your object is a piece of pot you can begin to think about how it was made. Ask yourself if it is hand made or manufactured by a machine. Pottery which has been made on a potter's wheel has a continuous spiral all the way up its body. This is a result of the potter continually drawing the pot up through his fingers. On coarse pottery there will be a ripple effect up the side of the vessel which is easy to see and feel. In finer pottery this may be smoothed out, but can still sometimes be seen if the light is at a right angle. Modern mass produced pottery is not wheel spun but made in a mould. Remember that just because a pot is hand made it does not necessarily mean that it is old. Rural potters were still making utilitarian pots by hand well into the 20th century, and art potters are still doing so today.

Types of pottery

You will also want to establish a date for your pottery find. The following ideas on what to look for will help you get started. Once you have formed an idea about what your pot might be, you could then go down to the local museum and compare it with the exhibits.

Prehistoric pottery

Little Bronze Age pottery has survived in West Yorkshire. The majority are vessels which have been used as containers for cremation burials. The majority of known examples come from the Pennine uplands where the chances of survival are greater due to the relatively undisturbed nature of the landscape.



In West Yorkshire cremations are most frequently found in a type vessel which archaeologists call a collared urn. These have a relatively well made body and have a distinctive turned out rim or collar. Decorations tend to be geometrical. Some are made with the end of a sharp tool, others by pressing a cord into the wet clay of the vessel.

[Photo: this is one of two collared Bronze Age urns excavated near Stanbury, Bradford by archaeologists in 2007. Photo by ASWYAS]

Roman pottery

This comes in a variety of types. All of them are wheel turned and well made. Although the Romans had the technology to make glazes, they did not seem to like the effect. In consequence, they only imported a tiny number of glazed vessels into this country. A pot with a glaze is therefore unlikely to be Roman.

Among the commonest types of pottery you might find are:

- ***Samian ware*** This has a highly distinctive bright red fabric with a smooth finish. Often the exterior of Samian vessels is decorated with raised designs. These vessels were mass produced along the borders of what is now France and Germany. This means that, just like the modern tea set, different vessels may have the same pattern. The distinguishing feature of Samian is that the fabric is red throughout the thickness of the vessel. This is not the case with many other red vessels which you might find. These are generally only red because of an external slip or glaze. Their interior will be a different colour when seen in cross-section. Samian is red all the way through.

- ***Amphora*.** These were large pottery containers with a very distinct shape which were used in the Roman period and afterwards to import large quantities of wine, olives and other foodstuffs into this country. This is chunky thick pottery usually in shades of brown. Rim fragments are distinctive enough. Body sherds, on the other hand, are often mistaken for stones. They do however have the ripple effect indicative of wheel made pottery, and if broken will display a biscuit like texture in cross section.

- ***Gray ware*** This is Roman domestic ware and usually the most common type of pottery on a Roman site. It can be anything from light grey to almost black. It is simply made and has little or no decoration. Forms include jars, bowls and cooking pots.

This is part of the base of a Roman Grey Ware vessel. It has been photographed from two sides to show both the interior and the exterior.

(Image courtesy of the Portable Antiquities Scheme)

To see some local examples of Roman pottery visit Life in a Roman Town

Saxon/Viking pottery

Few artefacts from this period have survived in West Yorkshire. The commonest survival being the fragments of Anglo-Scandinavian stone sculpture which are housed in some of our older churches. No fragments of Viking pottery have been positively identified in the region.

Medieval pottery

Pottery from the medieval period is generally less well made than Roman pottery. *Gritty* ware, for example is very coarse with lots of little bits of grit in the fabric; hence the name. This can give the surface of gritty ware vessels a lumpy texture resembling the feel of a chicken leg which has just been removed from the freezer.

Medieval pots are often coloured with a lead based glaze which is usually green in colour. Although other shades can be achieved by the addition of other compounds, blue was never used.

A common decorative feature on 14th and 15th -century pots was the addition of a plaque of clay bearing the representation of a human face. This style of pottery had a revival in the 16th century, when vessels of this design became known as Bellamine after Cardinal Bellamine, who was particularly disliked by the German protestant manufacturers of these jars.

A medieval kiln site has been excavated in West Yorkshire at Upper Heaton, near Huddersfield. This site made cooking pots and jugs amongst other items

These fragments of medieval pottery have been glazed. Medieval glaze is usually less even than modern glazes.

(Image courtesy of the Portable Antiquities Scheme)

Potters often add other material to the clay to bulk out the ix and make it easier to work with. This is called a *temper*. These fragments of medieval pot have been tempered with shell. The shell can clearly be seen as white inclusions in the body of the pot.

(Image courtesy of the Portable Antiquities Scheme)

16th and 17th century pottery

- *Green glazed wares* continued in fashion into the Tudor period, though other forms of finish were also popular. Imported German Bellamines, for example often had glaze produced by throwing salt into the kiln. This provides a clear almost colourless glaze but the addition of other chemicals will produce other colours. Powdered iron for instance will produce spots of red. Salt based glazes tend to have the texture of orange peel.

- *Cistercian ware* was also producing during this period, though the name is rather misleading. Archaeologists first found this type of pottery on the sites of the major Cistercian abbeys in the north of England. It was therefore assumed that it belonged to the period when the abbey was in use. This is not so. Kilns at Wrenthorpe were producing this material well into the 17th century. Cistercian ware has a black lead based glaze produced by firing the pottery with all air excluded from the kiln. The fabric of the pot is often a reddish colour. The kilns at Wrenthorpe made a range of Cistercian ware vessels including cups and cisterns. They also produced bowls with an internal yellow glaze.

- *Slipware* is a distinctive form of decoration which first became popular in the 17th century. Patterns are produced by painting slip (a thin clay mixture) over the surface of a vessel of a different colour. Patterns can also be produced by using a comb to make wavy lines in the slip.

- *Tin glazed war.* The colour blue only became popular in the 17th century with the introduction of tin glazed pottery from the Continent. Patterns and pictures could be drawn as an underglaze producing a characteristic blue and white effect. Yellow could also be added for contrast. The same period also saw the first large scale importation of Chinese pottery and Chinese themes were taken up in this style.

18th and 19th centuries

The industrial revolution saw the re-introduction of the use of moulds for manufacturing pottery – something which had not been done in Britain since the Roman period. A mechanised wheel was also introduced giving a smoother internal finish lacking the ripple effect seen on hand made pottery. These and other technical improvements allowed for the mass production of standard shapes and sizes of vessel. Tablewares became thinner and more delicate than had been possible in earlier times and a greater range of colours and finishes were introduced

A more scientific approach was also taken to pottery manufacture allowing new developments. The included the manufacture of:

- *Porcelain*. High quality translucent porcelains were first imported from China and spurred English makers on to imitate them. The body is made using kaolin ('china clay') which fires to a hard white fabric.

- *Creamware*. This was developed to rival porcelain. The pottery is glazed, and as the name suggests, creamware vessels have an overall creamy colour. Leeds was one of the principal manufacturing districts for this type of pottery.

- *Pearlwares*. This was another development form the Leeds potteries. As the name suggest the glaze had a distinctive pearly finish.

- *Whitewares*. These began to replace both cream and pearlwares in the 1830s. and are still popular today.
  Whitewares have a colourless smoother glaze.

- *Transfer printed wares*. Here an image was transferred from a steel engraving onto a surface of the vessel, fixed by heat and glazed over. This allowed complex patterns and designs to be mass produced. The most famous of these is the Willow Pattern. It was designed by Thomas Turner in the late 18th century and is still used today. The "Chinese Legend" which explains the scene on the plate is in fact made up.

Further reading

It is difficult to suggest a single volume that can outline the whole subject of pottery in archaeology for the beginner. Perhaps the best overview is *Pottery in Britain* by Lloyd Laing (Greenlight publishing 2003). For books looking at individual periods, we suggest consulting the appropriate volume in the Shire Archaeology series.

External Links

Several organisations provide online catalogues of pottery. These include:

The Museum of London Ceramics and Glass Catalogue
This is a wonderful resource for anyone interested in pottery or glass. The catalogues cover not only British pottery but also examples from Egyptian and Classical civilizations.

Potweb
Ceramics Online at the Ashmolean Museum, Oxford.

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