Historic England

Roman and Medieval Pottery and Tile Production

Introductions to Heritage Assets

Summary

Historic England's Introductions to Heritage Assets (IHAs) are accessible, authoritative, illustrated summaries of what we know about specific types of archaeological site, building, landscape or marine asset. Typically they deal with subjects which have previously lacked such a published summary, either because the literature is dauntingly voluminous, or alternatively where little has been written. Most often it is the latter, and many IHAs bring understanding of site or building types which are neglected or little understood.

This IHA provides an introduction to Roman and medieval pottery and tile production. The manufacture of pottery is first recorded in this country in the early Neolithic period, starting around 4000 BC. The production of pottery on what can be termed an industrial scale began in this country in the immediate aftermath of the Roman invasion of AD 43. The Romans also introduced the production of clay tile for use in building projects. Several forms of medieval kilns are known, often found in rural sites. Descriptions of the asset type and its development as well as its associations and a brief chronology are included. A list of in-depth sources on the topic is suggested for further reading.

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Front cover
Excavation of a Roman pottery kiln in progress as Castor in Cambridgeshire in 1822.

Introduction

The manufacture of pottery is first recorded in this country in the early Neolithic period, starting around 4000 BC. At this period and for several thousand years later, pottery production was undertaken at a domestic level using very limited technology. Most pottery in the prehistoric period was created using a coil method of construction which involved the potter wrapping and moulding a long coil of clay by hand to the shape of the vessel. Although this required great skill, it was a laborious, time consuming task only able to supply immediate needs.

Mass-production of wheel-thrown pottery at specialised centres did not take place until the Iron Age, starting around the 2nd century BC. The production of pottery on what can be termed an industrial scale began in this country in the immediate aftermath of the Roman invasion of AD 43. The Romans also introduced the production of clay tile for use in building projects.

Because it is so durable, pottery is the most common type of artefact found on archaeological excavations, dating from the Neolithic onwards and is one of the main ways archaeologists can establish the date of a site. The study of pottery extends beyond using it as a dating tool, to include the technological, social, economic and cultural contexts for manufacture, distribution, acquisition, use, breakage, discard and deposition. All these avenues of research emphasise the importance of understanding as much as possible about the production processes through identifying and studying the kiln sites.

1 Description

Figure 1
Excavation of a Roman pottery kiln in progress at Castor in Cambridgeshire in 1822.

The simplest way of firing pottery is in a simple shallow firepit, known as a bonfire or clamp kiln, where vessels were stacked and surrounded with fuel, usually wood, that was then set alight. A covering of turf would have ensured that the fire did not burn out too quickly, enabling more control of temperature and oxygen levels. A clamp kiln is a simple structure and was used in prehistory, compared to later more sophisticated kilns, it was very difficult to control the firing conditions and therefore the range and numbers of vessels that can be manufactured using a clamp kiln was limited, and there would have been many more 'wasters' (unsuccessful pottery vessels). Given that all the pots sat on top of each other (pre the introduction of kiln furniture), it would also have been common to have inconsistent firing within the same vessel. This is often seen on pottery produced in that way.

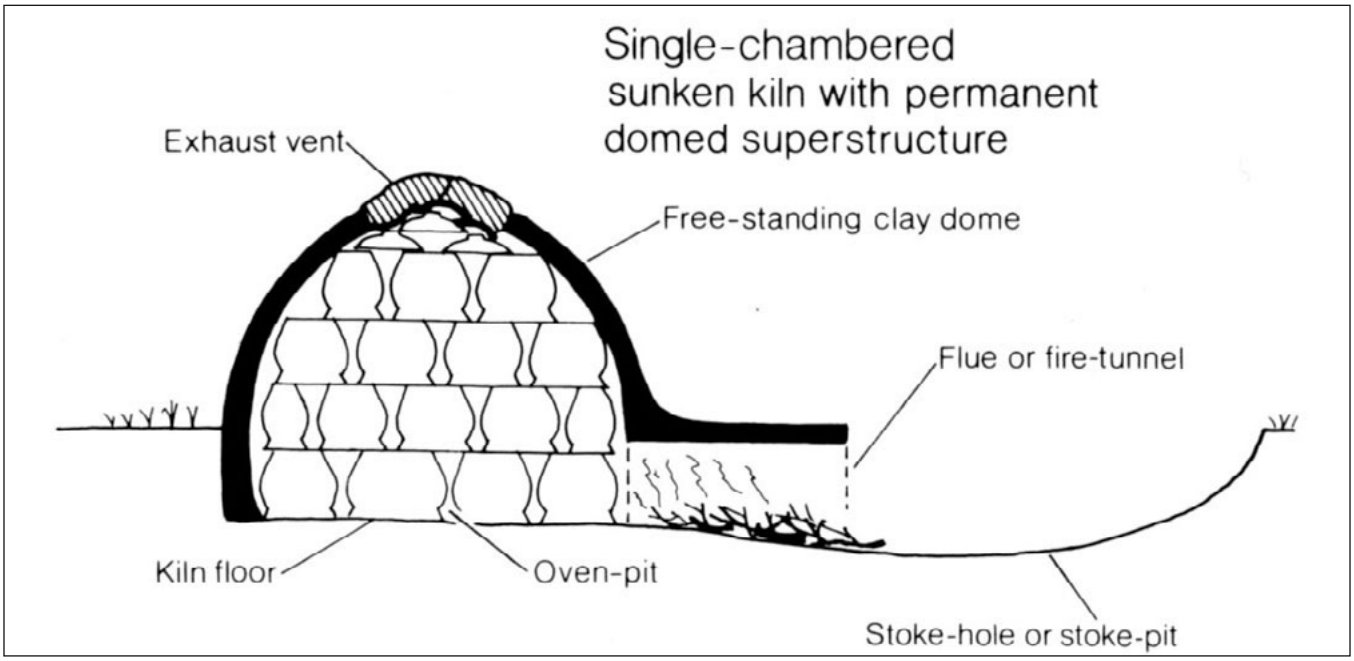


Figure 2
A cross-section through a single-chamber kiln of the Roman period from *The Pottery Kilns of Roman Britain* (1984).

Mass production of pottery and tile to a consistent style and form needed a more sophisticated approach, which came with the introduction of 'updraft' kilns around the Late Iron Age-Early Roman period. The end of the Roman period saw a return to simpler methods of pottery manufacture akin to the prehistoric period, but by the Saxon period, the use of updraft kilns resumed and they continued in use for both pottery and tile manufacture right through the medieval period.

The main elements of a Roman or medieval period updraft kiln are (a) a stoking area or pit at the front of the kiln from where the fuel (most commonly wood or peat) was fed to the furnace chamber (b) a flue containing the fire and which linked the stoking area to the furnace chamber. Some types of Roman and medieval kilns had two or more flues (c) the furnace-chamber where the hot gases collected and percolated upwards and (d) the oven where the stacked vessels were fired on a raised floor above the furnace-chamber. A vent at the top allowed excess heat to escape; this vent could be sealed to exclude oxygen when a grey-coloured 'reduced' fabric was required. The superstructure of the oven was usually dome-shaped and constructed of stone with a clay lining or made entirely of clay.

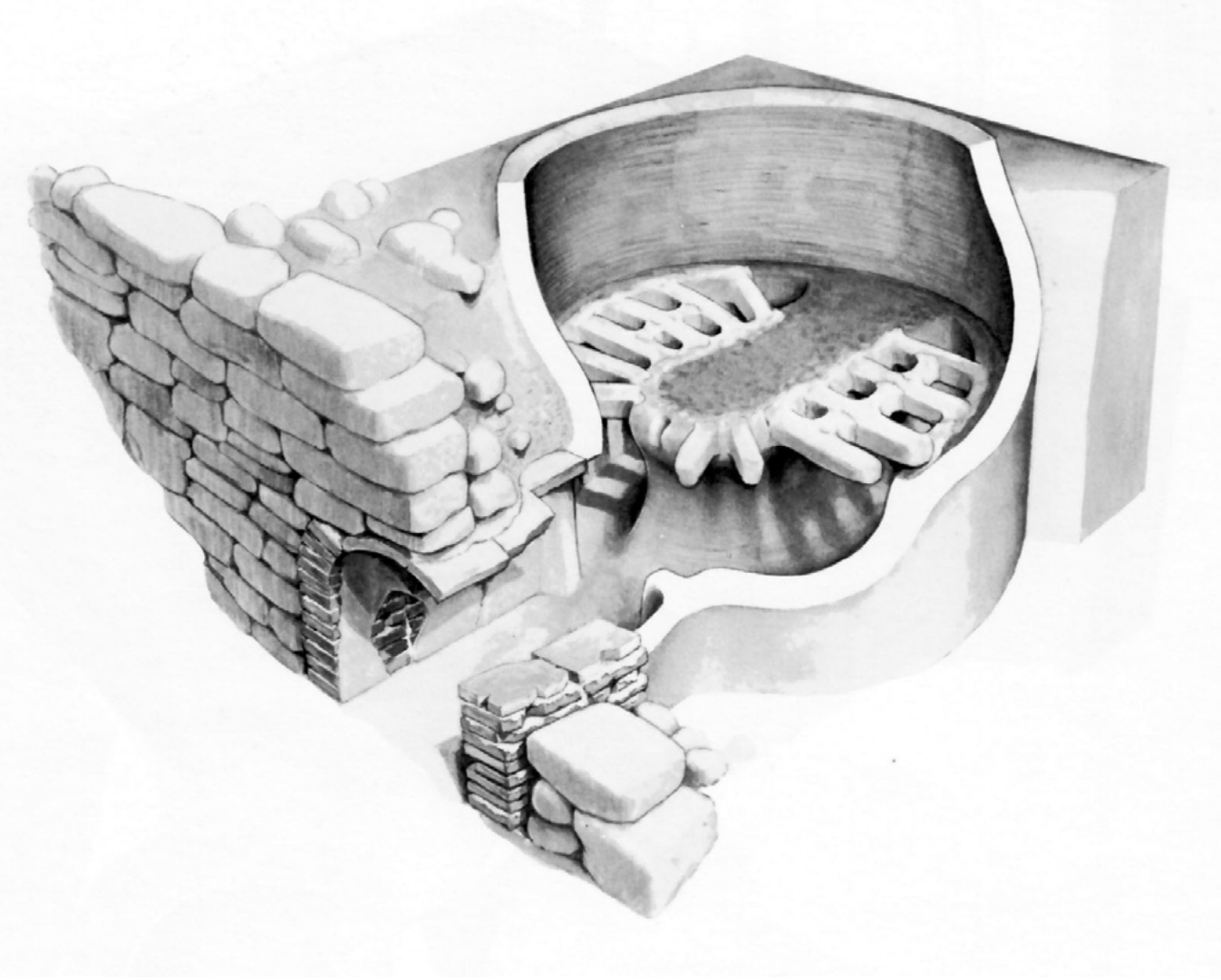


Figure 3
Reconstruction drawing of a Roman pottery kiln from the Nene Valley in Northamptonshire, showing how the over floor is constructed of prefabricated bars. From *The Pottery Kilns of Roman Britain* (1984).

However the form of the superstructure is usually difficult to ascertain with certainty because it often had to be partially dismantled to remove the pots after firing and any remaining structure would be levelled with the passage of time. An updraft kiln is usually oval or circular in plan though in the Roman period kilns specifically designed for the manufacture of tiles by the military were commonly rectangular. They are also distinguishable from pottery kilns by the stronger internal supports needed to carry the weight of the tiles stacked on the raised floor of the oven.

Evidence of pottery and tile manufacture on a site is not restricted to the kilns themselves. It can also be recognised from concentrations of broken or misfired pots called wasters and from distinctive clay objects used to separate the pots or tiles in the kiln known as ‘spacers’ or ‘stackers.’ Sometimes fragments of potter’s wheel or tools used to shape and decorate the pots are found. Clay was also usually quarried close to the kiln site and so the remains of large pits and hollows cut into a clay subsoil can indicate the location of a production site.

In the Roman period major industries in the southern half of England have been identified from the Severn Valley, through Dorset, Hampshire and Oxfordshire, to Hertfordshire, Essex and Northamptonshire. Further north, in Yorkshire, extensive evidence of pottery production has been found around Doncaster and near Malton, both of which were important Roman forts and civilian settlements.

Large-scale manufacturing resumed in the late-Saxon period with an important industry centred on Stamford, in Lincolnshire. From the 12th century onwards pottery and tile producing centres are found right across the country, mostly in rural locations serving local markets. Tile production included roof tiles (identifiable from the presence of peg holes) and thicker hearth tiles, as well as the supply of floor tiles, sometimes highly decorated, to monasteries, churches and cathedrals. A medieval kiln site producing both floor tiles and roof tiles has been excavated less than a mile from the Cistercian Abbey of Meaux, in east Yorkshire.

2 Chronology

There is a small amount of evidence that simple updraft kilns were in use in this country a decade or two before the Roman invasion of AD 43, introduced possibly by itinerant potters or by the passing on of knowledge. After the invasion the presence of numerous troops garrisoned across the country created a sudden and sustained upsurge in the demand for pottery and tile and numerous kiln sites have been identified from the first and early second centuries AD associated

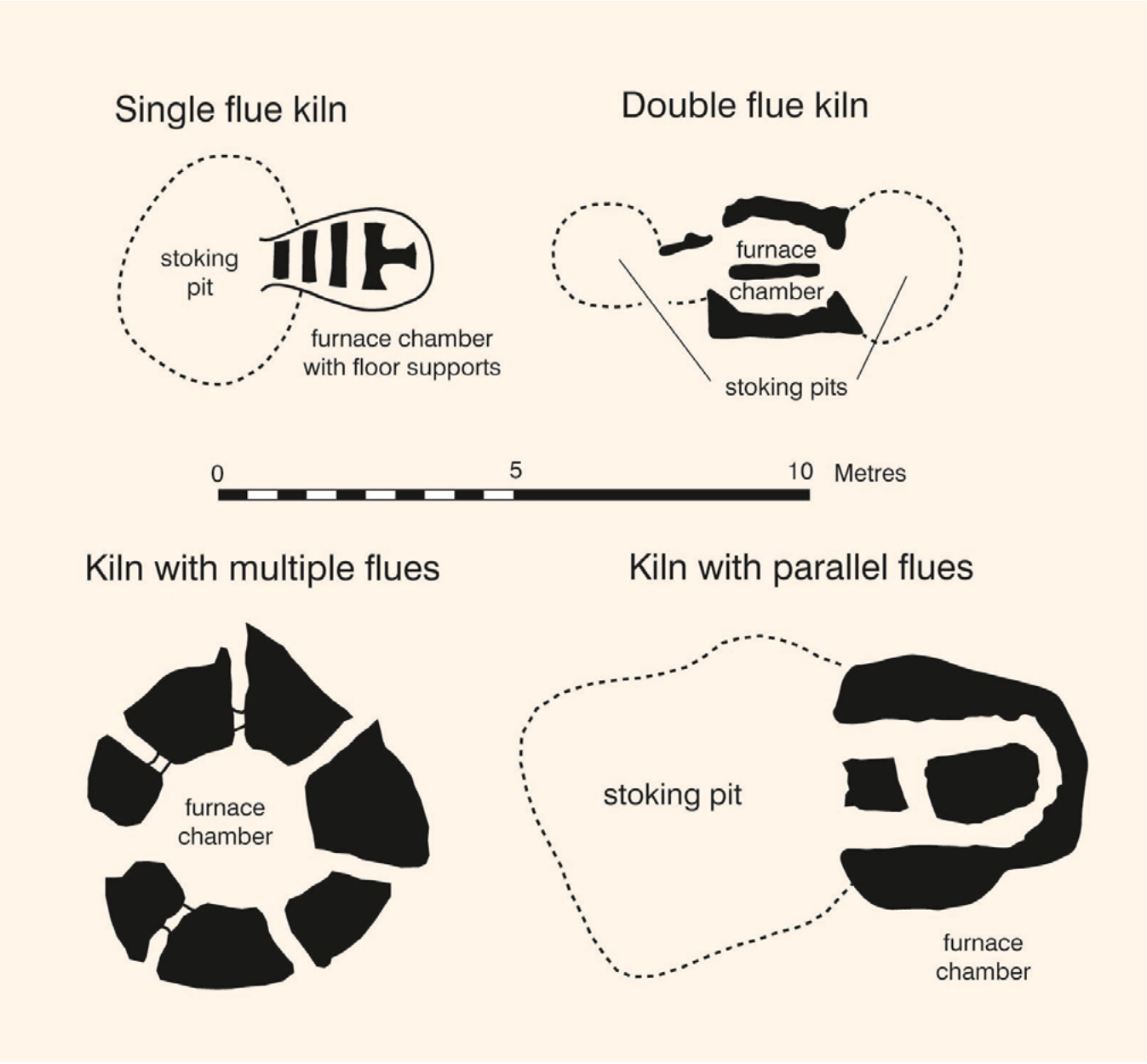


Figure 4
Basic typology of medieval pottery kilns after John Musty.

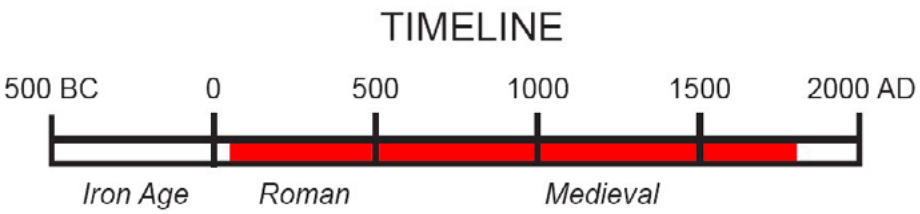
with military establishments. Likewise the growth of urban centres from the late 1st century AD onwards stimulated the market for pottery and tile. New production centres continued to develop right up until the end of the Roman period such as the Crambeck industry in Yorkshire which began production around AD 330 - 340, but none continued in operation for very long into the 5th century AD after the end of the Roman period.

The following centuries saw a reduction in the use of pottery and tile as manufacturing shrank to a localised craft activity as it had been in prehistoric times. The use of updraft kilns returned in the east of England in the 9th century AD, perhaps signifying the influence of Scandinavian settlers. Single flue updraft kilns from this period have been excavated at Stamford in Lincolnshire and Thetford in Norfolk but the technology spread to other parts of the country before the Norman Conquest.

By the 13th and 14th centuries pottery and tile manufacture was widespread and was predominantly a rural and seasonal activity carried out by the peasantry to supplement their income. The apparently low status of the potter compared to other types of crafts such as metalworking may explain why there were no significant technological advances or innovations in the manufacture of pottery in the Middle Ages.

After the Middle Ages imported pottery became more widely available including, from the 17th century, pots from the Far East. These external influences stimulated the development of new pottery industries in England of which the firm of Josiah Wedgewood in Staffordshire in the middle of the 18th century is credited with being the first to manufacture pots on an industrial scale while at the end of the century Josiah Spode developed bone china at his pottery in Staffordshire in imitation of the finest white porcelain vessels imported into Europe from China.

Pre-industrial pottery and tile production



3 Development of the Asset Type

Concerted study of pottery and tile manufacturing sites began in the 1960s with the upsurge of discoveries brought about by the boom in rescue archaeology. These new kiln sites enabled John Musty to publish a classification of the types of medieval pottery kilns in 1974. He identified four basic types: a single flue kiln; a kiln with two opposing flues; a kiln with three or more flues and a kiln with parallel flues. This last type was mainly associated with the manufacture of bricks and tiles.

Musty's study of medieval pottery kilns was followed ten years later by a much more detailed study of Roman pottery kilns by Vivien Swan. Her study identified differences between kilns based on variations in the internal structure of the furnace chamber and oven.

While these studies placed an understandable emphasis on the kilns themselves, it is important to consider the wider manufacturing site, since pottery and tile production involved a sequence of processes of which the actual firing of the pots and tiles is just one phase.

The process starts with the extraction of clay. Infilled quarries have been found at both Roman and medieval kiln sites and it has been suggested survive as earthworks in some locations, such as at Brill in Buckinghamshire where there was certainly a considerable medieval pottery industry. Next the clay would have been transported to the site for storage and to let it weather for a while before being taken to pits for puddling to remove impurities.

Figure 5
Photograph of the clay quarries at Brill in Buckinghamshire. This gives a good impression of the scarred landscape left after clay has been extracted for pottery manufacture.

All these stages can leave archaeological traces in the form of shelters, pits and the remains of leats and channels conveying the water needed for puddling the clay. An excavation at the medieval kiln site at Olney in Buckinghamshire revealed the remains of a paved pit where the clay was stored and puddled. Traces might also survive of the workshop used by the potters and storage areas where the fired vessels and tiles could be stacked prior to being sent to market. Such a complex was revealed in great detail in the excavation of a medieval kiln site at Lyveden in Northamptonshire. The excavation in the late 1960s and early 1970s found evidence for both pottery and tile manufacture in the 13th and 14th centuries at several locations scattered among the house plots of a small village.

4 Associations

Roman pottery and tile kilns were commonly sited near to towns where the urban population provided a ready market. Kilns were usually sited on the outskirts away from the main residential area because of the risk of fire posed by the kilns and to avoid the smoke pollution generated during the firing process.

In the countryside Roman kilns have been found on the edges of fields and on the periphery of farming settlements and also associated with the civil settlements attached to forts where they could supply both the military and civilian markets. Production areas have also been found in coastal areas, such as in North Kent, around the Medway Estuary and in Poole Harbour, Dorset.

Pottery production and iron-smithing often occurred together, as clearly evidenced in Poole Harbour, presumably because co-location enabled the two industries to share fuel and the transportation of finished goods to market, either by road or river.

The association between kiln sites and towns is not so strong in the medieval period when pottery and tile manufacture was predominantly a rural industry, situated among the fields or on the periphery of settlements. The site at Lyveden, mentioned above, is a good example of a medieval pottery industry and here evidence was found of iron-smithing in close association with pottery manufacture. Lyveden lay within Rockingham Forest, and Glenn Foard has demonstrated how industrial activity in the forest like potting, iron working and charcoal making had differing local distributions relating not only to the availability of raw materials but also to administrative areas. However, in broad terms the co-location of these two types of industry, potting and iron-working, allowed the sharing of fuel and transportation costs as has been noted at many Roman kiln sites.

Both roads and rivers were used to move pottery and tiles to market and in some instances pots must have been moved by sea as this is the only way to account for the widespread distribution of finds of some varieties of medieval pottery.

5 Further Reading

As pottery is the commonest find on excavations, the literature on it is vast. But when production is considered the reading is more manageable.

The most detailed account of Roman pottery kilns is V Swan, *The Pottery Kilns of Roman Britain* (1984), while the best detailed introduction to the medieval pottery industry is M McCarthy and C Brooks, *Medieval Pottery in Britain AD 900-1600* (1988).

The typology of medieval pottery kilns is set out in J Musty, 'Medieval Pottery Kilns' in V Evison, H Hodges and J G Hurst (eds), *Medieval Pottery from Excavations: Studies Presented to Gerald Clough Dunning* (1974).

Other useful published books and articles are: J Cherry, 'Pottery and Tile' in J Blair and N Ramsey (eds), *English Medieval Industries* (1991); S Eames, *Medieval Tiles: A Handbook* (1968); G Foard, 'The Medieval Pottery Industry of Rockingham Forest, Northamptonshire', *Medieval Ceramics* 15 (1991), 13-20; and J Stopford, 'Modes of Production among Medieval Tilers', *Medieval Archaeology* 37 (1993), 93-108.

Two journals specialise in this subject area: Journal of Roman Pottery Studies, published by the Study Group for Roman Pottery (1986 – present); and Medieval Ceramics, published by the Medieval Pottery Research Group (1977 – present).

See also the following:

Historic England, *Archaeological and Historic Pottery Production Sites; Guide for Best Practice* (2015);

PCRG, SGRP and MPRG, *A Standard for Pottery Studies in Archaeology,* also available for the cost of postage from any of the three study groups;

C J Evans, L James and P Ellis, *Severn Valley Ware Production at Newland Hopfield. Excavation of a Romano-British kiln site at North End Farm, Great Malvern* (BAR Brit Ser 313, 2000);

A Middleton, tiles in Roman Britain, in I Freestone and D Gaimster (eds) *Pottery in the Making. World Ceramic Traditions,* British Museum (1997);

A Simco, *The Clay Industries,* English Heritage, MPP Step 2 (2000);

R Tomber and J Dore, *The National Roman Fabric Reference Collection, A Handbook,* Museum of London (1998).

6 Where to Get Advice

If you would like to contact the Listing Team in one of our regional offices, please email: customers@HistoricEngland.org.uk noting the subject of your query, or call or write to the local team at:

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