Mortars, Medicine and Knowledge in Medieval England

Abstract: Stone mortars are a distinctive, but under-examined, feature of medieval food-related material culture. This paper presents the results of a survey of the distribution of mortars in medieval England, demonstrating that they are particularly associated with elite residences, large urban households and monastic institutions. It is proposed that a contextualised interpretation of mortars in relation to the spread of formalised knowledge relating to healthy diet and medicinal practice allows us to explore how these objects were implicated in the emergence of new gendered and status-based experiences in the Middle Ages.

Within medieval thought, ideas about food and medicine were closely bound. Prevention, for example through maintaining a healthy diet, was more important, in most cases, than cure. Both sets of ideas were strongly informed by Classical thought, specifically the concept of balancing the humours.1 Formal knowledge, both of the relationship between diet and health and medical knowledge, spread through Europe, initially through monastic networks and newly founded universities, but also through the circulation of medical books in both Latin and English, and references to health and medicine in popular literature.2 These combined details of prayers, herbal medicine and knowledge derived both from Classical and Islamic sources between the 13th and 15th centuries. Through this process, medical knowledge


increasingly became a part of European elite intellectual and food culture. For most households however, medical knowledge was built on what might be termed “folk medicine”, knowledge passed orally through generations. A strong gendered element to these forms of medical knowledge has been proposed; whilst the majority of formally trained medical practitioners were male, folk knowledge is thought to have been largely held by women, being closely integrated with their roles as care givers and food providers.

Practices related to food – and, by extension, medicinal practices – sit at the intersection of a range of elements of medieval life. Religious knowledge and practice determined what could and couldn’t be eaten, and informed understanding of ideas of good health. Wealth and status, as well as the local agrarian and commercial economies, determined the availability of foodstuffs to households and, in turn, the transfer of knowledge regarding the correct way to cook and consume substances. Medicine, as a particular set of food practices, can be associated with a range of transformations in the medieval period. Monastic expansion, commercialisation and urbanisation all created contexts and networks through which knowledge of health and medicine could be transferred and applied. It is easy to create a binary distinction between folk medicine as a female domain which formed a part of wider domestic practice, and formalised medicine as the domain of specialist, educated, men. However, such a distinction oversimplifies the shared understanding of the properties of certain plants and remedies, the ways in which formal medical knowledge might become embedded into the domestic sphere, including through diet, and the role of women in particular areas of care such as midwifery.

The formalisation of measures to exclude women from professional medical practice mirrors the marginalisation of women in other areas of economic life such as brewing and the processing of grain. These had once been strongly associated with women in the domestic sphere but increasingly came to be dominated by male professionals. We can perceive of the proliferation of objects such as glass urinals, distillation equipment and stone mortars associated with the medical practice as a medium through which the globalisation of knowledge drawn from the Islamic and Classical Worlds came into contact with inherited understanding of the body and the natural world and were enfolded into domestic life.

The medieval period can be understood as an “age of intensity”, characterised by an increase in the relations which formed networks of commerce, patronage, religion, and knowledge. Dietary and medical practice offer a means to explore the implications of these processes for experiences of domesticity and, particularly, gendered regimes of knowledge and practice. Intensification created the conditions for the development and transfer of medical knowledge and associated material culture, including mortars. Mortars for the pounding and

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grinding of foodstuffs, particularly herbs and spices, are a distinctive element of medieval food culture across Europe. Whilst also produced in ceramic and metal (typically copper alloy), the most commonly occurring archaeological examples in northern Europe are in stone. Copper alloy examples are particularly associated with Iberia and the Islamic tradition, with the style spreading throughout the western Mediterranean. Whilst trade was one route through which mortars, associated foodstuffs and awareness of stylistic characteristics spread, other contacts such as travel on crusade may have offered opportunities for the acquisition of copper alloy mortars. These are exceptionally rare in the British archaeological record, but such an interpretation has been advanced for the copper alloy example from Coity Castle, Wales.

The production, spread and use of mortars can be linked to these processes of intensification in a number of ways. Firstly, there is a close relationship between the stone types used for mortar production and that used in major building projects; the erection of churches, castles, elite residences and townhouses. In England the most prolific producer of mortars were the masons associated with the Purbeck quarries in Dorset. Purbeck “marble”, a paludina limestone which can be polished to look like marble, was widely used for the interior work of churches in southern and eastern England. Elsewhere, local limestones and sandstones, widely exploited for building stone, were used to produce mortars. The increasing use of stone as a symbol of permanence, wealth, and prestige – as a petrification of status – created conditions in which it was increasingly exploited and could find new uses. The earliest mortars to be found in medieval England are likely to be those of Caen stone, the distribution of which is strongly focussed along the channel coast, with findspots clustering between Southampton and London, with additional occurrences around the ports of Ipswich, Yarmouth and King’s Lynn (Figure 1). The Norman Conquest of England accelerated existing commercial and political links between southern England and Normandy and was one stimulant for stone building.

Commercial intensification also created conditions in which mortars could become objects of trade. Mortars produced at Purbeck were widely distributed, being transported along the coast and then inland through networks of markets and fairs. Mortars were also traded internationally, for example those excavated in Denmark have been identified as coming from the areas of modern-day northern France, Belgium and England, and mortars were exchanged between France, England and the Netherlands. These commercial networks also influenced the design of mortars. The affinity of northern European mortars to Islamic prototypes has been

highlighted, for example one Purbeck “marble” example from Winchester is interpreted as being based directly on an Islamic prototype, uniquely exhibiting facets running parallel to the rim (Figure 2).

Figure 1: The distribution of archaeological finds of Caen Stone mortars from medieval England. Image: Ben Jervis.
Long distance contacts also led to the increasing availability of a wider range of spices and condiments. Whereas foraged or cultivated herbs were widely available, access to more exotic foodstuffs appears limited to larger towns and elite residences, in part due to the direct commercial transactions between wealthy households and urban merchants which by-passed smaller local markets.\textsuperscript{13} It was through these contacts that medical knowledge could spread, both through books and as part of a wider intellectual culture, which was able to emerge among urban populations as commercialisation created opportunities for wealth and prestige to be generated.

Here, I present the results of a national survey of mortars from excavations across England, including both published examples and those occurring in unpublished “grey literature” arising from development-led excavation. This has resulted in a corpus of 517 mortars. I begin by briefly summarising the dataset, with a particular focus on their distribution both regionally and in relation to site type. These data are then used to examine the role of stone mortars in the domestication of medical practice in 13\textsuperscript{th}-15\textsuperscript{th} century England.

**Mortars in Medieval England: A Summary**

Mortars remain an understudied element of English medieval material culture, with understanding chiefly resting on the pioneering work of Gerald Dunning. In two important reports, on excavations in the port town of King’s Lynn and the moated site at Northolt to the west of London, Dunning characterised the main forms and sources of mortars recovered from excavations in England.\textsuperscript{14} He identified mortars produced both from English stone, principally Purbeck “marble” and limestone from the Isle of Purbeck, Dorset, and imported types, principally of Caen stone. Based on use wear, Dunning proposed that mortars were used exclusively for pounding or grinding, with the majority used for the latter. He suggested that Purbeck “marble” mortars may have had a useable life of around five years, whilst the more durable Caen stone mortars could have remained in use for longer. Dunning also highlighted the need to better understand the stylistic relationships between stone and metal mortars, suggesting that the angular handles of Caen stone mortars are copies of metal prototypes, something which may also be suggested by the vertical ribbing on some Purbeck examples.


Table 1: Quantification of mortars by stone type. N=517

Mortars are typically of sandstone or limestone, which are workable whilst being durable enough to withstand repeated use (Table 1). Around half of the mortars originate from the Purbeck area of Dorset, with two stones being used, Purbeck “marble”, which accounts for the majority of these, and limestone or Burr-stone, derived from lower geological deposits. In general, there is a high degree of standardisation in the form of these mortars, fitting within the mortar typology developed by Dunning. Purbeck “marble” mortars are generally straight sided whilst those of the softer Burr-stone have a curved bowl. They typically have a solid, lug handle with ribbing down the body of the vessel, which may join at the base to form bulbs (Figure 3). This strongly suggests that mortars were produced at the quarries. Mortars could be formed through pecking or vertical tooling, although the forms are similar. It is unclear whether this variation relates to temporal variation or production at different quarries. Purbeck mortars typically occur in archaeological deposits dating between the mid-13th century and 15th century. The distribution of these mortars broadly follows that previously identified by Dunning, being focussed on southern and eastern England, approximately the area between the Solent and the Wash (Figure 4).

<table>
<thead>
<tr>
<th>Stone Type</th>
<th>%ge Mortars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purbeck 'Marble'</td>
<td>70%</td>
</tr>
<tr>
<td>Burr Stone/Limestone</td>
<td>26%</td>
</tr>
<tr>
<td>Not Stated</td>
<td>4%</td>
</tr>
<tr>
<td>Purbeck</td>
<td>46%</td>
</tr>
<tr>
<td>Limestone</td>
<td>27%</td>
</tr>
<tr>
<td>Caen Stone</td>
<td>10%</td>
</tr>
<tr>
<td>Sandstone</td>
<td>5%</td>
</tr>
<tr>
<td>Unknown</td>
<td>4%</td>
</tr>
<tr>
<td>Quarr Stone</td>
<td>4%</td>
</tr>
<tr>
<td>Greensand</td>
<td>2%</td>
</tr>
<tr>
<td>Forest Marble</td>
<td>1%</td>
</tr>
<tr>
<td>Other French</td>
<td>1%</td>
</tr>
<tr>
<td>Chalk</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
</tr>
</tbody>
</table>

Figure 3: Examples of Purbeck “marble” and Burr-stone mortars. 1: Purbeck “marble” mortar from Winchester, Hampshire; 2: Purbeck “marble” mortar from Northolt Manor, London; 3: Burr-stone mortar from Boston, Lincolnshire. Reproduced by Permission of The Society for Medieval Archaeology.
Figure 4: The distribution of archaeological finds of Purbeck mortars from medieval England. Image: Ben Jervis.
Caen Stone represents the next largest group of mortars. The distribution of these is strongly focussed along the channel coast, with findspots clustering between Southampton and London, with additional occurrences around the ports of Ipswich, Yarmouth and King’s Lynn. Finds made since Dunning’s survey largely conform to this pattern, with examples coming from the ports of Seaford and Shoreham in Sussex, Canterbury and Winchester, with outliers at Beverley in Yorkshire and Bristol. Unlike the Purbeck examples, these mortars are characterised by pierced handles (Figure 5).

Figure 5: Examples of Caen stone mortars from King’s Lynn, Norfolk. Reproduced by Permission of The Society for Medieval Archaeology.
Figure 6: The distribution of mortars of Quarr Stone, Greensand, Limestone and Sandstone from Medieval England (excluding Purbeck and Caen Stone types). Image: Ben Jervis.

The remaining mortars are typically of locally available stone, generally exhibiting a relatively simple form, usually being formed from a cylinder or cube of stone, occasionally
with a rib or facets running down the body. There is strong regionality to these mortars. The most well-known are those of Quarr Stone from the Isle of Wight, the distribution of which clusters in south central England, the area in which Quarr Stone was widely used, often alongside Caen stone, in building projects (Figure 6). Also in this region, particularly the counties of Sussex, Kent and Surrey, can be found a concentration of mortars in Greensand. These vary in form, an example from Aylesford is a cylindrical tub with stone lugs, whilst that from the Hospital of St Mary, Ospringe is cuboid in form. Both vary considerably from the bowl shape typical of Quarr Stone mortars and the ribbed Purbeck forms. Running from Dorset in the south to the Humber in the east is an area of limestone in which mortars are typically of shelly or oolitic limestones of local origin. Examples include the so-called “Forest Marble” mortars Chalgrove manor and Oseney Abbey in Oxfordshire and shelly limestone mortars from excavations in Lincolnshire. Further north and west, mortars are typically of locally available sandstone. Production of these mortars may have taken place at quarries, but the simplicity of their form and lack of standardisation may suggest that they were produced on demand using offcuts from building projects. Such production can perhaps be attested to at Hartlepool, where roughouts from mortar production were excavated.

The common re-use of mortars for building material means that it is extremely difficult to assess the chronological relationship between the relatively “mass-produced” Purbeck mortars and the more localised products. A general picture of regional variability can be demonstrated however, whereby mortars were clearly in demand across England, but this demand was met in different ways. In the south and east there was ready access to Purbeck marbles, whilst inland and further west production was typically smaller scale and more localised. Even so, within the area of Purbeck mortar use local production of simpler mortars took place although, in contrast to areas outside of the core area of Purbeck mortar distribution, the use of these appears focussed on urban domestic contexts, perhaps suggesting opportunistic masons producing mortars for a readily available market.

The Distribution of Stone Mortars

So far, we have observed regional variability in the stone types used for mortars and the accessibility of these objects. Mortars occur most frequently in southern and eastern England, within the distribution area of Purbeck products. Elsewhere, mortars occur less frequently and are typically produced of local stone, exhibiting simpler and less uniform design. Mortars were used in both urban and rural contexts which vary in relation to this regional distribution (Table 2). In the countryside around a third of the sites from which mortars

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have been recovered are elite residences, typically moated sites or manorial complexes. Whereas Purbeck mortars are common in these elite contexts, sometimes occurring alongside mortars in local stone, away from the core distribution of Purbeck mortars it is usual for local stone to be used, for example at Baston and Old Leake in Lincolnshire, Little London, Gloucestershire and Manor Farm, Castle Cary, Somerset.19

<table>
<thead>
<tr>
<th>Site Type</th>
<th>Number of Sites</th>
<th>%ge Sites</th>
<th>Total Mortars</th>
<th>%ge Total Mortars</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rural</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic/Village</td>
<td>27</td>
<td>38%</td>
<td>36</td>
<td>7%</td>
</tr>
<tr>
<td>Moat/Manor House</td>
<td>25</td>
<td>35%</td>
<td>44</td>
<td>8%</td>
</tr>
<tr>
<td>Monastic</td>
<td>9</td>
<td>13%</td>
<td>33</td>
<td>6%</td>
</tr>
<tr>
<td>Castle/Palace</td>
<td>4</td>
<td>6%</td>
<td>16</td>
<td>3%</td>
</tr>
<tr>
<td>Hunting Lodge</td>
<td>1</td>
<td>1%</td>
<td>2</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Other/Unknown</td>
<td>6</td>
<td>8%</td>
<td>6</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Rural Total</strong></td>
<td><strong>72</strong></td>
<td><strong>33%</strong></td>
<td><strong>137</strong></td>
<td><strong>26%</strong></td>
</tr>
<tr>
<td><strong>Urban</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban Household</td>
<td>94</td>
<td>64%</td>
<td>263</td>
<td>51%</td>
</tr>
<tr>
<td>Monastic</td>
<td>26</td>
<td>18%</td>
<td>59</td>
<td>11%</td>
</tr>
<tr>
<td>Castle/Palace</td>
<td>18</td>
<td>12%</td>
<td>43</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Urban Total</strong></td>
<td><strong>148</strong></td>
<td><strong>67%</strong></td>
<td><strong>381</strong></td>
<td><strong>74%</strong></td>
</tr>
</tbody>
</table>

Table 2: The occurrence of mortars in medieval England by site type.

A contrast can be suggested in the wider accessibility of mortars. In the area served by Purbeck products, mortars are encountered in non-elite rural contexts, typically those in close proximity to the coast, for example at Hangleton in Sussex and Lydd in Kent, or within the immediate hinterland of a larger market, such as at Gomeldon, situated close to the city of Salisbury (Figure 7).20 Of particular interest is a group of three sites in the area of Milton Keynes, Buckinghamshire, which include a mix of mortars made from Caen Stone, Purbeck “marble” and local limestones.21 These were recovered from the village areas of the deserted


21 Dennis Mynard, *Excavations on Medieval Sites in Milton Keynes* (Aylesbury: Buckinghamshire Archaeological Society, 1994); Richard Ivens, Peter Busby and Nick Shepherd, *Tattenhoe and Westbury. Two Deserted Medieval*
medieval villages at Tattenhoe, Caldecote, Great Linford and Westbury, as well as the moated site at Bradwell Bury. Milton Keynes is situated at the periphery of the redistributive network associated with the major east coast ports of Boston and King’s Lynn, and it is likely that these mortars, as well as other non-local goods were traded inland through a network of fairs including the major international fair at Northampton. In contrast, mortars are found in association with manorial complexes, moated sites, castles, and monasteries.

A similar distribution can be observed in relation to the urban distribution of mortars. In addition to their occurrence in urban religious houses and castles, they are most associated with affluent households in the larger towns. For example, in Southampton, multiple mortars were recovered from excavations of a house at Cuckoo Lane, most likely occupied by a wealthy merchant. Other mortars come from the areas around the waterfront, occupied by the wealthiest members of Southampton’s community. Similarly in Winchester mortars primarily came from the area of Brook Street where excavations have revealed materially rich urban households, whilst in Norwich mortars were recovered from the merchants house at Dragon Hall and large properties near the Cathedral and at Pottergate. Further west, mortars came from the large townhouses at Pride Hill, Shrewsbury and Deansway in central Worcester – an area occupied by artisans, where stone buildings have been excavated. Again, it is in the area within the core of Purbeck mortar distribution that mortars appear to have been available to those living in small towns, typically those within the hinterland of a major town or port. For example, Yarm, Yorkshire, lies close to the major port of Hull; Staines, Middlesex is on the Thames and benefitted from close contact to the London market and Fordingbridge, Hampshire, lies on a major trading route out of the port of Southampton.

Overall, the distribution of mortars appears to be limited to specific types of sites. These include urban and rural monasteries and castles, rural manorial complexes and moated sites and large urban households. The larger scale production of Purbeck mortars created the possibility for a wider range of urban and rural households to obtain these objects in the areas served by those quarries, particularly where they had clear access to a large market.

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Figure 7: The occurrence of mortars in medieval England by site type. Image: Ben Jervis.

Mortars and Medical Knowledge
The distribution of mortars largely mirrors the contexts in which we might expect formalised medical knowledge to have been available. Only a minority of medical practitioners in medieval England were university trained, around 41% in the period 1340-1530. Many of these came from clerical backgrounds. These practitioners were principally resident in the larger towns, although it should be remembered that these are best served by documentary evidence, whereas in the countryside households were less likely to have access to formally trained practitioners. The cost of specialist medical care made the medical profession surprisingly precarious, with a strong reliance on credit and patronage, focussing medical care into urban and seignorial contexts where such arrangements could be most easily reached. It is possible, therefore, to posit a relationship between contexts in which medical knowledge was most likely to be found; wealthy urban households, religious institutions and elite households, and those contexts in which mortars are most commonly encountered.

If a link between mortars and sites of medical knowledge can be sustained, we can understand these objects as associated with an elite intellectual culture through their role in the practice of medical knowledge. However, care must be taken not to homogenise the experiences of these households and the role of mortars in the generation, practice, and transfer of medical knowledge. Rather, we might think about how collective engagement with a body of formalised knowledge, transferred through formal training, books and observation, might lead to a diverse “assemblage of knowledge”, in which understanding, whilst mediated through these objects, was situated and contextual, with varying implications domestic experience. In other words, whilst engaging with a similar body of knowledge, the experience of a medical practitioner in a homosocial monastery would be quite different to that of an urban merchant or elite woman. Furthermore, the occurrence of mortars in non-elite rural contexts creates an opportunity to explore the relationship between objects associated with networks of formal medical knowledge and folk medicine.

Religious institutions were important sites of medical knowledge. The most detailed archaeological study is the analysis of the evidence for medical treatment at St Mary Spital, London. As well as including several mortars, the archaeological assemblage includes ceramics and glass associated with distilling including flasks, cucurbits, a ceramic alembic and glass flasks as well as glass urinal (for the inspection of urine in medical diagnosis), and ceramic drug jars. Such glass vessels have a particularly strong association with monastic sites. Evidence for the cultivation of herbs associated with medicine, including Borage

(Borago officinalis), Feverfew (Tanacetum parthenium) and Opium poppy (Papaver somniferum) was identified in the area of the Prior’s garden. At La Grava, Bedfordshire, the site of a priory within a royal manor, glass urinals and distillation equipment along with mortars of Purbeck “marble” and locally available limestone were recovered from later medieval deposits. Together, both assemblages are suggestive of the preparation of medicines. Seeds from a contemporary cess pit are suggestive of the cultivation of fruit and, possibly, hemlock, a plant with medicinal use. These examples demonstrate clearly how medical practice could emerge from processes of intensification; the importation of ingredients from the Mediterranean, suggested by the ceramic drug jars at St Mary Spital, monastic foundation in the late 12th century and with it the demand for building stone. Similar, although less conclusive evidence is found at Selborne Priory, Hampshire where glassware associated with distilling was excavated along with 3 Purbeck mortars, St Marks Station, Lincoln, where a small quantity of vessel glass was recovered from excavation of the Carmelite Priory and a Spanish albarello (drug jar) from the Maison Dieu hospital, Ospringe.33 From both this site and the Maison Dieu, Arundel were recovered small mortars interpreted as “apothecaries mortars”; the Arundel example being of Portland Stone and the Ospringe example of local greensand.34

That religious houses were centres of formalised medical knowledge is clear, but the occurrence of similar assemblages to that from St Mary Spital from other contexts demonstrates how this formalised knowledge became enacted through elite domestic practice. In 1598, John Calley, a gentleman living at Hilmerton, Wiltshire, had a mortar and pestle worth 3 shillings and 4 pence, which were seized in the recovery of a debt.35 Other examples from rural contexts attested to in lists of goods seized by the crown relate to members of the clergy. In 1382, Richard Vittokestre, the parson of Lyminge, Kent, had a mortar of unspecified material, as did the parson Thomas Molundre who was imprisoned in 1380.36 These lists serve to demonstrate a relationship between the rural secular and ecclesiastical elite and mortars, which can also be identified in the archaeological evidence.

An important feature of both religious houses and elite dwellings in town and country are gardens. We could take, as an example, the evidence from the moated site at Tempsford, Bedfordshire.37 Here, the presence of humic layers suggests the presence of a small garden nestled between the hall and parlour. The presence of an Oolitic limestone mortar suggests the processing of plants from the garden and the surrounding landscape. Similarly at Dean Court, Oxfordshire, the presence of cultivated fruits and a dovecote suggest the presence of a garden

36 These lists were collected by the Living Standards and Material Culture in English Rural Households c.1300–1600 projects and are accessible via the Archaeology Data Service [https://doi.org/10/5284/1085022].
in a similar location, with finds from the site including two limestone mortars. At Little London, Gloucestershire a dovecote similarly suggests the presence of a garden associated with a manorial complex, from four mortars were recovered, all in local stone.

Gardens served a variety of practical purposes, including the growing of foodstuffs which might include herbs which could be used for culinary and medicinal purposes. They were not only places where medicinal herbs could be cultivated, but therapeutic locales in which the health benefit of scent and sight could be enjoyed. Both Karen Dempsey and Roberta Gilchrist have highlighted the importance of gardens to ideas of elite femininity, particularly as places in which plants were sown and nurtured with traditional knowledge of the qualities and uses of these plants being a distinct form of feminine knowledge. Particularly, Dempsey argues that gardens could be areas of devotional practice, as a place in which women undertook practices through which their femininity was negotiated at the intersection of piety, inherited knowledge and social status through the sowing, nurturing and exploitation of plants.

Whereas the mortars from religious institutions can be closely linked to the activities of the infirmary and kitchens; the production of medicines or the flavouring of dishes with specific plants undertaken by communities with access to formal, specialist knowledge, the implications of mortars in elite domestic contexts are more ambiguous. Through their association with garden produce they could be understood as part of an assemblage of elite, feminine material culture associated with health and beauty, perhaps alongside other objects such as mirrors, made increasingly accessible by growing commercial networks. However, their occurrence alongside other objects suggestive of specialist, medical knowledge might indicate a domestication of this practice and, with it, a marginalisation of inherited medicinal knowledge with these objects playing a role in converting understanding of the properties of plants from being bound up with elite femininity to being a part of a more patriarchal form of elite intellectualism which transcended monastic and secular contexts.

This may be exemplified by the finds from Chalgrove, Oxfordshire. Here three mortars, all of local “Forest Marble”, were excavated from a manorial complex. Excavations and documentary evidence suggest the presence of gardens whilst the glass assemblage includes two glass urinals, dating to the later 14th or early 15th century. Similar, if more chronologically problematic, evidence comes from the Manor of the More, Rickmansworth where two mortars were recovered from 14th century demolition deposits and a glass alembic came from a deposit.

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43 Alex Smith, Chalgrove Manor, Harding’s Field, Chalgrove, Oxfordshire [https://doi.org/10.5284/1000355].
dated to the early 16th century. Whilst not contemporary, these do show the occurrence of objects associated with medical knowledge in secular, elite, contexts. It is not my intention here to argue that mortars symbolise the marginalisation of female experience, but rather to propose that the increasing commercial availability of mortars and related material culture, as well as the wider accessibility of medical knowledge created a space in which the relationship between plants and elite, gendered, identities could be opened to re-negotiation. Whilst women still played an important role in certain areas of medical care, particularly midwifery, intensification was a disruptive force; just as commerce changed the role of women in relation to brewing and grain processing, so it created new possibilities for medical practice in the home and the role of women within it.

Similar evidence can be found in towns. Gardens are common features of wealthy urban residences, examples being Dragon Hall, a large merchants’ dwelling in Norwich and at St Thomas Street, Oxford, where archaeobotanical evidence suggests the presence of an herb garden. Mortars were excavated from both sites. The occurrence of mortars in wealthy urban households is also attested to by historical evidence. In 1404, the Southampton merchant Richard Pafford had 2 mortars. In 1513, Nicholas Chafyn, a mercer from Salisbury, had a stone mortar worth 6 pence, whilst in 1542, the Salisbury merchant Thomas Hele had a brass mortar with an iron pestle worth 15 shillings above his shop and a further two small mortars. Hele also possessed a wide range of spices among his stock.

We can also identify assemblages containing mortars and glassware associated with medical practice. At a house on Southampton High Street, several mortars were found in deposits contemporary with glassware, including urinals. Similarly, multiple urinal and alembic fragments were excavated at Goldsmith Street, Exeter, a site from which three mortars were also excavated. As in the countryside, gardens were features of wealthy urban households. Particularly spectacular is an assemblage of distilling apparatus from Christ Church, Oxford. Whilst the mortar from the site is seemingly associated with the monastic precinct, the glass and ceramics appear associated with a large residential dwelling. This is a location in which we might expect a mortar to have been in use, as demonstrated by the mortar illustrated in the 16th century image of distillation created by Jan van der Straet (Figure 8). Whilst potentially associated with alchemy or testing the purity of metal, it is likely that this group, representing the earliest known assemblage of medieval distillation equipment in England, was associated with the preparation of remedies.

46 This list was collected by the Living Standards and Material Culture in English Rural Households c. 1300-1600 projects and are accessible via the Archaeology Data Service [https://doi.org/10/5284/1085022).
Mortars were probably not exclusively associated with the production of medicine, but also played a role in the putting into practice knowledge about healthy diet. Formalised knowledge based on humoral theory permeated elite domestic life, with mortars being an important tool in this process. Mortars were not solely used in elite contexts, however. The distribution of finds from village sites strongly suggests a link to the commercial networks through which mortars were exchanged, with commerce creating opportunities for certain households to access these goods. In these contexts, it is less likely we are seeing these objects as tools for the practice of specialist dietary and medical knowledge, but rather an amalgamation of useful objects into vernacular regimes of knowledge and domesticity. For example, the finds assemblages from the deserted villages of Tattenhoe and Westbury in Buckinghamshire are remarkably large. Here the mortars form a part of artefacts assemblages dominated by dress accessories, basic domestic equipment such as knives and cooking vessels.
and craft and agricultural tools.\textsuperscript{51} The mortars form a part of a significant group of imported objects associated with agrarian and craft production; whetstones from Scandinavia and imported quern and millstones from France and the Rhineland. This, coupled with decorative items of dress, is suggestive of a high degree of commercial access, with proximity to major international fairs perhaps offering access to mortars in this area that was not afforded to equivalent communities elsewhere. The structural remains are difficult to interpret, but houses were situated within enclosed in which small scale horticulture could have taken place. There is nothing in the assemblage to suggest the enacting of formalised medical knowledge, rather the mortars could have found a use in domestic practices such as cooking and brewing as well, perhaps, as the preparation of plants for traditional medicines. At Hangleton, Sussex, it has been suggested that ovens in the excavated houses are associated with brewing (an activity taking place in the domestic sphere, and commonly associated with women),\textsuperscript{52} and here it is likely that mortars were used in the processing of flavourings, although the choice of these may have been informed by folk understanding.\textsuperscript{53} These examples suggest that if we are to understand the significance of mortars in relation to dietary and medical knowledge it is critical to examine them in context, not only in relation to the type of sites from which they recovered, but also the wider material assemblages of which they were a part.

Conclusion: Mortars, Medicine and Difference

The introduction of mortars to the repertoire of food processing equipment coincides with the increasing circulation of formalised medical knowledge. The co-occurrence of mortars with other objects associated with medical practice, particularly glassware, supports the suggestion that this knowledge became a part not only of elite intellectual culture, but also of the practice of domesticity. As such, medieval households were opened up to new experiences as they worked with these things, generating new understanding through practice.\textsuperscript{54} This was not a process which occurred in isolation, it was facilitated by the intensification of commercial, religious and political networks through which both knowledge and objects circulated, and which created the potential for quarries to produce mortars as a by-product of a surge in demand for building stone. Yet, when we explore the contexts in which these objects, and by extension this knowledge, was encountered, we can determine varied implications and affect.

Gardens, as sites of distinctively feminine experience and knowledge, were implicated in the practice of folk knowledge. The acquisition of mortars, in some instances, may represent a de-valuing of this knowledge, being indicative of the presence of medical practitioners, but could also have been adopted by women as tools for enacting inherited understanding of their environment. Mortars might be understood as existing at the intersection of formal medicine and folk knowledge. They were clearly adopted in contexts in which formal medical knowledge

\begin{itemize}
  \item[\textsuperscript{51}] Richard Ivens, Peter Busby and Nick Shepherd, \textit{Tattenhoe and Westbury. Two Deserted Medieval Settlements in Milton Keynes} (Aylesbury: Buckinghamshire Archaeological Society, 1995).
  \item[\textsuperscript{52}] Judith Bennett, \textit{Ale, Beer and Brewsters...}, op. cit.
  \item[\textsuperscript{53}] Ben Jervis, “Temporality and Difference: An Intensive Approach to Understanding Medieval Rural Settlement”, \textit{Journal of Archaeological Method and Theory} (in prep.).
  \item[\textsuperscript{54}] Rosi Braidotti, \textit{Post-Human Knowledge} (Cambridge: Polity), 69.
\end{itemize}
was situated; monasteries and wealthy urban households, but commerce created potential for them to also become a part of the material world of female care givers, a tool in the application and practice of folk medicine. As such, they provide a means to explore the relational context of medical knowledge, to explore the coming together of what we might term “Royal science”, that is the scientific doctrine enshrined in medical texts and “nomad science”, that is knowledge emerging through experience, which might be generative of multiple and unpredictable experiences.\textsuperscript{55} It is through this nomadic form of engagement with knowledge that we can explore mortars as situated in the emergence of difference, for example in relation to gendered knowledge and practice, and in doing so begin to contemplate how a binary distinction between folk and formal knowledge masks the complexity in the ways that medical understanding and practice emerged from a milieu of medieval intensification, which enfolded localised and intimate practices with the global spread of knowledge, materials and substances.

\textsuperscript{55} Ibid., 115-116.