

Objects: the archaeology of medieval healing

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OBJECTS: THE ARCHAEOLOGY OF MEDIEVAL HEALING

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Introduction

Medieval healing encompassed a broad range of approaches informed by science, religion and folklore, performed by an equally diverse group of practitioners—physicians (often monks and priests), surgeons, apothecaries, herbalists, lay-sisters, bone-setters, tooth-drawers, astrologers, wise-women, midwives, druggists and leeches. Historians of medicine previously focused on practices that conform to our understanding of medicine today, while frequently dismissing other approaches to healing as “magic gibberish” (Rawcliffe 2011: 391). A narrow definition of medieval medicine is compounded by the fact that many aspects of medieval healing are hard to reach through documentary sources alone. For instance, texts on the various learned medical traditions have survived, but in most cases we do not know how they were used or by whom. The methods of the common healer are unclear as they would have learned their craft orally and through practice; and the methods of sorcerers and other magic healers are even more obscure (Horden 2008: 418). The objects used by medieval healers represent an important source with potential both to address some of the gaps in historical knowledge and to explore the agency of healers and their tools (Hartnell 2017a, 2017b). This chapter discusses the contribution that artifactual analyses make to a cultural history of

medieval medicine, and more specifically what the study of archaeological sources can offer, drawing principally on evidence from medieval Britain.

Archaeological approaches focus on the broader range of healing practices that were employed by medieval healers. Through contextual analyses of material culture, burial evidence, buildings, and environmental data, archaeology can make a significant contribution to the cultural history of medicine, providing insight into the agency of practitioners and the embodied experience of the patient. This is especially significant for the study of social and spatial contexts that texts are unable to reach, such as healing practices employed in the home, but archaeology also challenges prevailing ideas about institutionalized care and medieval understandings of the body and soul (Gilchrist 2020).

Archaeology and the cultural history of medicine

Cultural history seeks to understand how people in the past made sense of their lives, of the natural world, of social relations, and of their bodies. Mary Fissell defines it as “making meaning from the margins,” although she cautions us not to fetishize the marginal—cultural history must look beyond the bizarre and weird (Fissell 2008: 364–5). It is also about how categories are made and remade; about understanding and analyzing how cultural categories work as ongoing sets of negotiations. Cultural history is about meaning—what it meant to be a patient, a healer, a physician, or a surgeon. But how can we begin to reconstruct the medieval experience of healing? What was it like to be sick in the medieval period? How was illness understood by medieval people? What was it like to be a healer? Historians look for meaning through analyzing contemporary thinking written down in documentary sources. To gain a better picture of the actual *experiences* of people in the past and their understanding of the world in which they lived, the cultural history of medicine would benefit from analyses

of a wider range of sources and by working collaboratively with other disciplines, such as archaeology (McCleery 2013: 86).

There is no sub-discipline of “cultural archaeology” that mirrors cultural history or cultural geography. This is partly a reaction among archaeologists against the “culture history” approach that dominated archaeology before the theorization of the discipline from the 1970s onwards, which divided past societies into distinct ethnic and cultural groupings according to types of material culture. Instead, “social archaeology” developed from the 1980s onwards, which holds similarities with the cultural turn in other disciplines, addressing themes such as power relations, ethnicity, gender and identity, age and the life course, religion and belief systems. The history of the body is one area where cultural history and archaeology are complementary and collaboration between the two fields would be beneficial, especially for those studying medieval healing and medicine.

Cultural historians have critiqued prevailing approaches to the history of the body and called for deeper considerations of the body as a cultural site (Fissell 2008: 371; Hartnell 2018). Archaeological theorizing of the body was initially influenced by phenomenological approaches: an archaeology of the body assumes that social understandings of the body were created and reproduced through associations with material culture. The body is seen as a site of lived experience, a social body, and a site of embodied agency (Joyce 2005). More recent approaches have developed the concept of “body worlds” as a tool for thinking about the centrality of bodies in human lives. A body world encompasses the totality of bodily experiences, practices, and representations in a specific place and time that are at the heart of how we understand the world (Robb and Harris 2013). Medieval archaeologists have been influenced by these approaches in their analyses of burial evidence and material culture. Medieval conceptions and understandings of the body have been explored in relation to

gender, personhood, magic and the life course (e.g. Gilchrist 2008;; 2012; Gowland and Penny-Mason 2018; Graves 2008; Standley 2013). An archaeological perspective provides a direct link to the practices performed on the body and therefore offers rich potential for understanding the embodied experience of healing.

Archaeology can contribute significantly to the cultural history of medicine through analyses of material culture connected with healing. One of the dominant themes in the cultural history of medicine is the attention given to rhetorical form. Cultural historians study textual narrative, analyzing the meanings behind how and why texts were constructed, the language used, in addition to their content (Fissell 2008). But medieval healing had a practical as well as narrative component that used tools and materials alongside words (Jones and Olsan 2019). A more practice-based approach is therefore needed to balance this focus on narrative, which can be developed through the study of material culture. Archaeology's concern with materiality is especially relevant to the study of medieval healing and the belief in the efficacy of plants, stones, and animals, be they scientific or magical, to ease various afflictions (Gilchrist 2020). In many cases, archaeology is the only means by which we have access to this type of healing. Indeed, practice-based healing that was learned and transmitted orally would probably have made up the main body of medical knowledge, since the majority were illiterate in the Middle Ages.

Spatial context is vital when analyzing archaeological sources as this will give potential information on the type of healing being evidenced, who was being treated, and by whom. There are no distinct archaeological typologies to discern healing objects: many objects were multi-purpose and recognition of their healing function relies largely on archaeological context. For instance, many objects used for bodily grooming had multiple applications; surgical instruments had a whole host of other practical purposes, and unless they are

excavated from secure “medical” contexts, such as hospitals or monastic infirmaries, are unlikely to be identified as such; devotional objects were utilized in “folk medicine,”¹ but are only recognized in this respect if found in burials or in the home. The most common archaeological contexts for studying healing are burials, hospitals, monasteries, and domestic buildings (Huggon 2018). These different contexts give insight into the agency of healing practitioners: healing in the home would have been performed predominantly by women, whereas learned male practitioners would have treated residents of religious institutions. For the most part, archaeologists study refuse rather than the use-context of material culture, but occasionally, a unique archaeological find will offer the chance to study healing where it was practiced, such as the surgeon’s chest found aboard the sunken Tudor warship, the *Mary Rose* (1545), on which see more below. Burials also offer the opportunity to study the embodied experience of healing through objects found in direct contact with the corpse. It should be noted that it was not common to place objects with the Christian dead—the great majority of burials were simple interments in shrouds. However, archaeological evidence confirms that objects were placed with a small minority of people buried in medieval churches and monasteries (two to three per cent of excavated burials from medieval England: Gilchrist and Sloane 2005). It has been suggested that many of these objects were connected to the healing and transformation of the body (Gilchrist 2008; Gilchrist 2012).

Institutional contexts: hospitals and monasteries

Religious institutions are the most common archaeological context for identifying medieval medical practice. These institutions are believed to have focused on treating the soul rather than the body—the cure of the soul, through the medicine of the sacraments, was more important than the relief of bodily infirmity (Horden 2007). There were two main types of

religious institution that cared for the infirm. First, there were hospitals founded to care for the poor and elderly who suffered from physical, spiritual, and occasionally mental affliction. Physical treatment was largely limited to bedrest and an adequate diet, administered in a clean, warm environment. This was in keeping with the medical concept of the *Regimen Sanitatis*, the proper management of the body through diet and moderation to achieve equilibrium. It would have also provided the sick poor access to foods, medicines and comfort not widely available to them outside these institutions (Gilchrist 1992: 101; Gilchrist 1995: 32; Rawcliffe 2002b: 58; Horden 2007). Secondly, there were monasteries that provided specialist care for monks and nuns in their infirmaries, and separate provision was sometimes made for the sick poor and for pilgrims. The monastic infirmary formed a self-contained community, with buildings mirroring the functions of the main claustral complex, with its own hall, chapel, and ancillary buildings; larger monastic infirmaries were sometimes arranged around a cloister, resembling a small hospital (e.g. the infirmary cloister of Thetford Cluniac Priory, Norfolk) (Miller and Saxby 2007: 122–9).

The infirmarer's duty was first and foremost to care for the soul of his patients, although he would have also been medically trained, usually in-house, having an understanding of humoral theory. The Barnwell Observances outline three kinds of sick persons allowed within the infirmary: those suffering exhaustion and weakness from overwork or overindulgence; those suffering fevers, bodily pains or spasms; and those struck with sudden illness such as strokes and heart attacks. The first were prescribed rest in the infirmary for a short time; the second needed a physician, baths and medicine; and the third needed only care for their departing soul (Clark 1897). Monks would have also visited the infirmary on a rotating basis to be phlebotomized, resting there for three days to recuperate. Periodic bloodletting was practiced in medieval religious communities, where healthy men

and women were bled at regular intervals as a prophylactic measure (Yearl 2007: 176). Some elderly monks would have retired permanently to the infirmary, once they were no longer able to fully partake in the monastic regime. They would have benefited from bedrest in the warmer and cleaner environment that characterized medieval hospital care (Gilchrist 2005: 165–6).

New archaeological evidence is challenging previous assumptions about the treatment and care provided in medieval hospitals and monastic infirmaries. The archaeology of healing at these institutions is diverse and includes buildings, burials, objects and environmental data. Study of the buildings of religious institutions where care was provided can reveal much about the organization and development of treatment over time, something that is difficult to establish from documentary sources alone (e.g. Cardwell 1995; Durham 1992; Price and Ponsford 1998; Roffey 2012; Smith 1979; Thomas et al. 1997; Harward et al 2019). However, it is the study of the associated cemetery populations that has provided the greatest archaeological source for medieval healing (e.g. Cessford 2015; Connell et al. 2012; Magilton et al. 2008; Roffey and Tucker 2012; Willows 2017). Bioarchaeology can provide much information on the health of individuals, the types of diseases and infirmities that they suffered from, and occasionally the care that was provided to them.

The health of an individual can be ascertained by looking for certain indicators on their skeleton. Some chronic diseases, such as tuberculosis, leprosy and arthritis, are visible on the human skeleton in the form of changes in bone structure (Roberts and Manchester 2005; Roberts 2009). Poor diet can be revealed through looking at the teeth; for instance, enamel defects reflect stress brought on by dietary problems during growth in childhood (Hillson 1996). Stature is also a good reflection of the quality and quantity of diet during the growth period (Roberts 2009). Dental caries and diffuse idiopathic skeletal hyperostosis (DISH—a

condition that causes ligaments of the spine to calcify and vertebrae to fuse) may indicate an excess in diet leading to poor oral health and obesity (Hillson 1996; Rogers and Waldron 2001; Patrick 2014).

Stable isotope analysis also enables archaeologists to reconstruct diet from the skeleton by looking at the chemical composition of bone collagen (Müldner 2009). Living and working conditions can sometimes be ascertained from studying the human skeleton. For instance, sinusitis—which can be caused by a number of factors including allergies, air pollution, and smoke inhalation—can be recognized on the skeleton as bone formation; whilst lesions on ribs are indications of lung disease, which can be caused by poor air quality (Roberts 2007; 2009). The mass burial pits excavated at the hospital of St Mary Spital (London) provide poignant evidence for the devastating impact of recurrent famines and epidemics on medieval London. Phases of mass burial at St Mary Spital correspond with major outbreaks of famine thought to have been caused by climatic fluctuations resulting from a massive volcanic eruption in Indonesia in 1257. Osteological analysis revealed that the cemetery population underwent a period of prolonged stress, reflecting repeated incidences of famine and associated infectious disease (Connell et al. 2012).

Access to specialist medical treatment in the form of surgery has been observed on a small number of skeletons buried in hospital cemeteries. For instance, three individuals from the cemetery of the hospital of St Mary Spital had trepanation performed on them, including a man (estimated 36–45 years old) who also displayed a number of pathological changes to the skeleton indicating a chronic pulmonary condition, traumatic lesions to his arms, a fractured rib, and a number of injuries to the skull. The individual had suffered an assault to the top of his head by a bladed instrument or weapon used with extreme force. This had left a sub-triangular hole that appeared to have been deliberately enlarged in an attempt to open

up the area of the wound for inspection and/or cleaning. This suggests that surgical treatment was available at St Mary Spital and of sufficient standard to enable the individual to survive the trauma (Connell et al. 2012). Archaeologists excavating at the hospital site of St Mary Magdalen (Winchester) discovered one individual who suffered from leprosy who had his lower left leg amputated sometime before death. There was very little evidence for infection associated with the amputation, suggesting that the individual received some degree of medical care (Roffey and Tucker 2012: 175). Evidence for amputation of the lower leg has also been found on the skeleton of an individual excavated from the hospital of St James and St Mary Magdalene (Chichester) and at St Mary Spital (Magilton et al. 2008: 258–9; Connell et al. 2012). These examples of surgery performed at medieval hospitals challenge previous assumptions regarding the care available to residents: despite ecclesiastical opposition to the spilling of blood and the fragmentation of the body, specialist surgical intervention was sometimes provided at medieval hospitals when required. This would have been from visiting physicians and surgeons, such as those recorded at Norwich Cathedral, Westminster Abbey, and Ely Cathedral (Gilchrist 2005: 166; Rawcliffe 2002b, 46; Harvey 1993; Holton-Krayenbuhl 1997, 168).

Specialist medicines were also provided for hospital and infirmary residents, some of which would have required expert skill and knowledge in their preparation. Evidence for distilling has been found at a number of monastic and hospital sites in Britain (Booth 2017; Moorhouse 1972; 1993; Tyson 2000; Gilchrist 2020). Alembics and other distillation vessels, urinals, and vessels intended for chemical and medicinal purposes, were identified amongst the objects found in a small area at the end of the dormitory range during excavations at St John's Priory (Pontefract) (Moorhouse 1972). This equipment could have been used for distilling wine into *aqua vitae*, which had a wide range of medicinal uses including relieving

toothache, expelling poison and treating cancer (Moorhouse 1972; Prioreshi 2003: 353). More recently, a small building at St Mary Spital has been identified as a distillery on the basis of peat-burning hearths covering its floor, a common industrial method employed by distillers. Residual evidence of arsenic, lead, copper and iron was found in the building, and glass and ceramic distilling vessels were excavated from a nearby pit. Tests on residues within the vessels revealed the presence of mercury, lead, iron, arsenic, and copper; one deposit also contained calcium and phosphorus, possibly from a crushed bone (Harward et al 2019). In the medieval period, mercury was used in a large number of medicines, and lead carbonate was employed in the treatment of conjunctivitis (Connell et al. 2012).

[Figure 5.1 near here]

Environmental data also provide evidence for some of the remedies prepared and employed to treat the sick body at religious institutions. For example, a fifteenth-century drain excavated at Paisley Abbey (Renfrewshire) yielded plant remains for medicinal plants which may have grown in the abbey's physic garden (Dickson 1996). These plant-based remedies were used to help relieve the sick body rather than treat the soul. The pollen of tormentil was found at Jedburgh Observantine Friary (Scottish Borders) and could have been used to treat whipworm. The pollen of ivy and viola were also found; ivy berries were used as a powerful purgative in the Middle Ages and the leaves were sometimes crushed to form poultices on wounds and sores. Violets were used as emollients, expectorants, and laxatives (Dixon 2000). The artifactual and environmental evidence for the production and consumption of specialist medical remedies challenges previous assumptions that medieval hospitals treated primarily the soul. Archaeological evidence confirms that the medieval hospital also treated the sick body through provision of remedies employing specialist knowledge and skill.

Medical objects

Hospital and monastic sites have provided large assemblages of artifacts but it is difficult to identify objects with an exclusively medical purpose. A good example is the assemblages of knives and scissors that are commonly found at medieval hospital sites: for instance, thirty-four knives and blade fragments were excavated from the hospital of St Giles by Brompton Bridge, Yorkshire (Cardwell 1995: 194–6). These could have been used for medical purposes, such as in phlebotomy, preparing medicinal ingredients and cutting up dressings. However, it is difficult to assign a specialist function to these multi-purpose tools as they could also have been used for domestic and craft-working activities. In fact, no specialist medical tool has been identified definitively from medieval England (Egan 2007: 65).

However, a unique archaeological find from British waters, a barber-surgeon's chest from the Tudor warship the *Mary Rose*, has provided a rare opportunity to study specialist medical care in situ. A significant number of specialist medical objects were found within the wooden chest and also recovered from around the barber-surgeon's cabin. These include surgical equipment, drug jars, bandages and syringes. Most of the surgical instruments were made from iron and steel and therefore only a few have survived in a recognizable state. However, a wide range of artefacts have survived made from non-ferrous materials such as ceramic and wood, as well as two pewter syringes. A large number of containers also survived from the Tudor warship. Samples were taken of the residues still adhering to containers, flasks, syringes, and bandages, as well as from a possible spillage identified lying loose within the chest. The samples include inorganic powders and concretions, mixtures of organic and inorganic material, and also various organic resins and lipids. One canister contained peppercorns, and in others were residues of beeswax, butter or tallow, pine or spruce resin and frankincense. Scientific analysis demonstrated the use of a wide range of metallic

compounds—mercury, tin, zinc, lead, and copper—dispersed in organic matrices. These ingredients are known from Renaissance surgical texts to have been used in a wide variety of therapeutic drugs, ointments, and dressings; for instance, pine resin is a natural antiseptic and haemostatic (aiding coagulation of blood), and lead plasters were used to treat severe bruising and contusions from Classical Greece to the early twentieth century (Derham 2002; Castle et al. 2005).

[Figure 5.2 near here]

Surgical equipment is rarely found archaeologically, which makes the *Mary Rose* discovery even more significant. Documentary evidence can provide information on the types of surgical tools that could be found in the archaeological record. According to Guy de Chauliac (c.1300–1368), the essential equipment of the surgeon consisted of knives, razors, and lancets for making incisions, cautery irons, grasping tools, probes, needles, cannulae and a tool for trepanation (Siraisi 1990: 155). The wooden handles from surgical instruments were found amongst the contents of the *Mary Rose* barber-surgeon's chest, including the handles for specialist needles, dental instruments, probes, hooks, an amputation knife and bow saw, cautery iron, and chisel. Parts of a metal object found concreted to the handles in the chest has been interpreted as a trepan head. The object is tubular and originally had teeth around its edge (Castle et al. 2005: 208–12).

Another rare archaeological discovery is that of the skeleton of a possible barber-surgeon found with his kit, perhaps the victim of an accidental death. The remains of a male were found beneath a toppled sarsen stone at Avebury (Wiltshire) and were interpreted as a medieval barber-surgeon due to the objects found associated with his body: coins date the burial to c.1320–50, and a pair of scissors and a possible lancet or probe suggest his craft (Gilchrist and Sloane 2005: 73).

Northern European monastic hospital sites have yielded rich assemblages of specialist medical material culture, including surgical instruments. For instance, objects excavated from Alvastra Abbey (Östergötland, Sweden) include scalpels, a cautery, and a surgical hook, as well as glass and ceramic medicine vessels, spatulas, probes and forceps, and curettes for cleaning fistulae and wounds (Bergqvist 2014). At the Augustinian monastery and hospital of Skriðuklaustur in Iceland, eighteen lancets, scalpels, and pins (possibly used for surgical purposes) were excavated. A vial and ceramic bottle were also found, interpreted as being used for medication (Kristjánsdóttir 2010: 52). Similarly rich assemblages have yet to be identified in Britain, perhaps indicating regional differences in attitudes towards healing between the two areas.

The urinal, or jordan, is the best-known medical instrument of the Middle Ages and became the symbol of the medieval physician. They are perhaps the most direct evidence we have for specialist medical objects in the archaeological record. Physicians used urinals, made from glass, to examine urine samples for consistency, colour, clarity, and odor, which signified particular diseases or states of health and was one of the mainstays of a medieval physician's diagnostic and prognostic repertoire. The technique was closely associated with astrology, which influenced the diagnosis and the recommended cure (Rawcliffe 2006). Usually the rounded bases and necks of green-glass urinals are the only parts of the container that survive in the archaeological record. This is because they are thicker and sturdier than the body of the walls, which are blown very thin so that the contents could be easily observed (Charleston 1975: 213). Fragments of just two glass urinals, possibly dating to the fourteenth century, have been excavated from the hospital at St Mary Spital (London). They have been interpreted as being of the piriform type: pear-shaped with sloping sides that run up to a wide rim (Gilchrist 1995: 36; Thomas et al. 1997: 111). Urinals are not only found at hospital and monastic sites,

but also from domestic settings, suggesting that trained physicians also operated in wealthy mercantile contexts. For example, fragments of three green-glass urinals were excavated from the High Street C excavation in Southampton, dating to the fourteenth and sixteenth centuries (Platt and Coleman-Smith 1975: 216–26); and many fragments of urinals were amongst a large glass assemblage excavated at Upper Bugle Street III, also in Southampton, from a garderobe and cellar tunnel dated to the later fifteenth century (Watson 2013).

Vessels used for storing and preparing medicines are even more challenging to identify in the archaeological record than specialist medical objects. This is because many vessels had multiple functions making context vital for interpretation. Ceramic vessels were used in the preparation and storage of basic medicines, such as laxatives, diuretics, sedatives, and stimulants (Gilchrist 1995: 34). Albarellos, or drug jars, are the easiest vessel type to identify for use in medical contexts. These were specialist vessels imported from the Mediterranean containing exotic drugs for the dispensary. Examples have been identified at a number of monastic and hospital sites in the UK including a possible example in Spanish tin-glaze ware excavated from the infirmary at St Mary Merton Priory (Surrey) suggesting that medicines were kept there (Miller and Saxby 2007). Other examples have been reported from the Carmelite friary in Linlithgow (West Lothian) (Stones 1989), the nunnery of St Mary Clerkenwell (London) (Sloane 2012: 238), and the hospital of St Mary of Ospringe (Kent) (Smith 1979). A fragment of a fifteenth-century drug jar from Glastonbury Abbey (Somerset) was confirmed by chemical analysis to be from Tuscany (Blake 2015: 270).

At the hospital of St Mary Spital, 5.5 percent of the ceramic assemblage from the first phase of excavation, dating from 1235–80, comprised ladles and small pipkins (a type of vessel with three feet and a handle placed over direct heat to warm its contents), an unusual vessel form for medieval London. Some of the pipkins show evidence for sooting and so may have

been used in the preparation of medicines. Those without burning could have been used for mixing (Thomas et al. 1997: 111). At St Nicholas' (Fife) jugs are predominant amongst the pottery assemblage in contrast to cooking pots which characterize burgh sites. Could this represent a specialized function for the hospital pottery in contrast to the contemporary urban pottery? Special forms, unique to the hospital assemblage, are present within the local ware (Scottish East Coast White Gritty Ware) which may have fulfilled a particular need within the hospital. These include a flat-based open bowl, glazed green internally and externally smoke-blackened, and a small, squat jug, possibly with a glazed tubular spout (Gilchrist 1992: 110; Gilchrist 1995: 36). Medical vessels can sometimes be identified by the residues still clinging to them, like a jar excavated from Soutra Hospital (Scottish Borders) reported as having an organic residue still adhering to it comprising hemp, opium poppy, rose, cedar, and pine, all plants known to have been used in healing remedies (Moffat et al. 1986–9: 79).

There are candidates for specialist and personalized vessels that may have been used to care for the sick: for instance, a reversible, ash-wood double bowl from St Mary Spital (see figure 5.3). This could be turned over and used again from the other side and may have been designed specifically for a second person to hold steady by the foot while an infirm person was fed (Egan 2007: 68). During excavations at St Mary Magdalen (Winchester) fragments of two pottery vessels were found in the grave of an individual with leprosy who exhibited severe facial deformities. These have been interpreted as personal food bowls perhaps indicating assisted feeding or dedicated utensils (Roffey and Tucker 2012: 176). A maple wood feeding bottle, measuring 145x66mm, found within the *Mary Rose* barber-surgeon chest, would have been used for feeding the very sick and those with facial injuries. Other vessels that could have had a specialist medical function are bowls used to catch blood during bloodletting, such as the twelve earthenware dishes for bloodletting purchased for the Durham infirmarer in 1397–

8 (Gilchrist 1992: 110). A possible pewter bleeding bowl was found in the *Mary Rose* barber-surgeon's chest. It is a small, shallow bowl with a domed centre and two opposed trefoil handles. Two pewter saucers, also found in the chest, may have also been used during bleeding (Castle et al. 2005: 200–3).

[Figure 5.3 near here]

Stone mortars have been recovered from hospital sites that may have been used to grind up medicinal plants. The rim of a mortar made from sandstone was excavated from a fourteenth-century context at St Bartholomew's (Bristol) and fragments of four mortars were found at St Mary of Ospringe, including one of Purbeck marble and another that had been reused in a nineteenth-century wall (Price and Ponsford 1998: 166–7; Smith 1979: 153–4). A limestone apothecary's mortar, dating to the fifteenth century, was excavated from the Dominican friary in Arundel (West Sussex) (formerly thought to have been the hospital of the Holy Trinity). It has been suggested that limestone may have been preferred because it eliminated the risk of particles of quartz entering mixtures of medical compounds, in contrast with mortars made from sandstone (Dunning 1969). A copper-alloy mortar and chafing dish were among the *Mary Rose* barber-surgeon's belongings. The mortar has four external rings or handles, two round and two square, one of which had another ring through it, indicating that it could be suspended over the chafing dish if required to heat the ingredients being prepared (Castle et al. 2005: 202–5).

Materials

Certain materials were believed to possess therapeutic or occult properties in the Middle Ages. How these materials were used by medieval healers can sometimes be ascertained by looking at the archaeological context for their use. Mercury, also known as quick silver, was

thought to have a cold, wet complexion; it was valued for its regenerative and purgative qualities and for its capacity to destroy infected flesh and remove unsightly blemishes (Rawcliffe 2006: 224). High levels of mercury were found in the bones of skeletons excavated from Danish medieval cemeteries: mercury was present in the bones of 79 percent of leprosy cases and 40 percent of syphilis cases examined, which was attributed to the treatment of these diseases with mercury-containing medicines. In addition, a substantial number of the skeletons of monks interred at the Cistercian abbey of Øm, Denmark, also exhibited increased levels of mercury, which could have occurred from preparing and administering mercury-containing medicine in the hospital there (Rasmussen et al. 2008). Mercury droplets have also been found on the skeleton of a young female in her early to mid-twenties buried in Exeter's Cathedral Green (Devon) in the late medieval period. Her skeleton reveals that she suffered from scoliosis and possibly miliary tuberculosis. The droplets were found on her right hip bone, causing blackening of the bone. It is possible that the droplets came from a medicinal vial hung from her waist that has since disintegrated (Kingdom, forthcoming).

[Figure 5.4 near here]

Copper was believed to reduce acute pain, swelling, and infection, and even today magnetic copper bracelets are used to treat arthritis. Furthermore, modern medical science has shown that copper is toxic to certain bacteria (Gordon 2014: 66). Therapeutic objects made from copper alloy have been found on the skeletons of individuals buried in medieval cemeteries. For example, copper-alloy support plates were found on the skeleton of an adult male from St Andrew's Gilbertine Priory, Fishergate, in York. The man had suffered a severe rotary fracture to the right knee, which was supported by two copper-alloy plates on either side of the joint. The plates were horse-shoe-shaped and measured approximately 100mm in length; they were pierced by rows of perforations, probably intended to carry some form of

binding or stitching. Leather was found adhering to the corrosion products of the plates. The plates had stained the man's tibia green, showing that they had been bound to the damaged joint. Similar examples are known from other religious houses in Britain and northern Europe. Two copper-alloy plates were found associated with a badly necrosed and osteomyelitic right humerus from an adult woman (see figure 5.5), excavated from the leper hospital of St Mary Magdalene (Reading). Remains of dock leaves were found lining the plates, indicating that the plates held some form of poultice or treatment used to treat skin conditions (Gilchrist and Sloane 2005: 103–4). Copper ligatures have also been identified on medieval skeletons. Excavations from the churchyard of St Mark's in Lincoln revealed a late eleventh-century skeleton, the upper arm of which was wrapped in a spool of copper alloy wire (Gilmour and Stocker 1986: 41).

[Figure 5.5 near here]

Copper may have been considered efficacious against bubonic plague and it has been suggested that copper-alloy scourges were used as protection against the Black Death. Several examples are known from England: Rufford Abbey (Nottinghamshire), Rievaulx Abbey (North Yorkshire), Roche Abbey (South Yorkshire), Grovebury Priory (Bedfordshire), St Mary Spital, Bordesley Abbey (Worcestershire) and the London Charterhouse (*British Archaeology* news item 2016; Livius 2016; Egan 2019). In addition, the Black Death cemetery at East Smithfield (London) contained the body of an adult male with a copper link wrapped around the base of the tibia (Grainger et al. 2008: 16). Could this have been intended as an amulet against the spread of the plague?

Mainstream medicine also used gems, linking them to the theory of the humors (Harris 2016). For instance, sapphires were a cold stone used to treat excessive body heat, ulcers, and other ailments. Sapphire rings are a relatively common occurrence in the graves of high-

ranking ecclesiastics (Gilchrist 2008: 138). Red coral was believed to hold occult, apotropaic properties and was used during childbirth, as well as being a popular material used to protect infants. Coral pendants are recorded as birth gifts from the fourteenth century and are widely depicted in Italian paintings of the Christ-child and other infants. The close connection between coral and infants also led to the popularity of coral charms as baptismal and wedding gifts, the latter to promote conception and safe birth (Musacchio 1999: 137; Gilchrist 2012: 143). The Peterborough lapidary specifically attributes coral with the power to bring love and aid fertility (McSheffrey 2006: 62). Archaeological evidence of coral is relatively rare in England, but includes a pendant from a fifteenth-century house in Brook Street (Winchester) and two pins from London. Waste from coral bead production was also recovered from Trig Lane (London) confirming that the raw material was imported and worked there (Egan and Pritchard 2002: 304; Gilchrist 2012: 143).

Jet is another material regarded as possessing occult powers. According to medieval lapidaries, jet could ease childbirth, and heal dropsy and epilepsy (Egan 1998: 299; Egan 2007: 69–70; Gilchrist 2012: 141, 166). It has been suggested that a jet bowl recovered from fifteenth-century deposits at Trig Lane (London) may have been used within the medieval birthing chamber to ease the pains of childbirth. The unusual selection of jet for the bowl suggests that liquid was intended to be consumed directly from the bowl, being a similar action to the ingestion of holy relics and occult materials that is known from medieval pharmacopeia (Rawcliffe 2002a: 122; Gilchrist 2012: 141).

[Figure 5.6 near here]

Body and soul

The study of material culture from religious institutions suggests that care of the body was not exclusively curative but that preventative measures were also undertaken to prevent ill health, evidenced by objects associated with personal grooming (such as tooth-picks). Bodily hygiene may have taken on deeper spiritual significance, given the close connection that medieval people perceived between the health of the body and the soul. Johanna Bergqvist has argued that care of the body was a means of demonstrating pious religiosity and that gender differences can be discerned. She has studied the material culture of healing at four Cistercian monastic sites in Sweden: the male houses of Alvastra and Varnhem and the female houses of Vreta and Gudhem. Bergqvist identified a gendered correlation in the material culture used in bodily maintenance from male and female monastic sites. Depilation tweezers were found at female institutions, whilst completely absent from the male monasteries. Female hair was a potent symbol of female sexuality, and consequently medieval nuns would cut and hide their cephalic hair. Plucking facial hairs may have also been practiced amongst pious nuns as a means of domesticating their body. It is a practice also observed in medieval court fashions and was criticized in guides on female behaviour; for example, in the late fourteenth-century tales by Geoffrey de la Tour Landry, *The Book of the Knight of the Tower* (Offord 1971: 76–8). Cosmetics were closely related to female health as beautification was a crucial precursor to procreation (McCleery 2013: 94). Bergqvist also observed that objects of a more specialized medical nature, such as probes, forceps, and curettes, predominate at the male institutions, but are absent at the female institutions. Personal hygiene also appeared to be less important among the nuns than among the monks: ear scoops and tooth-picks are totally absent from Vreta, but are abundant at Alvastra; and depilation seems to have been a solely female practice (Bergqvist 2014).

The contrasts between the male and female communities may have resulted from gendered attitudes to the body and to differing levels of access to medical knowledge. Bergqvist concludes that the abundance of equipment for surgery, medicine, wound treatment, and personal hygiene at the male institutions of Alvastra and Varnhem suggests that a well-tended body was consistent with the prevailing view of the male body being more cultured and civilized. She interprets the absence of material culture for hygienic purposes and for surgery at the Cistercian nunneries of Vreta and Gudhem as an expression of female pious religiosity. She links the negative evidence for bodily grooming with the female religious tradition of voluntary asceticism: she argues that the nuns were willing to suffer sickness and infirmity and to forsake personal hygiene as a pious embodiment of disease (Bergqvist 2014: 102).

Other preventive practices included devotional objects worn on the body to protect it from various afflictions and common hazards, such as the mass-produced souvenirs purchased from shrines. Many women undertook pilgrimage to help them conceive or to prepare them for safe childbirth, invoking the saints' protection for the unborn foetus and a safe delivery for the mother and child. A souvenir from a shrine or relic renowned for obstetric miracles served as a surrogate relic, attributed with the same protective and curative properties that were possessed by the original. This was achieved by the object coming into direct physical contact with the relic or shrine, transferring healing or apotropaic power to the souvenir. Souvenirs included badges, bells, whistles, and candleholders, all cheaply cast from lead/tin alloy, in addition to pictures, votive figurines, and candles (Spencer 1998: 5; Gilchrist 2012: 135). These souvenirs, along with relics, textual amulets on parchment, precious stones, herbal remedies, and the recital of verbal charms, were used by the attending midwife to assist and promote a safe delivery (Jones and Olsan 2015).

Textual birthing amulets comprised benedictional formulae written on parchment scrolls and applied to the abdomen, right knee, back, or side (Skemer 2006: 237; Rawcliffe 2003). There is an extant example in the Wellcome Collection that depicts the instruments of Christ's passion on one side of the scroll, and a promise of safe delivery written on the other (Gilchrist 2012: 140). Amulets were sometimes collected as heirlooms for family use, the best surviving of which is from the French town of Aurillac in Auvergne (Aymer 1926). It comprises handwritten and printed amulets kept together in a linen sack as a "birthing kit" that was used for centuries by the same family (Skemer 2006: 242).

Parchment rarely survives in archaeological contexts, but there are two possible examples of birthing amulets known to the authors. A mature adult female excavated from the eastern cemetery at the Benedictine priory of St James (Bristol) was buried with a small parcel on her abdomen, formed from a sheet of lead. The lead was carefully folded into a rectangular package that contained a granular material thought to be parchment. The second example is from the cemetery of the hospital of St Mary Spital where a wrapped textile bundle containing a granular material, possibly parchment, was found between the legs of an adult female (Gilchrist 2008; Gilchrist 2012: 140–1). Textual amulets were also folded and placed on open wounds to staunch blood (Gilchrist 2008: 125).

Archaeological evidence confirms that the written word was inscribed on a diverse range of objects in the Middle Ages. Devotional words were inscribed on jewelry, armour, and household objects, particularly from the thirteenth to fifteenth centuries. The inscription of holy words transformed these objects into charms, which were worn on the body and kept in the home to confer protection, good fortune, and healing (Skemer 2006: 10; Gilchrist 2012: 163). For instance, the names of the Three Magi served as a verbal charm to protect against epilepsy, falling sickness, sudden death, and from all forms of sorcery and witchcraft

(Hildburgh 1908: 85). It is one of the most famous charms of the Middle Ages and is found on a plethora of medieval objects including finger rings, brooches, and drinking cups. Examples include two fifteenth-century finger rings, one made from gold from Castle Hill (Edinburgh) and one of silver from Stoke Trister (Somerset). They are both simply inscribed on their exterior with the names Caspar, Melchior and Balthazar (Standley 2013: 79–80).

Koen De Groote has highlighted the occurrence of scratched-mark pottery at nunneries in north-western Europe (De Groote 2016). For example, a large ceramic assemblage from the St Claire monastery of Petegem (Belgium) is inscribed with letters and other marks. One hundred and four examples exist, mainly on redware, representing 12 percent of the total ceramic assemblage. These appear on bowls, dishes, pipkins, skillets, chafing dishes, and a flower-pot. Most are probably linked with the identity of their users, but a large number of them seem to represent an abbreviation of a religious kind; for instance 'MA' for Maria, "I" for Jesus, "IC" for Jesus Christ, "IM" for Jesus and Maria and "F" for Saint Francis (De Groote 2005: 33–4). Food and drink ingested from these vessels may have been perceived to acquire curative properties transferred from the inscribed vessel.

[Figure 5.7 near here]

It was not only the bodies of the living that needed to be treated, cared for, and protected, but also the bodies of the dead. Healing charms were sometimes included in the graves of the deceased (Gilchrist 2008). Archaeologists have found possible examples placed with individuals whose affliction left a pathological signature on the skeleton. For instance, a middle-aged woman at St Nicholas' (Aberdeen) and two others from St Giles' Cathedral (Edinburgh) suffered from adult rickets and were interred with a religious badge, a timber rod, and coin, respectively. A woman buried at Holyrood Abbey (Edinburgh) with a silver penny near her hip, suffered from osteochondritis dissecans, a condition that would have affected

the circulation and mobility in her legs and feet; and an adult male at Raunds (Northants) buried with a pebble in his mouth, had suffered from poliomyelitis in his youth and later developed tuberculosis (Boddington 1996: 42). The Anglo-Saxon penitentials and later hagiographic and theological writings indicate a belief that a dead body might heal. Lives of saints include details of their holy bodies remaining incorrupt after burial, and their injuries and infirmities healing miraculously after death. For instance, a twelfth-century account of the exhumation and translation of the body of St Etheldreda states that a tumor on her neck had healed after burial (Gilchrist 2008: 149).

The placing of items on the corpse would have occurred during the preparation of the body for burial, when it was washed and dressed, or wrapped in a shroud. In a secular context, women of the family, or perhaps a midwife,² prepared the body in the home, while the monastic dead would have been prepared in the infirmary (Gilchrist and Sloane 2005). Healing charms were part of the popular tradition of folk magic, routinely performed by women in the care of their families, by herbalists and midwives, and occasionally by male practitioners such as surgeons, physicians, and mendicant friars (Jones and Olsan 2015; Olsan 2003). There is a long tradition of women using charms and sympathetic magic in caring for their families, and it is suggested that their roles as healers extended to include nurturing the dead (Gilchrist 2008: 152). Outside the family, the destitute, sick, and dying were cared for by nursing sisters in hospitals, who had taken religious vows. The hospital sisters would have prepared the corpses of hospital residents for burial, and archaeological evidence confirms that healing charms and amulets were sometimes included within their burials (Gilchrist 2012: 154–5).

Caroline Walker Bynum argues that souls were regarded by medieval people as disembodied spirits that could suffer bodily tortures: the condition of the corpse in the grave reflected the fate of the soul in purgatory (Bynum 1995: 206, 296). Archaeological evidence

for medical items interred still adhering to the corpse may confirm popular belief in the sustained connection between the soul and the body (Gilchrist and Sloane 2005: 103–5). It has been argued that these objects were therapeutic devices intended to treat or heal the corpse while it was in the grave, in preparation for the corporeal resurrection at the day of judgement (Gilchrist 2008: 150). Examples include the copper alloy support plates discussed above and a hernia truss found on the body of a mature adult male excavated from St Mary Merton (Gilchrist and Sloane 2005: 103–5).

[Figure 5.8 near here]

In contrast, Stephen Gordon offers an alternative interpretation for copper ligatures found on the body: he proposes that copper ligatures were used to “bind” the flesh of a swollen, and potentially restless, corpse. The *Lacnunga*, an Anglo-Saxon medical miscellany dating to the eleventh century, contains numerous charms which illustrate how ligatures were seen as powerful devices for curing, or “binding,” physical and spiritual ailments, and Gordon conjectures that this practice continued into the later medieval period. Gordon compares the medieval evidence for binding with interpretations in anthropological literature, specifically Alfred Gell’s study of contemporary Polynesia and conceptions of magic. The power of magical substances resides in the ability of the viewer to comprehend the ambiguous properties of an object or thing’s creation (Gell 1998). Abstract forms such as ligatures, knots, woven patterns, and difficult incantations, bewilder the senses. Such patterns are difficult to process because they are ambiguous with no readily understandable form. Consequently, the object of the bind, or the agent of disease, becomes trapped in the pattern (Gell 1998: 85–90). Gordon notes that some medieval physicians, such as John of Gaddesden (c.1280–1360), were aware of the popular belief in the power of knots, specifically the use of ligatures to cure ailments such as toothache and gout (Gordon 2014: 65).

Gordon argues that the act of tying ligatures to curtail disease can be extended to include bodily and spiritual disorders afflicting the deceased (Gordon 2014: 65). Dangerously swollen bodies needed to be contained to prevent them from returning to the world of the living as revenants, people who had died a “bad death,” unable to confess their sins. The revenant was believed to spread disease, such as the story of the Ghost of Anantis,³ who would emerge from his tomb each night, accompanied by a pack of howling dogs and a terrible, pestilent stench, causing many people to die of plague (Gordon 2014: 57–9). Gordon argues that copper ligatures may have served as amulets on the corpse, preventing decay and restlessness, and consequently the spread of disease (Gordon 2014: 66).

Conclusion

Through its focus on contextual analysis, archaeology reveals undocumented practices and expands and challenges existing models of medieval medical practice. Archaeology provides evidence for specialist medical care of the body in medieval religious institutions, previously thought to have provided only palliative care and primarily concerned with caring for the soul. Excavations at hospitals have provided possible evidence for surgery on residents, as well as the manufacture of specialist pharmaceuticals on site. Archaeology also provides new insight to the experience of health and healing beyond the confines of elite texts that represent the mainstay of medical history. The excavation of hospital cemeteries provides source material for study of the sick poor in medieval society and the osteological study of their remains reveals much about their health and the care they received at these institutions (Roberts 2017).

Archaeology offers insight into the experience of patients and the roles of undocumented healers, such as lay sisters in hospitals, women and midwives in the home,

and the barber-surgeon at sea. Archaeology also provides a new source for medieval understandings of the body and soul through the practices employed in healing the dead, previously unknown from documentary sources.

The archaeological study of medieval healing is still in a formative stage. Future research might explore regional differences in healing, as highlighted by the difference in material culture found at hospital and monastic sites in Britain compared with northern Europe. Why have specialist medical objects rarely been found in Britain? Does this reflect a regional distinction in medieval understandings of the body and its care? The study of women's health also needs to broaden beyond issues of fertility and childbirth. Most historical sources are written by men, making it very difficult to find female perspectives on female health issues. Archaeology can help to address this imbalance through analyses of female skeletons to consider health, diet and longevity, and living conditions in the archaeological record. For example, recent osteological study of young women from England has provided insight into health issues connected to living conditions and employment (Shapland et al. 2015). Archaeology brings a practice-based approach to the study of medieval healing, highlighting the importance of context, materiality and embodied experience, to bring new insights to the cultural history of medicine.

¹ Folk medicine today is also termed “traditional” or “indigenous” medicine. The World Health Organization (WHO) defines traditional medicine as “the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness” (World Health Organisation 2000: 1). As such, folk medicine may also be regarded as inherited traditions, knowledge and practices defined as “intangible heritage” by UNESCO. Folk medicine is often interpreted as a body of belief and practice separate to the social and cultural mainstream. It thus tends to be conceptualized within a hierarchical model which places official, scientific medicine at the top and folk medicine below (O’Connor and Hufford 2001). The term “folk medicine” did not exist in the medieval period but is sometimes defined as popular medicine based on received tradition of herbal lore (e.g. Hunt 1990). For the purpose of this chapter, folk medicine relates to healing practices that were performed in the home outside of institutional care and was circulated via oral tradition rather than through learned medical texts.

² Midwives were part of a larger community of women healers practising in the medieval period (Green 1989). The term midwife means “with-woman.” There is some debate over the professionalization of midwives in the Middle Ages, but generally they are not well documented until the thirteenth or fourteenth centuries. There is documentary evidence, however, for local women assisting in this role prior to this date. Midwives are likely to have been married women or widows who were able to draw upon their experience to assist with childbirth (Green 2005: 15; Harris-Stoertz 2014). For further discussion on the role of medieval midwives see work by Monica Green (2005; 1989) and Fiona Harris-Stoertz (2014).

³ The Ghost of Anantis is one of twenty-five supernatural stories in the late twelfth-century *Historia Rerum Anglicarum* of William, canon of Newburgh Priory, North Yorkshire.