

ANNE MOWBRAY, DUCHESS OF YORK: A 15th-CENTURY CHILD BURIAL FROM THE ABBEY OF ST CLARE, IN THE LONDON BOROUGH OF TOWER HAMLETS

Bruce Watson and †William White

With contributions by Barney Sloane, Dorothy M Thorn and Geoffrey Wheeler, and drawing on previous research by J P Doncaster, H C Harris, A W Holmes, C R Metcalfe, Rosemary Powers, Martin Rushton, †Brian Spencer and †Roger Warwick

SUMMARY

In 1964 during the redevelopment of the site of the church of the Abbey of St Clare in Tower Hamlets, a masonry vault containing a small anthropomorphic lead coffin was discovered. The Latin inscription attached to the top of the coffin identified its occupant as Anne Mowbray, Duchess of York. She was the child bride of Richard, Duke of York, the younger son of Edward IV. Anne died in November 1481, shortly before her ninth birthday. As the opportunity to study scientifically a named individual from the medieval period is extremely rare, the London Museum quickly organised a comprehensive programme of analysis, which included the study of Anne's life, her hair, teeth, skeletal remains and the metallurgy of her coffin. The aims of this article are to outline what is known about Anne, to explain how her remains were rediscovered, to establish a context for her interment, to summarise the available research into her remains and to compare her burial with contemporary high-status interments.

FOREWORD

Dorothy M Thorn (written 2007)

During the 1960s, my future husband, the late James Copland Thorn FSA, and I were actively involved in London archaeology as part of Dr Francis Celoria's digging team.¹ Naturally all the members of the group were very interested in such an important discovery, and when Anne Mowbray was identified we were all impressed (possibly no-one more so than James). When the day came for Anne Mowbray to be reburied in Westminster Abbey, the BBC wanted to interview Celoria, but he could not be found, and James was asked to take his place. In the event the interview was never broadcast but, because he was at the abbey, James was invited to attend Anne's lying-in-state, an experience that made a deep impression on him.

A few years ago, when the long awaited report on Anne Mowbray had still not appeared, James, then in ill-health, asked me if I would carry out some research to try to remedy the matter and eventually I produced my own account of Anne's life and discovery (Thorn 2007, i and ii).

INTRODUCTION

Bruce Watson

The opportunity to carry out a comprehensive scientific study of the physical remains and coffin of a named individual from the medieval period in the United Kingdom is extremely rare, especially when they are a Plantagenet. So when Anne Mowbray's remains were handed over to the London Museum in December 1964 for study, Dr Francis Celoria and his colleagues sought to organise a comprehensive programme of investigation concerning all aspects of her remains to make the most of this unique opportunity.² Unfortunately, for reasons explained later, this analytical work was never completed and only the research on Anne's skeleton and teeth was published. To make matters worse all the fieldwork records, the records concerning the excavation of Anne's coffin (apart from some photographs) and all the unpublished analytical work were not available for public consultation.³ Fortunately, a copy of an unpublished report on the 1964 archaeological discoveries compiled by the site manager, William Winmill, had already been donated to the Museum of London Archaeological Archive (Winmill nd).⁴

The Herculean task of reconstructing and collating the data pertaining to Anne's burial was started by the late William (Bill) White during 1996–7, as part of his background research for the 1998–9 London Bodies exhibition at the Museum of London, which included some photographs of Anne's remains (Werner 1998, 68–9). He realised the importance of Anne's burial and wanted to see it researched and published. In 2005, while researching the archaeological investigations within the precinct of the Abbey of St Clare for a conference paper, I became aware of Anne's burial (Thomas & Watson 2010, 284), and subsequently was invited by William to join him on his quest. We faced immense difficulties as the available archive was very patchy and we quickly realised that we had to track down the ageing authors, or in the case of those who were already deceased, contact their original parent organisations to try and get replacement copies of their missing reports (eg Harris 1966; Holmes 1965; Metcalfe 1965).⁵

As most of the London Museum's correspondence concerning Anne's discovery and reburial was missing, Geoffrey Wheeler and I trawled through hundreds of newspapers to work out a chronological narrative of the events covering the time period between her rediscovery and reburial (see Appendix, available from the LAMAS website). It should be noted that while it has been possible to reconstruct much of the missing archival material there are still some gaps, for instance Celoria's fieldwork records and those concerning the excavation of her coffin. Currently, details concerning Anne's shroud, the nature of her facial covering, her pillow and the chemical analysis of her coffin fill are all still lacking. Sadly, Celoria has declined to assist in this process, so I have decided to publish the available material, which represents an incomplete osteobiography of a 15th-century child. The scope of Celoria's proposed publication is discussed below, but the reasons it was never completed cannot be determined from the available information. My guess is that after the commotion had died down about Anne's discovery and her reburial, interest in the project quickly waned. Some of the contributors probably lost interest and never submitted their material, so the planned scope of the publication quickly became unachievable. It appears that Celoria's response to this situation was to take on the onerous task of trying to finish and edit a monumental publication on his own. Instead, I think it would have been much better if, during the 1970s, Celoria had abandoned the concept of publishing a monograph and turned the key aspects of his available data (which was clearly comprehensive) into several articles and a research archive.

The aims of this article are sixfold: firstly, to summarise what is known about Anne Mowbray's short life; secondly, to explain how Anne's remains were discovered; thirdly, to establish the context of Anne's burial; fourthly, to explain the planned programme of analytical work on Anne's remains and why it was curtailed; fifthly, to summarise the available results of the analytical work carried out in 1965 and their conclusions concerning Anne's state of health; and lastly, to consider how Anne's manner of burial compares with what is known from

documentary and archaeological sources for other contemporary high-status burials.

THE LIFE AND TIMES OF ANNE MOWBRAY AND HER HUSBAND

This section draws on the unpublished research by the late Brian Spencer (c.1967). At the time of Anne's discovery, Brian was Assistant Keeper at the London Museum and the curator in charge of the museum's medieval collections.⁶ As a key member of Celoria's research team he produced all the historical background on Anne in 1965 (JPR 1965, 1–4).

Anne Mowbray was the only child and heir of John (VII) Mowbray, fourth Duke of Norfolk, and his wife Elizabeth Talbot (daughter of John Talbot, Earl of Shrewsbury, and Margaret Beauchamp).⁷ She was born on 10 December 1472 at Framlingham Castle in Suffolk. Within a week of her birth she had been baptised by William Wainfleet, Bishop of Winchester, who also stood as one of her godparents (Gairdner 1986, v, 171). The Duke of Norfolk died unexpectedly during the night of 16–17 January 1476 at Framlingham Castle and was buried at Thetford Priory, Norfolk (Richmond 2004, 583–4). It has been claimed that when the Duke of Norfolk died his wife Elizabeth was pregnant, and she either miscarried or her child was stillborn, which left Anne, then three years old, as heir to Norfolk's extensive estates (*ibid.*, 584).⁸ The probable source of this claim is a remark in one of the Paston Letters (Gairdner 1986, v, 250): about ten days after the death of the Duke of Norfolk, Sir John Paston wrote to a relative that unless the duchess was pregnant with an heir (which she was not) then Edward IV would seek to marry Anne to one of his sons as a way of securing her inheritance for his own family.⁹ Sir John was not mistaken, as Edward quickly saw this marriage as a way of endowing his second son, Richard of Shrewsbury, then aged two (*ibid.*).¹⁰ Anne's mother, the dowager duchess, was in favour of this match provided she received an adequate pension for herself (property valued at £1309 was granted to her in 1476–7) (Richmond 2004, 584).

Anne's husband, Richard of York, was born at Shrewsbury on the 17 August 1473.

He was created Duke of York on the 28 May 1474 and knighted on 18 April 1475. A month later he and his elder brother were both made Knights of the Garter. Edward IV's will, drawn up before his French campaign of 1475, suggests that he intended Richard to hold lands based on the duchy of York lordships of Fotheringhay, Stamford and Grantham, plus the duchy of Lancaster estates in the same region (Horrox 2004, 713). However, the unexpected death of the Duke of Norfolk in 1476 obviously prompted Edward IV to rethink his plans concerning Richard's future to include securing Anne's inheritance to enrich his own family (see above). A papal dispensation for the marriage of Anne and Richard was obtained on 12 May 1477. This was required because they were too young to contract a legal or valid marriage, and also because they were 'related in the third and fourth degrees of kindred' (*Cal Pap L* 1471–84, 236).¹¹ Medieval canon law stated that the minimum age for marriage was 12 for girls and 14 for boys (Whitlock 2009, 130). Aristocratic and royal betrothals were often arranged for political reasons when the children concerned were much younger than these minimum ages, but the normal practice was for them not to marry until they were teenagers. However, it was not unknown for royal children to marry when they were very young. For instance, on 17 July 1328, Edward II's second daughter, Joan of the Tower, was seven when she married the four year old Prince David of Scotland (later David II, 1329–71). It was not expected, however, that these marriages would be completed or consummated until both parties were considerably older (Webster 2004, 137).

On 4 December 1477 Edward IV dispatched summons to the aristocracy and gentry inviting them to Anne and Prince Richard's wedding. One of those invited was William Fitzwilliam (c.1440–95) of Sprotborough, Yorkshire, who was also offered a knighthood (Watson 2015).¹² However, as Fitzwilliam was not among those knighted after the wedding he presumably did not attend.¹³ On 15 January 1478, four year old Prince Richard was married to Anne Mowbray, Duchess of Norfolk (then aged five) in St Stephen's Chapel, Westminster Palace; the marriage was conducted by James Goldwell, Bishop

of Norwich.¹⁴ For the occasion the chapel had been specially decorated with carpets, a golden cloth canopy and hangings of ‘cloth of state’. Afterwards a wedding feast was held in the King’s Great Chamber (Black 1840b, 29–30).¹⁵ Their marriage was celebrated as a great state occasion. Over the next seven days, a series of jousts and tournaments were held, after which 24 new Knights of the Bath were created. The three victors of these events were presented with ‘jewels’, perhaps rings or brooches, by the ‘Princess of the Feast’, Anne, apparently assisted by her new sister-in-law, Elizabeth.¹⁶ Each of these three golden jewels was engraved with a single letter: an ‘A’ with a diamond; an ‘E’ with a ruby; and an ‘M’ with an emerald (*ibid*, vi, 38). It seems probable that the ‘A’ and the ‘M’ were intended to represent Anne’s initials, while the ‘E’ is ambiguous; it could have represented the name of the king, the queen, the Prince of Wales, the king’s eldest daughter or even the bride’s mother (Ashdown-Hill 2015a, 27).

The occasion of Anne’s marriage was depicted in a splendid ‘history’ painting by James Northcote RA (1820), which was exhibited at the Royal Academy in 1821 (no. 217; see volume cover image). The idea of depicting historic events as dramatic art was very fashionable during this period and James Northcote was one of the leading exponents of this genre (Bann & Whiteley 2010, 58–102). Anne’s wedding also featured in the 1939 cinematic classic *The Tower of London*.¹⁷ The day after their wedding a parliament was held at Westminster Palace. One item of parliamentary business was to confirm the pre-nuptial agreement drawn up between Edward IV and the dowager duchess of Norfolk, which made his son Richard heir to the Norfolk and Mowbray estates should Anne pre-decease him (*Cal Pat R* 1476–85, 75). This proviso ignored the rival claims of Anne’s co-heirs – the Howards and the Berkeleys – which caused resentment (see below).

In May 1479, when he was still not six years old, Richard of York was appointed Lord Lieutenant of Ireland. Officially he was now entitled to have his own household, but there is no evidence that this actually happened. Instead ‘it seems probable that ... both Richard and his young bride were brought

up with his parents and sisters’ (Ashdown-Hill 2015a, 27).¹⁸ Tragically, Anne died at the royal manor of Greenwich on 19 November 1481, shortly before her ninth birthday. While Anne’s cause of death is undocumented it appears likely from the crude finish of her coffin that it was unexpected despite the fact she had apparently been suffering from ill-health (discussed below). A letter by Richard Cely the younger, written in London on 22 November 1481, mentions Anne’s death, but without any comment or explanation (Hanham 1975, no. 136/41). Anne’s body was transported in state by barge from Greenwich to Westminster. The funeral cortège consisted of three large barges. Anne was buried in the Chapel of St Erasmus in Westminster Abbey (Fig 1), founded by Elizabeth Woodville, the consort of Edward IV. Her funeral cost £215 16s 10d. Bearing in mind that in c.1500 a skilled building worker only earned 6d per day, this means that her funeral cost the equivalent of some 8,633 days of wages (Dyer 1989, xv). Royal funerals during this period were very elaborate and expensive affairs, for instance Edward IV’s funeral is estimated to have cost £1,496 17s 2d (Sutton & Visser-Fuchs 2005, 6).

The chapel where Anne Mowbray was originally buried was part of the new Lady Chapel, a very prestigious location reflecting her social standing as a member of the nobility and the royal family. At some time before 1539 Anne’s body was moved to the church of the Abbey of St Clare or the Minories, outside Aldgate (it closed in March 1539) (Fig 1, labelled Minoresses; Reddan 2007, 147; Spencer c.1967, 308). When Anne was reinterred at St Clare’s is not certain, but it is probable that this relocation was carried out during c.1502–3, when the Chapel of St Erasmus and the adjoining Lady Chapel were being demolished to make room for Henry VII’s own mausoleum (*ibid*, 305).¹⁹ As Anne’s mother, Elizabeth (the dowager duchess), was still alive at this time she may have requested possession of her daughter’s remains and organised her reburial. Whether this move was intended as a permanent arrangement is not known. By 1487–8, Elizabeth was living at the Abbey of St Clare, where she rented the ‘great mansion’ for £10 per annum (Fig 2, labelled mansion) (Carlin 1987, 37). Elizabeth was



Fig 1. The medieval religious houses of London and its environs (scale 1:32,000) (© MOLA)

still residing there at the time of her death (between 6 November 1506 and 10 May 1507) (Richmond 2004, 585). In her will dated 6 November 1506, she left instructions that she was to be buried in the nuns' choir at the Minories near where 'Anne Montgomery' (not her daughter) had been buried. She instructed that the sum of 100 marks (£67) would be distributed amongst the poor of Whitechapel and Hackney parishes, who were to receive 7d each. The remainder of this sum was to be distributed amongst 'poor gentlemen and serving men' especially those who had served either her late husband or herself (Ashdown-Hill 2001, 212–13).

A pre-Reformation list of the nobility buried in the church of the 'monastery of the Minories' includes as item 5 'Dame Anne Duchess of York daughter to lord mowbray Duke of Northfolk [Norfolk] be buried

in the said Quire'.²⁰ Item 6 was 'Dame Elizabeth Duchess Northfolk [Norfolk] mother to the said Dame Anne Duchess of York be buried in the Quire afor said'. These two brief entries confirm that there were either one or two floor slabs or monuments bearing inscriptions commemorating these individuals. However, while the wording of these entries might imply that they were both inscribed on one monument, this seems very unlikely as Anne and her mother were not interred in the same vault (Spencer *c.*1967, 310). This is curious as there was room in Anne's vault for another burial. The exact location of Elizabeth's grave is unknown, but it seems likely that she was interred close to her daughter, possibly in the fragmentary vault found nearby (Fig 3, vault 2).²¹

The fate of Anne's husband, Richard, and his older brother, Edward V, who are

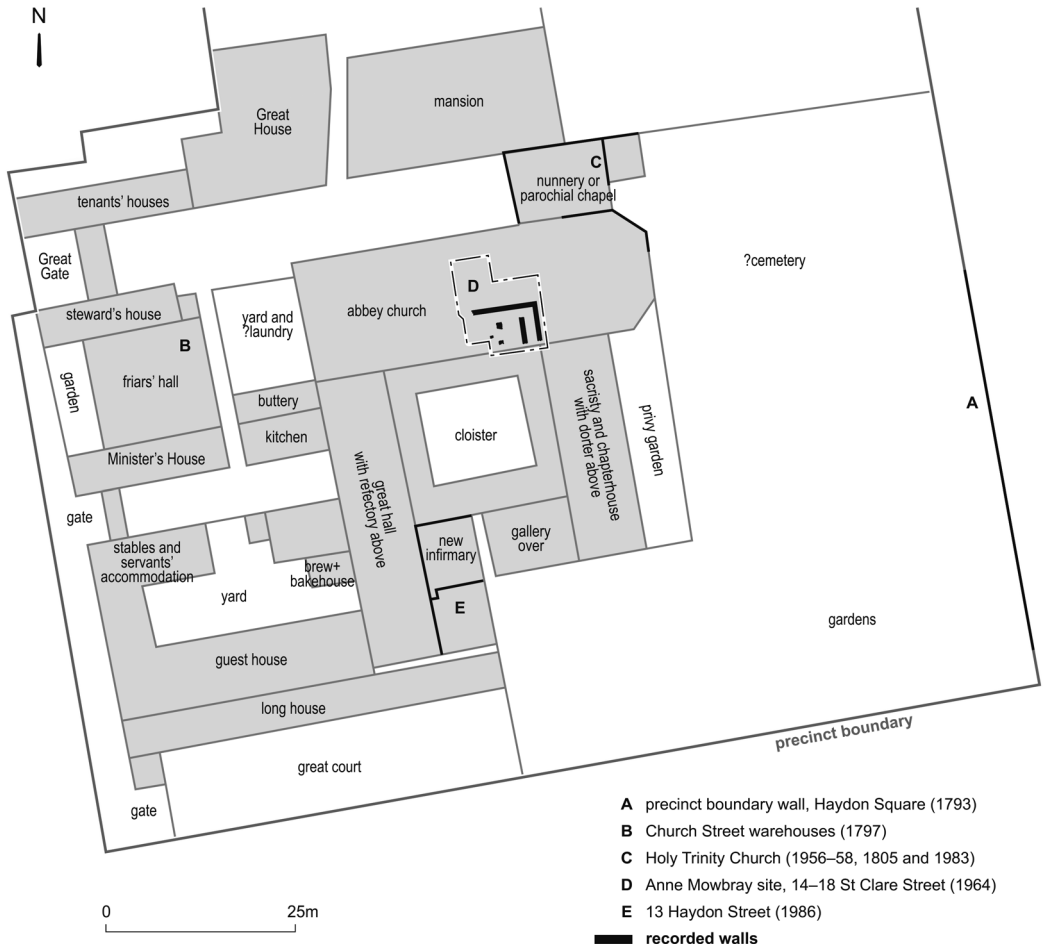
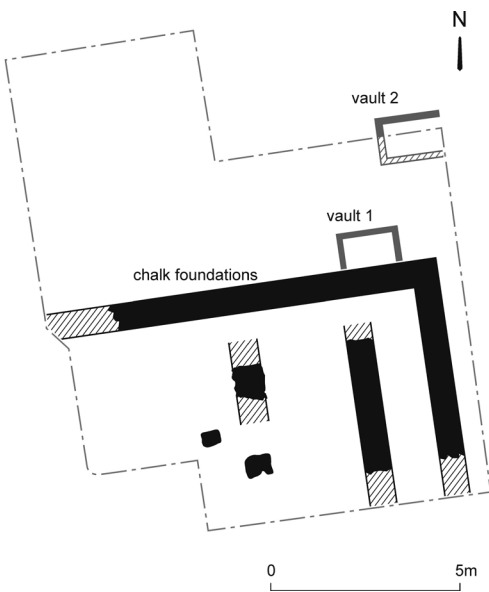


Fig 2. (above) Conjectural ground plan of the Abbey of St Clare, outside Aldgate c.1539, based on archaeological work and documentary research (after Carlin 1987 and HAY86 archive) (scale 1:1000) (© MOLA)



known as the 'Princes in the Tower' has inspired much discussion (eg Lisle 2013, 50-8). Shortly before his death on 9 April 1483, Edward IV had appointed his brother Richard, Duke of Gloucester (later Richard III), as sole guardian of his children and Protector of the Realm, during young Edward V's minority (he was 12). However, in June 1483, Robert Stillington, Bishop

Fig 3. The medieval walls and two vaults discovered at 14-18 St Clare Street during 1964-5 (based on a drawing produced by William Winmill) (scale 1:200) (© MOLA)

of Bath and Wells, a civil and canon lawyer and former lord chancellor, declared that Edward IV's clandestine marriage to the widow Elizabeth Grey (née Woodville) had been bigamous due to a pre-existing marriage contract, and their children were therefore illegitimate and consequently barred from the succession (Giles 1843, 274–5).²² Richard used this opportune 'revelation', his position as Protector and his claim to the throne to make himself king on 26 June 1483 (Seward 1997, 102–11). The legality of Edward IV's marriage should have been determined by an ecclesiastical court, but instead Richard persuaded parliament to endorse Stillington's claim, which conveniently avoided subjecting it to judicial scrutiny.²³

In May 1483 Edward V moved into the palatial royal apartments in the Tower of London, where on 16 June he was joined by his younger brother Richard of York, who had previously been claiming sanctuary with his mother and sisters at Westminster Abbey (Ashdown-Hill 2015a, 47; Seward 1997, 113–15). On 28 June, John Howard was given the titles Earl Marshall and Duke of Norfolk that Richard had held as the result of his marriage to Anne Mowbray, and on 19 July, Richard III's son, Edward, was made Lord Lieutenant of Ireland. However, this reallocation of Richard's titles does not mean he was already dead, it merely confirms that as he had been declared illegitimate he could not inherit anything from his father (Wroe 2003, 69). However, despite Richard's new legal status as a 'bastard' he should not have been stripped of the estates of the duchy of Norfolk which he held because of his marriage to Anne Mowbray (see above), and this arrangement had been confirmed by an Act of Parliament in January 1483 (Seward 1997, 112). Edward IV was well aware that his younger son was not the only potential heir to the Norfolk estate, so he had given lavish compensation to William Berkeley, one of the other potential heirs to the duchy, but he offered nothing to the other potential heir Richard Howard and his son John.²⁴ This absence of recompense probably explains why in May 1483 Richard Howard presented Richard III with a gold cup weighing 65 ounces (1.84kg) (*ibid.*). On 6 July Richard III's coronation was held.

On 16 July 1483, a note from Richard III's signet records confirmed payments made to 14 servants, who had been in the service of Edward V and were being laid off (Horspool 2015, 173). Clearly, the disinherited young prince no longer required this number of servants during his imprisonment. No servants in the service of his younger brother Richard are mentioned in this document, so perhaps they shared these employees. According to the Elizabethan historian John Stow and the contemporary French chronicler Thomas Basin, after Richard III's coronation in July there was an attempt to release the princes from the Tower, which failed for unknown reasons (*ibid.*, 179). The conspirators planned to start fires across the capital as a diversion, while the rescue took place. The four conspirators, subsequently executed for their part in this attempt, included John Smith, groom of the stirrup to Edward IV, and Stephen Ireland, a wardrober in the Tower (Howes 1631, 459).²⁵ It has been suggested that this conspiracy encouraged Richard III to order the murder of his nephews as it showed they still could command support and were therefore a threat to his regime (Horspool 2015, 182). During August and September 1483 there were further rebellions against the new regime in some southern counties. On 18 August, Richard III appointed the Duke of Buckingham and the Duke of Norfolk to a commission to investigate the 'treasons and felonies' in London and elsewhere. The initial aim of these unsuccessful rebellions seems to have been the release of the princes from the Tower, but by September the exiled Henry Tudor, second Earl of Richmond, was seen as the rebels' new champion (Horrox 2004, 714).²⁶ This change of aim could mean that the rebels now believed that the princes were already dead. During October the Duke of Buckingham unexpectedly defected to the rebels, but his rebellion failed to attract support; he was captured and subsequently executed on 2 November 1483 (Horspool 2015, 195–200; Seward 1997, 161–6). Why Buckingham, who had been instrumental in Richard III's rise to power, suddenly changed sides is uncertain, but his decision implies that he believed that the rebels were going to succeed.

By 1484 it was rumoured that Richard III

had murdered his nephews, and as he never issued any explanation regarding their fate it was widely assumed by his contemporaries that he was responsible for their deaths (Horspool 2015, 180–3; Seward 1997, 144–8; Tanner & Wright 1934, 7; Wroe 2003, 70–2). Richard III's silence concerning the fate of his nephews is puzzling as, after the death of his wife Anne on 16 March 1485, it was rumoured that he had poisoned her so he could marry his (now illegitimate) niece Elizabeth of York. Therefore, on 30 March 1485, before an audience of London's leading citizens, Richard III publicly denied poisoning Anne and wanting to marry his niece, which shows that he was prepared to refute damaging rumours when it suited him (Seward 1997, 221). However, while it is not universally accepted by historians when the princes were murdered, it is widely recognised that this occurred between July 1483 and 1486, either by Richard III or possibly by his successor Henry VII, whose position would also have been threatened by their continuing existence (Lisle 2013, 51–7; Williamson 1974, 43–53).²⁷ The most likely reason for the absence of a public funeral and the construction of a tomb for the young princes is that neither king would have welcomed the veneration of these royal child martyrs as it would have undermined their authority (Lisle 2013, 54–7, 121–3).²⁸ Of course the absence of any bodies allowed the suspicion to flourish that at least one of the princes might have survived. In 1491 these doubts allowed Perkin Warbeck to masquerade as Richard of York in Ireland. During 1497, now styled as 'Richard IV', Warbeck took part in the Cornish rebellion, which was his third and final disastrous attempt to seize the throne (Wroe 2003, 92–6, 236–7, 284–97, 323–43).

On 17 July 1674, during demolition work within the Tower of London, the skeletal remains of two juveniles were found buried (possibly in a wooden chest) at a depth of about 3.0m below ground level close to the foot of the external staircase, which had formerly connected the King's Lodgings to the chapel in the White Tower (Tanner & Wright 1934, 8–11). In 1678 Charles II ordered the reburial of these two juveniles within Westminster Abbey, close to where Anne Mowbray now lies (Bradley & Pevsner

2003, 183; Tanner & Wright 1934, 8).²⁹ In 1933 an osteological study of the partial remains of these two individuals was undertaken by William Wright, Professor of Anatomy, assisted by George Northcroft, an orthodontist and President of the Dental Association (Northcroft 1936). They suggested that the older individual was 'not yet 13' and the younger was aged between nine and 11 years old; these two date ranges were largely based on the degree of dental development observed. Wright simply assumed that they were the missing princes and that they had died 'during the reign of their usurping uncle Richard III' (Tanner & Wright 1934, 6, 19). One very serious concern with Wright's study was that he was unaware that medieval children experienced a different pattern of growth and physical development to their modern counterparts: their growth was comparatively retarded by several years, so their age estimation is complex and imprecise (see below).

Named individuals like Anne Mowbray offer a rare opportunity to test these models of age estimation (Molleson 1987, tables 1 and 2). Reappraisal of Wright's data using his published photographs and Anne Mowbray's osteological data by Molleson (1987; 2002) suggests that the older individual 'was an adolescent boy' who had not 'attained puberty', while the dental development of the younger child was considered to be more typical of a boy than a girl (Molleson 1987, 258). Molleson used two different systems of dental analysis to try and determine the ages of these two juveniles. The eldest had median dental ages of 9.6 and 14.5 years, while the younger individual had median ages of 7.8 and 11.7 years (*ibid*, table 1).³⁰ For a critique of Wright's study and its subsequent reappraisal see Hammond and White (2000) and items in the Appendix. While it is generally believed that these undated juveniles are the two princes (see below), it has never been proven. However, their remains could now be radiocarbon dated and their identity potentially confirmed (or disproved) by extraction of mitochondrial DNA: their Y chromosome should be identical to that of Richard III as they are descended from the same paternal line (King *et al* 2014).³¹

THE CIRCUMSTANCES OF THE DISCOVERY AND THE CONTEXT OF ANNE MOWBRAY'S BURIAL

On 11 December 1964 at 2:40 pm a rectangular masonry vaulted structure was discovered during the redevelopment of a bomb site at 14–18 St Clare Street, Stepney, now part of the London Borough of Tower Hamlets (NRG: TQ 3370 8104). The excavator driver (Henry Cooper), having made a hole in one of the walls, realised the interior of the vault was void and enlarged the hole in the masonry with a sledge hammer so that he and his colleagues could enter. Lying lengthways and face up against the south wall of the vault was a 'lead sarcophagus, with its feet pointing to the east' (Winmill nd).³² The workmen decided to extract the lead coffin by fixing a chain around it and lifting it out with the excavator arm. By now quite a crowd had gathered from the adjoining office buildings to 'see the mummy'. At this point Mr Cooper decided to inform the press, the police and his manager (William Winmill of Yates Construction). The press were the first to arrive and photographed Mr Cooper holding the *ex situ* coffin upright.³³ The sarcophagus was then taken to Leman Street Police Station and the police promptly sought advice from the Coroner's Office. Later that evening Dr Francis Celoria, Field Officer of the London Museum, informed about the discovery by the police, examined the coffin and having established its antiquity, he was verbally authorised by the Coroner's Office to take custody of it (JPR 1965, 4).³⁴ By this time the London Museum had closed and as Celoria was unable to gain access to the building he took the coffin in his Land Rover to the premises of the Southwark Rescue Group and the Thames Basin Archaeological Observers Group at the Blackfriars Goods Depot, where it was left for the night.³⁵ The following day Celoria transported it to the museum (Thorn 2007, i, 3–5).

The rectangular vault containing the lead coffin was constructed of mortared chalk rubble masonry; the walls were about 1ft (0.3m) wide and the roof consisted of a simple barrel vault. Internally the vault was about 6ft (1.8m) high, 7ft long (2.1m), 4ft 6in (1.4m) wide and the floor was about 11ft (3.6m) below ground level (Fig 3, vault

1).³⁶ Set within the north wall of the vault was a bricked up opening with an arched head, which was about 3ft (0.9m) wide and 3ft high (Winmill nd).³⁷ The interior of the vault, including the floor, was lined with a skimming coat of grey lime plaster; directly under the floor layer was natural brickearth.³⁸ The weight of the coffin had left a noticeable depression in the underlying brickearth. A second masonry vault, which was fragmentary due to modern disturbance, contained no burials (Fig 3, vault 2) (*ibid*).

The property where the vault had been discovered was situated within the area of the church of the Abbey of St Clare, which was staffed by the Sisters of the Minor Order of St Francis or 'Minoreesses' (Reddan 2007, 145). This nunnery was located just outside the eastern side of the walled city within the Aldgate area (Fig 1); it was apparently established by 1281 and was certainly in existence by 1292 (Röhrkasten 2004, 64). The 1983 investigation of the adjoining site confirmed that the northern wall of the church choir approximately followed the northern boundary of 14–18 St Clare Street, so the entire area of the 1964 development would have originally been within the choir (Fig 2) (Ellis 1985, fig 7). The ground plan of this nunnery has been discussed by Thomas and Watson (2010, 283).

A plan of the archaeological features found during ground reduction in 1964 showed that the vault where the coffin had been discovered was aligned north–south and was built up against the north side of a length of L-shaped chalk rubble wall foundation 3ft (0.9m) wide (Fig 3, vault 1) (Winmill nd). This arrangement could have been intended to facilitate access to the northern end of the vault via a spiral staircase, which may have been built into the adjoining wall and entered via a door set within a standing wall.³⁹ The structural interpretation of this L-shaped masonry is uncertain, but its width suggests that it carried a substantial load-bearing wall. The southern arm was parallel to another chalk foundation. There are two possible reasons for this arrangement of foundations. Firstly, they may represent earlier phases of the choir. However, unless these standing walls were retained within the later church it seems unlikely that the vault would have been built up against them.



Fig 4. Overhead view of the restored and cleaned coffin (scale c.1:11) (© Museum of London, Archaeological Archive AMS 64 image 64; reproduced by kind permission of the Museum of London)

Secondly, perhaps the extent of the cloisters extended slightly further north than their conjectured extent. If this was the case then the vault may have been built up against the party wall, between the south side of the choir and the northern arm of the cloisters (Fig 2).

THE IDENTIFICATION OF ANNE MOWBRAY

Examination of the sarcophagus revealed that it was really an anthropomorphic lead coffin, with a tapered profile. It measured 4ft 8½in (1.43m) long, 10¾in (273mm) wide across the shoulders and at the tip of the feet it was 4½in (114mm) wide. Its greatest depth was 7½in (190mm), across the facial part of the skull (Fig 4).⁴⁰ The weight of the unopened coffin was not recorded, but several press reports stated that it weighed more than a 'hundredweight' (over 50.8kg).⁴¹

Draped across the upper portion of the coffin was a separate rectangular sheet lead tablet 25½in (630mm) long and 5¾in (146mm) wide bearing an engraved Latin inscription; the lettering was between 12mm and 25mm high. The inscription read:

*Hic iacet Anna ducissa Ebor' filia et heres
Johannis nuper Norff' comitis Mareschalli
Notyngham & Warenn' ac Mareschalli Ang-
lie ducis de Mowbray Segrave et Gower nuper
uxor Ricardi ducis Ebor' filii secundi illus-
trissimi principis Edwardi quarti regis An-
glie et Francie et domini Hibernie que obiit
apud Grenewych xix die Novembris anno
domini MCCCCLXXXI et anno regni dicti
domini reges xxi*

Capital letters have been used in the above transcription for personal and place-names in order to facilitate the reading of the passage (Tudor-Craig 1973, 32, no. 69).

A translation reads:

Here lies Anne Duchess of York, daughter and heiress of John, late Duke of Norfolk, Earl Marshall, Earl of Nottingham and Warrene, Marshall of England, Lord of Mowbray, Segrave and Gower; late wife of Richard Duke of York, second son of the most illustrious Prince Edward the Fourth, King of England and France, and Lord of Ireland, who died at Greenwich on the 19th day of November in the Year of Our Lord 1481 and the 21st year of the said Lord King

THE STUDY AND REBURIAL OF ANNE MOWBRAY'S REMAINS

The 1965 Analytical Programme

On 11 December 1964 when Anne's coffin was handed over to Celoria by the police, it had been agreed with the Coroner's Office that it could be taken to the London Museum at Kensington Palace for opening 'to ascertain if there was a body inside, and to make available a full report' (JPR 1965, 4). Immediately it was proposed that a comprehensive programme of research would be undertaken under the direction of Celoria (1964a; 1964b) (Fig 5). The date 15 January 1965 was chosen for a joint press release prepared by the London Museum and Westminster Abbey, as it was the 487th anniversary of Anne's marriage (discussed



Fig 5. Opening the coffin in the presence of some of the research team. Those present include Dr Harden, London Museum Director (second from the right), Dr Francis Celoria, Archaeological Field Officer, London Museum (standing, third from the right), Brian Spencer, Curator, London Museum, Dr Carter, Hammersmith Hospital, Dr Missen, Pathologist, Guy's Hospital, and Arthur Trotman, Conservator, London Museum (kneeling) (© Museum of London, Archaeological Archive AMS 64 image 104; reproduced by kind permission of the Museum of London)

above) (JPR 1965, 4). A temporary exhibition on Anne's burial was also staged by the London Museum.⁴²

The research aims of this programme of work were, firstly, to ascertain for the Coroner the nature of the burial, secondly, to conserve the body and undertake an integrated programme of archaeological, technical and osteological study, thirdly, to learn more about Anne's life and 15th-century burial practice and, finally, to enable the London Museum to consult with the authorities on the proper course of action concerning the reburial of Anne's remains (JPR 1965, 5).

In terms of the realisation of the first of these aims, Anne's identity had quickly been established from the inscription.

Secondly, a very comprehensive programme of analytical research on all aspects

of Anne's remains and her coffin was initially planned, but this was largely abandoned when it was decided to quickly rebury her (discussed below). To make matters worse, much of the analytical work that was undertaken, such as the study of the shroud textiles and the intensive sampling of the contents of her coffin, was neither archived nor published (discussed above). Available letters show that the Metropolitan Police Forensic Laboratory was asked to help identify 'fibres' apparently recovered from Anne's coffin fill, but the result of this request is not known.⁴³ The production of a facial reconstruction of Anne was considered by one of the team's pathologists: while this forensic technique is quite routine nowadays, it was rarely attempted at the time.⁴⁴ This facial reconstruction would have presumably been a life-size sculptured clay

model. In addition, it appears that a portrait of Anne was produced.⁴⁵ In 2016 a new facial reconstruction of Anne was produced by Amy Thornton of Dundee University (Ashdown-Hill 2016a, pl 29). Also, it was hoped to determine Anne's blood group by extracting material from samples of her bone marrow, but this analysis was apparently never carried out.⁴⁶ However, basic conservation work was undertaken on Anne's hair, skeleton and coffin before her reburial.

Thirdly, research was undertaken on Anne's life by Spencer (see above), and we have now researched contemporary burial practices to place Anne's interment in a broader context (see below).

Lastly, it was decided by the Home Office that due to legal issues and pressure from modern-day representatives of Anne's family she would be reburied in Westminster Abbey in 1965, which curtailed the planned programme of scientific research (Watson 2013). Celoria admitted in his account of the problems he encountered during his research on Anne Mowbray that 'after a letter to a newspaper [*The Times* 23 January 1965] on the legality of the opening of the coffin ... a strong lobby' prevented 'further research' and led to the involvement of members of the House of Lords (Celoria 1966, 181).

The Reburial of Anne Mowbray

The press release created a great deal of public interest because of Anne's royal connections and the unexpected nature of her discovery (see Appendix, section 2).⁴⁷ However, not all the initial coverage was favourable, as it was explained at the press conference that the coffin had been mishandled during its recovery, causing Anne's skeleton to become jumbled and damaged. In fairness this was not the fault of any of the London Museum staff, but some of the adverse press coverage hinted that it was.⁴⁸ There was also some anger particularly amongst the modern-day representatives of Anne's family (Lord Mowbray, Segrave and Stourton, and the 16th Duke of Norfolk)⁴⁹ who wanted the analysis stopped and Anne reburied immediately.⁵⁰ This matter was debated in the House of Lords on 11 March 1965 (*Hansard* 1965). Sadly, both the London Museum's press release and the extensive

press coverage missed the real tragedy of the circumstances of Anne's rediscovery, which was that her resting place and many other archaeological sites across London were being destroyed without record by redevelopment.⁵¹ This unfortunate situation of widespread archaeological destruction was to persist in London until the early 1970s, when pressure from Rescue led to the establishment of a network of archaeological units across the Greater London area (Biddle & Hudson 1973).

A critical obstacle was that it appears that the London Museum had not informed the Home Office about the discovery of Anne's remains and therefore no burial licence (then issued under Section 25 of the 1857 Burial Act) had been applied for at the time of her removal from Stepney to the London Museum. To make matters worse, the museum apparently only discovered this legal omission from the adverse press coverage (Watson 2013);⁵² it therefore technically had no legal right to retain or study Anne's remains without Home Office permission.⁵³ This issue had already been drawn to the attention of the Home Office by a letter of 14 January 1965 from a solicitor writing on behalf of the Revd Derek Harbord, incumbent of the united parish of St Botolph's without Aldgate with Holy Trinity, Minorities, which included the site where Anne's remains had been found. Harbord was concerned about a report in the *Evening News* (14 December 1964; see Appendix, section 2), which suggested that Anne's remains were not being treated respectfully and inquired if 'any authority was given by your office to the police to hand the coffin over [to] the London Museum'.⁵⁴ During February 1965, a retrospective burial licence was applied for by the London Museum and it was granted on 13 April 1965.⁵⁵ However, its terms stated that all ongoing analytical work was to be concluded by 15 May, no new work was to be permitted, and finally Anne's remains were to be conveyed to the Dean of Westminster by 31 May 1965 for reburial. Before this date Anne's bones (in their correct anatomical position) were sewn into a new royal blue padded and quilted lining and replaced in her lead coffin, which was repaired and soldered back together (Trotman 1966; for photos see Gilchrist &

Sloane 2005, fig 69, right; Werner 1998, 70, fig 6).

On 31 May 1965, Anne's remains were laid in state in the Jerusalem Chamber of Westminster Abbey. Thorn described the 'quiet splendour' of this occasion. Anne's coffin 'lay on a cloth covered table embroidered with the heraldic insignia of the Tudor royal family and the arms of Westminster Abbey. ... Her slender coffin lay lengthwise on the table surrounded by four gilt candlesticks, and a large processional cross'.⁵⁶ After a private ceremony, which apparently consisted of a 'Sarum Use' medieval Requiem Mass, Anne's remains were reburied in the Duke of Buckingham's Chapel, one of the radiating chapels situated at the eastern end of Henry VII's Chapel, close to her original resting place and the ossuary believed to contain the remains of her husband (discussed above).⁵⁷ Her reburial was widely reported by the newspapers, reflecting the continuing public interest in this previously forgotten princess.⁵⁸

Celoria wrote an account of the attitudes he had encountered in the course of his research, commenting that the discovery of Anne Mowbray 'produced not only a surge of curiosity but also strong criticism of those who moved and studied' her remains (Celoria 1966, 161). He also admitted that pressure for Anne's rapid reburial had resulted in 'a truncated and sketchy programme of research' (*ibid*, 182).

The Proposed Publication of the 1965 Research

In June 1966, Celoria received a £500 grant for the 'Anne Mowbray Research Project' from the Wellcome Trust to cover the secretarial costs (short-hand typing) connected with the production of a substantial HMSO (Her Majesty's Stationery Office) monograph planned for publication during 1967. It appears that this planned publication was very comprehensive and even included a chapter on contemporary medical knowledge. Analysis of Anne's hair, radioscopy, skeletal remains, teeth, shroud and the metallurgy of her coffin are mentioned in various letters and other documents (Celoria 1964b; 1970).⁵⁹ So it seems certain that the other technical

reports such as those on her dentistry, plus the insect and botanical remains from her coffin fill were also intended for inclusion in this publication.⁶⁰ Unfortunately, the only portion of this draft monograph which is currently available is the biographical text on Anne written by Spencer (*c.*1967). Letters written by Celoria in 1973 and 1982 state that he was still working on the production of a monograph, which he believed in 1998 was nearly complete.⁶¹ The non-publication of this monograph was most regrettable as it would have greatly influenced subsequent research in this field.⁶² For instance, the analytical data concerning Anne's hair still is without parallel within the United Kingdom (Lewis 2007, 117).⁶³

The Results of the Analytical Programme

The following sections are brief summaries of various documents held in the Museum of London's Archaeological Archive (LAA, AMS 64) or previously published material all of which has been compiled by the two principal authors of this article, not the original authors (most of whom are now deceased). The opportunity has been taken to update some aspects of both the dental and osteological reports, particularly the estimation of Anne's stature and her dental age. The material on Anne's nails, physical condition, shroud and pillow, plus the conclusions section were written by the principal authors.

The Condition of Anne's Remains

Due to two ancient punctures to the coffin (see below), it was apparent that it had not been airtight for many years prior to its opening on 20 December 1964 (Celoria 1964b). Therefore, organic preservation was expected to be poor. When the coffin was opened the London Museum conservator, Arthur Trotman, described his impression of Anne's remains as 'both warmth and chaos' (Trotman 1966). The 'warmth' was derived from the red-toned hair covering the chestnut-brown skull and reddish-brown damp silts which occupied the lower portion of the coffin (JPR 1965, 6; for photos see Gilchrist & Sloane 2005, fig 69, left; Werner 1998, 70, fig 5), while the 'chaos' sprang from



Fig 6. Overhead view of opened coffin (scale c.1:11) (© Museum of London, Archaeological Archive AMS 64 image 147; reproduced by kind permission of the Museum of London)

the disorder of Anne's skeletal remains (only her skull was still in situ) including her pelvis, which had been fractured. This disorder had been caused by the mishandling of the coffin before it was handed over to the London Museum (JPR 1965, 1–6). Her chest area was devoid of skeletal material or sediments and was now occupied by a pool of muddy water (neutral pH 7). All the 'light brown' silts were systematically removed from her coffin to allow the extraction and then the drying out of her bones and teeth to permit their study (Fig 6). Water samples from the coffin fill apparently contained cholesterol.⁶⁴

Anne's Coffin and its Metallurgy

Based on unpublished material by H C Harris, Perivale Laboratories (1966)

Examination revealed that the anthropomorphic coffin consisted of upper and lower halves constructed from cast sheet lead (recovered or recycled) that had been shaped by hand beating (Fig 7). The form was 'rough, unbalanced, the curves shallow and the two halves shaped with a minimum of working up from the flat' (Harris 1966). The two halves of the coffin had been joined by a seam of wiping solder.⁶⁵ Chemical analysis of the solder revealed that it was 34.8% tin, the rest being lead, plus a very small amount of impurities (*ibid*). Examination of the coffin revealed that removal from the vault had caused damage to the facial area (particularly

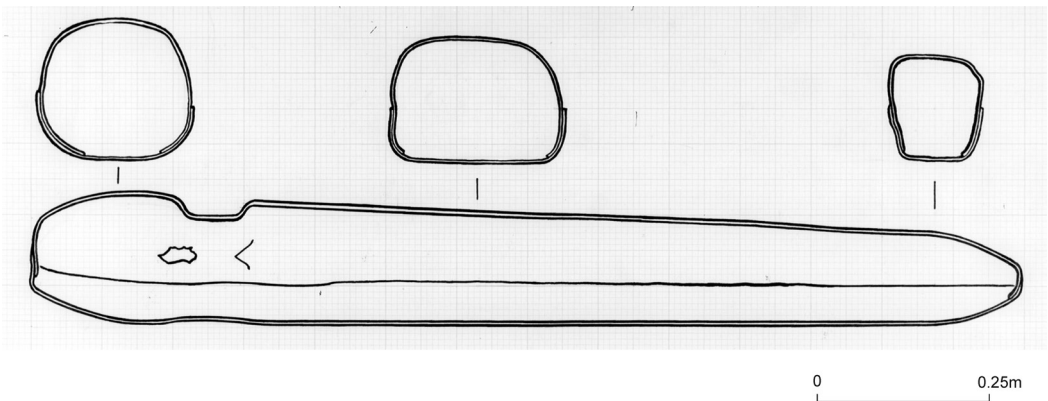


Fig 7. Profile and cross sections of the coffin, produced by Arthur Trotman (scale c 1:11) (© Museum of London, Archaeological Archive AMS 64 image 6; reproduced by kind permission of the Museum of London)

the chin), plus deep abrasions and scoring. There was an ancient puncture penetrating through the shell on the right side of the neck which had been made by a blunt chisel (Fig 4); there was also a puncture at the foot of the coffin. The whole outer surface was covered by corrosion deposits. On the underside there was evidence of active corrosion, but despite some surface damage caused during its extraction from the vault, the coffin was in generally good condition.

The inferior workmanship shown in the production of the coffin together with poor preparation for the soldering in terms of shaping and cleaning the surfaces of the lapped joint, plus the 'coarse finish' of the completed joint all present the 'appearance of a hurried, almost frantic job, not an example of good craftsmanship' (Harris 1966). Examination of the top surface of the coffin revealed a slight depression or dent, probably caused by 'some long retained weight', which presumably happened while the coffin was interred in Westminster Abbey (*ibid*). There were indistinct solder marks in the chest area in the shape of 'a cross', which might have been for affixing an elaborate decoration (JPR 1965, 13). The rectangular inscription tablet had been draped across the upper half at a diagonal angle and shaped to fit around the torso area, and three of its four corners were then soldered to the coffin. This tablet appeared to be the work of a skilled engraver, in contrast to the rather unskilled production of the coffin.

A sample of metal from the flange of the upper half of the coffin was subject to spectrographic analysis and gave the following results: tin (Sn) – 0.4%; copper (Cu) – 0.02%; silver (Ag) – 0.008%; antimony (Sb) – 0.005%; bismuth (Bi) – <0.001%; nickel (Ni) – <0.001%; arsenic (As) – <0.001%; the rest was lead. The tin content is interpreted as the result of using scrap material including fragments of soldered joints.

Examination of the compounds found in the corrosion deposits on the sheet metal by means of X-ray crystallography revealed that they consisted mainly of basic and normal lead carbonate and tetragonal litharge (lead monoxide). The carbonates are common constituents of the superficial patina which forms on lead due to exposure in a humid environment. Normally the development of

this thin patina completely inhibits further corrosion. However, in the presence of alkaline or acid solutions this thin carbonate film ceases to protect the underlying lead allowing the process of corrosion to continue.

The presence of red-coloured tetragonal litharge on the outside of the coffin is evidence that the process of corrosion continued inside the vault. This corrosion was probably due to a local concentration of an alkaline material, which could have been derived from the fresh lime mortar used in the construction of the vault. Litharge can exist in two distinct crystal forms. Tetragonal crystals are red, but transform into yellow orthorhombic crystals at temperatures above 489°C, but either form may be produced by chemical precipitation at room temperature. A sample (S249) of corrosion material was taken from the outside of the upper shell, nearest the top of the head. The major constituents of the 'red' inner layer of this sample were tetragonal litharge (lead monoxide) PbO and normal lead carbonate PbCO₃. The minor constituents of the red material were hydrocerussite (white lead) 2PbCO₃·Pb(OH)₂ and plumbonacrite 3PbCO₃·Pb(OH)₂·PbO.⁶⁶ The major constituents of the outer layer of 'grey material' (S249) were normal lead carbonate, hydrocerussite and plumbonacrite, while its minor constituents were tetragonal litharge, tin and lead.⁶⁷ The presence of hydrated pentabasic lead nitrate around the ancient puncture in the neck of the coffin was associated with the release of nitrogenous compounds derived from the bacterial decomposition of organic matter (Harris 1966). Perhaps this hole was deliberately made to drain liquid from the coffin when it was relocated during the early 16th century.

Anne's Pillow, Shroud and Sudarium

Around the sides of the skull and extending down each side of the coffin were the remains of badly decayed multiple layers (apparently 12) of the linen (identification from fibres) shroud or cerecloth.⁶⁸ In places fungi were growing on the cerecloth. The shroud had been coated with beeswax ('cere') and apparently decorated with gold

leaf or thread, tiny fragments of which were found within the coffin silts with traces of beeswax adhering. This cloth wrapping was described as yellowish in colour and about ½in (12mm) thick, with the appearance of 'decayed wet leather'.⁶⁹ The outer surface of the fabric was black and in several places there were traces of a definite square-weave pattern. However, in some areas this wrapping mainly survived as a residue adhering to the interior of the coffin, but it was much better preserved around the skull. Anne's hair was described as tangled in the cerecloth 'wrappings'. Therefore, it is clear that her head had been wrapped. However, it appears that her face was not covered by the cerecloth, but instead may have been covered with a separate piece of extremely decayed cloth (*sudarium*) (discussed below). While the existence of a *sudarium* is not attested in the available records, its presence was later considered probable by Celoria.⁷⁰ There was a 'pad or cushion' under Anne's head, which was probably a herb pillow (discussed below). Apparently an attempt was made to extract pollen from the cerecloth, but it is not known if this exercise was successful.

Anne's Teeth

Based on material published by Dr Martin A Rushton, Department of Dental Medicine, Guy's Hospital (1965)

Some of the teeth had fallen out of the jaws, but all were recovered. Two deciduous teeth b±c were about to be shed (Rushton 1965a; 1965b). The teeth visible were ecb/cde edc/cde and 6421/126/621/126/, and in addition 3/3/7 could be glimpsed within their bony crypts and 7 was separate. The state of tooth eruption corresponded with an age of 8–10 years (Rushton 1965b). More recently, Molleson (1987, 260, table 1) has suggested a dental age range of 7.7–9.2 years, which produces a median age of 8.45 years.

The eruption of Anne's upper lateral incisors was incomplete. The radiographs showed an anomaly: the congenital absence of upper and lower permanent second molars on the left side. Incidentally, the body of Anne's great uncle John Talbot, Earl of Shrewsbury (d 1453), was apparently identified on the battlefield of Castillon by his pattern of missing molars. It has been

claimed that Anne's congenital dental anomaly (hypodontia) is evidence of kinship with the two juveniles found in the Tower of London during 1674 (Rushton 1965a, 358).⁷¹ They are believed to be Edward V and his younger brother, distant cousins of Anne (discussed above).⁷²

Anne's Skeleton

Based on material published by Professor Roger Warwick of Guy's Hospital and Rosemary Powers, Natural History Museum, Department of Palaeontology (c.1965)

Study of her femora (thigh bones) revealed that Anne had an estimated height of 4ft 4¼in (1.326m), indicating an age of 9.5 years by modern standards, while the study of other bones produced a height estimate of 4ft 1in to 4ft 3¾in (1.300m) (Warwick 1986, 179). However, as these figures were derived from the inappropriate application of adult formulae for the stature of a child, they need to be reappraised. More pertinently, Molleson has deduced that the diaphyseal lengths of the long bones of Anne's limbs were consistent with a modern child 5.5–6.5 years of age, confirming the trend that child growth in the past was retarded by 2.5–3.5 years compared to present-day children (Molleson 1987, 261). There was no evidence of skeletal injury or disease, but attention was drawn to a curious anomaly in the metacarpal bones of both thumbs (distal epiphysis), subsequently claimed to be a relatively common occurrence (*ibid.*, 260; Rogers & Waldron 1986), while as in any pre-pubertal child, the innominate (hip) bones were still separated by cartilage into three elements: ilium, ischium and pubis. However, it was stated from the measurement of the sub-pubic angle of the pelvis that this individual was female (Warwick 1986, 178, fig 5). This was fortuitous because the morphology of the pelvic bones change so much during the growing period that an accurate assessment of the biological sex of a juvenile skeleton can only be made after puberty. Therefore, modern osteologists do not attempt to sex the skeletons of juveniles using this criterion (Roberts 2009, 123).

Anne's remains were additionally examined in 1965 by Rosemary Powers as part of her comparative study of historic juvenile

Table 1. Measurements of selective bones (in mm) of Anne Mowbray and an eight year old male child (after Powers 1988, fig 59)

	Male: 8 years	Anne: 8 years 11 months
Femur length	267	279
Tibia length	221	220
Fibula length	219	210
Humerus length	196	185
Ulna length	-	148
Radius length	149	140
Mandible length	94	-
Iliac breadth	98	89
Iliac height	83	82
Clavicle length	80	82
Exoccipital length	-	-
Malar height	-	-
Femur breadth	18	17
Radius breadth	10	9

skeletons. She also examined one eight year old post-medieval (18th- or early 19th-century) male child,⁷³ which provides some interesting comparative data (Table 1). It can be seen that both children were of a very similar stature, despite being born several centuries apart. Powers did not take Anne's 'mandibular measurement as the mental symphysis was fused, and the exoccipital measurement could not be taken as the exoccipital suture was likewise obliterated' (Powers 1988, 77).

Bone samples examined by the United Kingdom Atomic Energy Authority at Aldermaston on behalf of a cancer researcher revealed evidence of 'relatively short-lived radioactivity ... due to the Thorium series' (Celoria 1970, 6).

Anne's Hair

Based on unpublished material compiled by Dr A W Holmes, Unilever Research Laboratory, Isleworth (1965)

Anne's shoulder length hair (maximum length c.11in or 28cm) was well preserved though some deterioration had occurred (for photos see Werner 1998, 70, figs 4 and 7). Traces of the scalp were identified (presence of intact cells of *stratum corneum*) and some

hair roots were atrophied, generally a sign of ill-health. The hair was brittle at the front of her skull, but at the back where there was better preservation it retained some flexibility and elasticity. The hair colour was defined spectrophotometrically and found to conform to the spectra of modern auburn hair. Electron microscopic examination showed considerable degradation of the fibre structure both on the surface and within the bulk of the fibre, probably due to ageing. The pigment granules lacked the normal electron capacity, so that the present hair colour may well be different from its original colour (which was probably darker). Examination of the physical properties of the hair using an Instron extenometer indicated that the primary structure was altered, but that the tertiary structure had only undergone a slight change (Holmes 1965).

X-ray fluorescence of hair samples was undertaken to determine the presence of elements with atomic numbers greater than 13. This revealed the following: silicon (Si) – trace; sulphur (S) – large amount; potassium (K) – small amount; iron (Fe) – small amount; lead (Pb) – large amount.

Neutron activation analysis revealed that the concentrations of lead, calcium, arsenic,

Table 2. Results of neutron activation analysis of Anne Mowbray's hair. The figures cited are for unwashed and washed (diethyl ether 2 hours) hair samples and list the concentration (C) of trace metals in parts per million (ppm). For comparative purposes modern figures are listed for female washed hair (ether 2 hours). Arsenic was determined separately by essentially the same technique and found to be 3.26 ppm

Element	Sample from Anne Mowbray				Sample from modern female
	Unwashed (C ppm)	Unwashed (Log _e C)	Washed (C ppm)	Washed (Log _e C)	Washed (mean Log _e C)
Sodium	440	6.08	420	6.04	6.22
Chlorine	430	6.08	380	5.94	6.81
Copper	52	3.95	55	4.01	—
Iodine	10.9	2.39	9.4	2.24	2.59
Manganese	1.7	0.531	1.9	0.642	0.0746
Bromine	1.5	0.405	2.2	0.788	2.57
Calcium	10,100	9.22	9,900	9.20	—
Antimony	13	2.56	14	2.64	—
Mercury	19	2.94	20	2.99	2.72
Zinc	120	4.79	130	4.87	5.73
Chromium	7	1.95	7	1.95	—
Gold	4.0	1.38	3.5	1.22	-2.24

antimony and gold were abnormally high. Arsenic was found to be 3.26 ppm (parts per million) (Table 2).⁷⁴ The median arsenic content of women's hair in the 1960s was about 0.5 ppm and it was considered unusual to find uncontaminated hair with more than 2 ppm. Similarly, the antimony content is normally less than 1 ppm (detection limit). Both arsenic and antimony could have been ingested as medicines.⁷⁵ Antimony might also have been absorbed when applied as a cream or powder to the skin. The high calcium level was probably due to the hair being immersed in the same liquid as the bones. Interestingly, the gold content (3.5 ppm) is much higher than levels found today: only 5% of modern females have more than 0.5 ppm in their hair. The presence of tiny fragments of gold leaf within the shroud remains could account for the very high level of gold observed. The high lead content of the hair was interpreted as the result of prolonged exposure to the coffin material, while the zinc content was lower than expected. Today a low zinc concentration in the blood stream is associated with leukaemia and this could also lead to a lower concentration in the

hair. Alternatively some of the zinc present could have been exchanged with the calcium in the water (Holmes 1965).⁷⁶

Anne's Nails

Anne's finger and toe nails were well preserved. One of the soil samples contained a toe nail.⁷⁷ It had been trimmed in an unusual manner, neither straight across nor in a smooth arc. Viewed under the electron microscope the nail had been trimmed coarsely with four cuts, probably with a knife rather than scissors or shears. All the other nails were reburied in 1965, but a monochrome photograph of one of Anne's thumbnails exists (Fig 8). Here the treatment of the nail was slightly different.

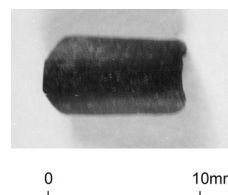


Fig 8. Clipped thumbnail (scale 2:1) (© Museum of London, Archaeological Archive AMS 64 image 200; reproduced by kind permission of the Museum of London)

The distal end of the nail was trimmed into a regular geometrical shape, perhaps best described as trapezoidal or hemi-hexagonal. This pattern of manicure is neither evident in the rare contemporary portraits from Flanders or Italy (which lack the fine detail necessary) nor in fingernails surviving from any period. 'St Bees Man', a well-preserved 14th-century body found near Whitehaven, Cumbria, had fingernails manicured into shallow arcs (Brothwell 1986, 39, fig 27). Thus, the type of cutting to which Anne Mowbray's nails were subjected is without precedent, whether in life or done when the body was being washed and prepared for burial. It is only through archaeology that we know of this odd practice.

Insect Remains within Anne's Coffin

Based on unpublished material by J P Doncaster, Department of Entomology, British Museum Natural History (written before 1971)

Samples collected from under Anne's head and from her hair (back of the head) contained the remains of the beetle *Rhizophagus parallelocollis* (order Coleoptera, family Rhizophagidae). The remains consisted of fragments of wing covers, bodies and thoraxes, implying that these beetles must once have been 'present in large numbers'.⁷⁸ Also the hair and waist level samples contained isolated elytra (wing cases). Only isolated insect fragments were found under the cerecloth wrappings at waist level and no insect remains were found in the soil samples from near the feet. This species of insect is commonly known as the graveyard beetle as it is found in large numbers within coffins, often associated with 10 to 24-month-old burials, although it is uncertain whether they feed on decaying flesh products, mould, or fly larvae; no phorids (coffin flies) were detected, however (Stafford 1971). The samples of Anne's hair contained no parasites such as nits or lice.

Botanical Remains within Anne's Coffin

Based on unpublished material by Dr C R Metcalfe, Jodrell Laboratory Royal Botanic Gardens, Kew (1965)

Nine sample residues obtained from the coffin fill were submitted for identification;

all were in a badly decomposed state and three contained only insect or faunal remains (which were not identified). Sample <40> contained a seed, possibly belonging to the Leguminosae family (flowering plants with pods or legumes). Sample <90> contained a portion of stem or leaf; its structure indicated it was probably a monocotyledon, such as a grass, sedge or rush. Sample <147> was thought to be decayed wood; it consisted 'largely of vegetable material but it is doubtful if any wood is present'. Sample <251> contained 'a few prickle hairs of the type that occurs in grasses and similar plants'. Sample <263> was from under the cerecloth. It contained no 'definite evidence of woody remains', but consisted 'largely of vegetable matter': there was 'very slight evidence that it might be a grass or similar plant' (Metcalf 1965).⁷⁹

Conclusions from the Analytical Work concerning Anne's State of Health and Kinship Links with the Tower of London Juveniles

Anne died on 19 November 1481, shortly before her ninth birthday. Her height was, however, consistent with a modern child aged 5.5–6.5 years, although her teeth were originally considered typical of a child aged between 8 and 10 (see above). These figures confirm that Anne's skeletal growth was several years behind that of a modern child. Powers observed that among eight out of the nine examples of post-medieval child burials (and Anne Mowbray) she had studied, on the basis of femur length there was about two years retardation of growth compared with modern children, but only about six months dental retardation (Powers 1988, 78). However, more recent research has shown that the dental standards used for age estimates by Powers and others have miscalculated the true age by at least two years, so the quoted figure regarding dental retardation is not reliable (Lewis 2007, 72). Anne's teeth can be regarded as typical of a child aged between 7.7–9.2 years (see above; Molleson 1987, 260).

Retardation in skeletal growth was almost universal amongst post-medieval (1729–1852) children aged over one year recovered from the vaults of Christ Church, Spitalfields, London. It has been suggested

that this was the result of deficiencies in their weaning diet, which if high in cereal products would probably have been deficient in both protein and zinc (Molleson & Cox 1993, 152). Generally, though, the pattern of growth retardation identified in the Spitalfields children and by Powers's survey has been attributed mainly to malnutrition, a phenomenon which is still detected in some Third World populations (Lewis 2007, 66–8; Powers 1988, 78). However, modern studies show that the situation is quite complicated as child growth 'is considerably adaptable and can be affected by many factors including nutrition, infection, socio-economic status, physiological stress and intestinal parasites' (Lewis 2007, 66).

Interestingly, the attrition of Anne's teeth was described as 'so moderate, it must be concluded that her diet was not gritty and that she did not practice very vigorous grinding and chewing' (Rushton 1965b, 358). In fact the attrition was 'no more than those of a modern English child, suggesting a refined diet' (*ibid.*, 359). Also, dental caries had affected the teeth of both jaws implying no effective attempt was made to clean Anne's teeth. The elder of the two juveniles found in the Tower apparently possessed badly diseased teeth (all of which had been lost post-mortem) and gums, but no further diagnosis was offered by the 1933 study (see above; Tanner & Wright 1934, 18). Subsequently, it has been suggested that the bony lesions on the mandible of this juvenile are the result of histiocytosis X, a painful cancer-like disease which could have caused inflamed gums and the loosening of teeth (Hargreaves & MacLeod 1994).⁸⁰ In the Black Death cemetery at East Smithfield, London (c.1348–50), the presence of both dental caries and calculus was very widespread, with the prevalence of caries increasing with age (Cowan *et al* 2008, 52–3). The impression is that Anne's dental problems were quite typical of the medieval period due to very poor standards of dental hygiene.

One clue to Anne's state of health shortly before her death was revealed by the examination of her hair. This analysis indicates she had ingested relatively large amounts of arsenic and antimony, most likely as ingredients in medicines (Table 2).

Also, the unusually low level of zinc and the presence of atrophied hair roots are both indications that Anne may have had a period of ill-health before her death; this would have reduced her resistance to a range of epidemic diseases such as whooping cough or measles, although her cause of death is not documented. Study of Anne's coffin shows evidence of rather crude or hurried workmanship (see above), implying that her demise was unexpected even if she had been suffering from ill-health.

The initial examination of Anne's teeth revealed a congenital dental anomaly (hypodontia). This prompted the suggestion of a kinship link with the skeletal remains of the two juveniles believed to be the 'Princes in the Tower' (see above), Anne's distant cousins, one of whom was also her husband (discussed above) (Tanner & Wright 1934; Molleson 1987; 2002). Recently, it has been suggested that Anne's dental anomaly, which was probably genetic, may have been inherited from her maternal aunt Eleanor Talbot (Ashdown-Hill 2016b).⁸¹ However, it should be borne in mind that missing teeth (tooth agenesis) is one of the most common dental developmental problems amongst contemporary European children, and therefore using it to try and confirm kinship links amongst medieval individuals is problematic. Tooth agenesis has been associated with more than 49 syndromes including hypodontia. In one European study of 212 orthodontically treated juveniles with a mean age of 12 years and 7 months, hypodontia was identified in 11.3% of the patients. The most frequently missing teeth recorded were the maxillary lateral incisors and maxillary and mandibular second premolars. Most of the affected juveniles had one or two missing teeth (Fekonja 2005).

Molleson has claimed that the pattern of large extra ossicles or wormian bones present on the lambdoid suture in the skulls of both juveniles from the Tower is suggestive of kinship, which might, if true, support the theory that they were the missing royal brothers (Molleson 2002, 153). However, the pattern was very different to that found in Anne's skull: she had at least seven wormian bones on each lambdoid suture (R Warwick, pers comm).

THE BURIAL OF A PLANTAGENET PRINCESS

Barney Sloane and Bruce Watson

As a result of the thoroughness of the 1965 research (despite the short window of opportunity and subsequent problems), it is possible to develop a basic archaeological context for Anne Mowbray's burial, to draw comparisons with other discoveries of a similar date and with documentary evidence for funerary rites of the elite in the late Middle Ages. The first point to make is that it is extremely rare for the remains of named pre-Reformation individuals to be archaeologically studied in England; almost all the bodies which have been examined from this period are anonymous. For instance, a study of 4,647 juvenile medieval and early post-medieval burials from 95 sites across Britain included no named individuals (Penny-Mason & Gowland 2014). Most of the named adult burials discussed here were leading churchmen, aristocrats and royalty interred in major churches such as Westminster Abbey, whose tombs were often the subject of antiquarian study. An example of the few named burials from this period is Abbot John Dyson (d 1510), who was buried at St Augustine's Abbey, Canterbury, and whose grave was examined in 1901 (Thorn 1981). These antiquarian investigations were recorded with varying degrees of precision, which makes identifying the presence or absence of some attributes difficult (Gilchrist & Sloane 2005, 8).

Secondly, Anne was reburied, probably in the very early 16th century, when her original grave site was encompassed by the building of Henry VII's funerary chapel at Westminster. Documentary evidence suggests that Anne was intentionally transferred for reburial with (or at least near) her mother's preferred last resting place at the Abbey of St Clare's, and the vault was certainly of a size to accommodate an adult. It was also accessible, containing a doorway which was later bricked up. We cannot know whether the vault was constructed especially to receive the remains of the Mowbrays, or whether it was usurped for the purpose from its original intended occupants; there was, however, no evidence for a second inhumation within the vault, so Elizabeth was evidently not buried with her daughter.

The vault where Anne Mowbray was buried was comparable in scale, if not in finish, to that of Humphrey, Duke of Gloucester (d 1447), in the chancel of St Albans Abbey, Hertfordshire (Goodall & Monckton 2001), and also to the vault of George, Duke of Clarence (d 1478), and his wife Isabel in the chancel of Tewkesbury Abbey, Gloucestershire (Donmall & Morris 2003, 31, 36).⁸² The Clarence vault is an ashlar-lined barrel-vaulted chamber measuring 2.4m by 2.7m, with a floor to apex height of 1.92m. It is thought possible that the disturbed and largely relaid medieval tile flooring within the vault might have originated from another part of the church (Duffy 2003, 255), although recently it has been suggested that some elements of the medieval tiling may be *in situ* (Ashdown-Hill 2015b, 31–2). The vault is entered by a short flight of stairs from the north (Donmall & Morris 2003, 39). At ground level above the Gloucester vault is a funerary monument and chantry chapel. While it is virtually certain that it was intended to erect a similar monument over the Clarence vault there is no evidence that this actually happened and its location may only have been marked by a floor slab and a brass effigy (Goodall & Monckton 2001; Donmall & Morris 2003, 36). Henry VII's rectangular burial chamber, which was located under his monumental tomb (situated within his own chapel at Westminster Abbey), was quite small, measuring internally 2.70m by 1.53m, with a floor to apex height of 1.37m, and it was barely large enough to hold three coffins. The vault's floor is about 1.70m below the floor level of the tomb (Stanley 1869, 678–9, 683). A general discussion of English burial vaults of this period has been published by Litten (1991, 195–207).

Thirdly, while the St Clare vault was Anne's second resting place, it is certain that the container in which she was found was the original lead coffin, transported from Westminster and reinterred some two decades after her death. The evidence for the treatment of her body allows us to reconstruct some of the sequence for its preparation, and the best context in which to view this is the documentary evidence which exists for late 15th-century elite burials. Generally, during the 15th century

the bodies of the elite underwent a complex process of burial preparation. It started with the removal of their internal organs to prevent putrefaction. Next their bodies were embalmed by being treated with preserving spices and afterwards they were tightly wrapped in waxed linen cerecloth. The wrapped bodies were then sealed mummy-like within inner coffins of sheet lead, which were placed in outer wooden coffins (Litten 1991, 37). However, lead coffins intended for interment within vaults were not always placed inside outer wooden coffins (Sutton & Visser-Fuchs 2005, 33–4).

There are six versions of a late 15th- or early 16th-century text describing the funeral rites due to an English king. It is believed that this text was originally compiled during 1500–25 for Sir Thomas Wriothesley, Garter Knight at Arms (1505–34), but as it mentions the funeral of Edward IV (9–19 April 1483) it presumably contains some earlier material (Sutton & Visser-Fuchs 2005, 32–3). One edited version of this text, apparently based on a lost manuscript, was published in the first volume of *Archaeologia* (Anon 1770, 375).

The initial section of the copy of this document held by the College of Arms concerning the preparation of the king's body is worth reprinting here.

When that a king annoynted ys deceased, after his body ys spurged [purified], it must be washed and censed by a bish-op, for his holy annoyntment. Then the body must be balmed, if it may be goten and wrapped in lawne [fine linen] or reynes [French fine linen],⁸³ then hosen [hose] sherte [shirt] and a pair of shone [shoes] of red lether, and do over his surcote of cloth (of golde), his cappe of estat over his hede and then laie him on a fair burde [board], covered with cloth of gold (saving), his one hand upon his bely and a septur [sceptre] in the other hand, and on his face a (fayer fyne white) kerchief and so shewid [showed] to his nobles (and estates of his realme) by the space of ii days and more, if the weder [weather] will it suffre. And when he may not goodly lenger endure take hym away and bowell [disembowel] hym and then eftsones [soon after] bame [embalm] hym, wrappe

hym in raynes [presumably cerecloth] well trameled [tightly bond], in cordis of silke, then in tartryne [costly fabric perhaps silk from Tartary] trameled and then in velvet and then in clothe of gold well trameled. Then lede hym and cof-fre hym and in his lede with hym a plait [plaque] of his still, name, date of our [Lord] etc ...⁸⁴

Edward IV was buried in a vault below a tomb he had constructed in St George's Chapel, Windsor Castle, Berkshire. The vault was situated close to the high altar, a very prestigious location (Sutton & Visser-Fuchs 2005, 93–102, fig 17b). On 13 March 1789 workmen took up some loose paving slabs in the north aisle and uncovered the rubble-filled entrance to a small rectangular ashlar-lined vault, which was 2.75m long and 1.40m wide. Inside it was a lead coffin, on top of which were the remains of a badly decayed wooden coffin and a partial skeleton, which is assumed to have been the remains of Elizabeth, his queen (d 1492) (*ibid.*, 112–13, fig 20). The lead coffin (length c.2.13m) was removed from the vault and opened up.⁸⁵ It contained a complete supine adult skeleton (stature c.1.92m) (*ibid.*, 115–16). Attached to Edward's skull was a mass of well-preserved long 'brown' hair and there were traces of decayed clothing (*ibid.*, 112).⁸⁶ Fragments of cloth including gold velvet and numerous strands of the king's hair were removed by souvenir hunters.⁸⁷ It appears that the king's face was visible when the coffin was opened and no cerecloth or covering is mentioned in any of the contemporary accounts (*ibid.*, 113).⁸⁸ This suggests that the state of preservation of Edward's remains was similar to that of Anne's and that his cerecloth was probably very badly decayed or it would have been mentioned in the sketchy account of the opening of his coffin.

Two of Edward IV's children were also buried in St George's Chapel, George (d 1479, aged two) and Mary (d 1482, aged 15). In 1810, two lead coffins 'with rude figures of human heads raised on them' (implying they were anthropomorphic) were discovered inside the Lady Chapel. The smaller coffin bore a Latin inscription identifying its occupant as George, while the larger coffin bore no inscription, but

contained the well-preserved remains of a female, who is believed to have been Mary (Duffy 2003, 259).

When Edward I's (d 1307) tomb in Westminster Abbey was opened in 1774, it was discovered that his remains had been placed inside a Purbeck Marble sarcophagus. His body had been wrapped up in a large piece of strong coarse linen cloth or 'mantle', with a waxed underside. The actual body was clothed in a silk tunic adorned with gilt decorations and tightly bound up in very decayed cerecloth; parts of the embalmed corpse were visible, particularly the face. Interestingly, the king's cerecloth-wrapped head and face had apparently originally been 'entirely covered with a sudarium' or face-cloth of 'crimson farcenet', which was very badly decayed (Ayloffe 1786, 380–1).

So how does the archaeological evidence of Anne's remains compare to this most elite of burial rites? The first preparation, for which we might expect evidence, is the dressing of the corpse. The account above makes it clear that elite corpses were displayed, often for more than a day, and were dressed for the occasion. It is less clear on whether such funerary dress accompanied the body into the grave. An archaeological study has suggested that perhaps 2–3% of all burials from the 12th to mid-16th centuries may have been clothed (Gilchrist & Sloane 2005, 80), based on the evidence from fasteners, buckles, belts and textile impressions. So it seems to have been a common practice. However, the available data from Anne's investigation includes no evidence of clothing, so it is unfortunate that in this instance we cannot distinguish evidence of absence from absence of evidence. More closely comparable burials do not help us reach a conclusion, indicating a range of approaches. A 15th-century male interred at Thelsford Trinitarian friary, Warwickshire, also sealed inside a lead coffin, wore an ornate belt set (Rahtz 1993a, 97). Given the probability that a belt set or head-dress would have been mentioned in early reports, it seems probable that Anne's body was dressed in very light clothing of which no evidence has survived. As the discovery of dress accessories, jewellery, or even a wedding ring is not mentioned in any of the press coverage concerning Anne's burial it

is assumed that nothing was present (see Appendix, section 2).⁸⁹

It is probable that Anne's face was covered by a *sudarium*. This was a piece of rectangular or square cloth, which may have carried some religious symbolism. Written evidence exists intermittently from the early medieval period onwards for the use of separate face cloths in burials. A face cloth is mentioned in the account of procedure at royal funerals (mentioned above); also, the funerary processes outlined in both the *Liber Regalis Capelle* and *Liber Regalis* mention face cloths (Anon 1870; Sutton & Visser-Fuchs 2005, 11 n39, 33). The purpose of a separate cloth covering the face is uncertain, but it may be significant that *sudarium* is the word used for the separate cloth positioned on or around the head in the Vulgate texts of St John's accounts of the Raising of Lazarus and the Resurrection, though the precise nature and purpose of the biblical 'face' 'or 'head cloth' is uncertain.⁹⁰ Unambiguous evidence of actual face cloths surviving in medieval burials is rare and appears to be confined to royal and other high-status individuals. The way the cloth was positioned varied, as demonstrated by two important examples. The first example is the Infante de la Cerda of Castille (d 1275), who was buried at the Abbey of Las Huelgas, near Burgos in Spain (Gómez-Moreno 1946, pls XXV, XXVI); the second is Cimbarga van Baden (d 1501), wife of Engelbrecht II of Nassau, who was buried in the church of Our Lady at Breda, in the Netherlands (van den Eynde & Roode 1996, 28–9, 60, pl 15–9). In the former case the cloth was simply laid over the face, whereas in the latter case it was laid under the head and the ends folded round to cover the face. Possibly, Edward I's face was also wrapped up in a similar manner to the latter example (see above).⁹¹

We cannot tell whether Anne's body was 'bowelled', a practice involving the removal of the internal organs to enhance attempts to embalm and preserve the body. Embalming was certainly envisaged, however, since the corpse was wrapped in 12 layers or windings of cerecloth. Cering involved the very tight wrapping of a corpse in multiple layers of cloth, usually linen, which was impregnated with hot wax. This allowed almost complete exclusion of air from around the body and,

when the wax set, created a hard, shell-like cocoon impervious both to air and invertebrates normally involved in the decay process. In the right circumstances, such as at St Bees, this shell could foster extraordinarily extended preservation. In this instance the well-preserved, lead shrouded male corpse was found to be wearing a simple loincloth and a *sudarium*.⁹²

In 1832 an attempt was made to examine Henry IV's lead encased body entombed in Canterbury Cathedral. Partial removal of the lead sheeting apparently revealed five layers of a leather-like wrapping covering his well-preserved face (JHS 1872, 298). In 1852 the remains of Bishop William Lyndewode, Bishop of St Davids (d 1446), was discovered accidentally in the crypt of St Stephen's Chapel, Westminster Palace. His well-preserved body was found inside a purpose-built cavity in the chapel fabric; it was not encased in a lead or wooden coffin, but was simply wrapped in nine or ten layers of cerecloth, which had been covered in 'wax'.⁹³ His body had been embalmed, but the viscera had not been removed and he was not wearing a cap or *sudarium*, though his wrapped head possessed an additional outer covering 'forming a kind of mask' made of 'cloth or canvas'. The only clothing mentioned is a pair of leather soled sandals (Prior *et al* 1852, 407–9). Lyndewode's burial was accompanied solely by a wooden crosier and his identity was only determined from documentary research (*ibid*, 406–9). In Anne's burial no evidence survived of the clothing, shoes or silk mentioned in the instructions for royal burials, but it is very likely indeed that the traces of gold leaf or thread found in the investigation came from the rich outer adornment of the cocooned body.

In May 1782 the opening of a wall tomb inside Sudeley Castle chapel, in Gloucestershire, revealed an anthropomorphic lead coffin bearing a short English inscription identifying this individual as Queen Katherine Parr (d 1548). This coffin was partly opened and the removal of the cerecloth covering her face confirmed that her corpse was perfectly preserved. During a subsequent examination of her remains in October 1786, it was recorded that 'the cerecloth consisted of many fold of coarse linen, dipped in wax, tar, and perhaps some gums' (Nash 1789, 2–3).⁹⁴

The next stage of the royal burial process was the leading. As has been already stated, in this instance it appears to have been a hurried and rather crude job, but there are two notable pieces of evidence. The solder marks suggestive of a fixing for an elaborate cross and the skill of the engraver responsible for the depositum plate call to mind the fixings on the lead container of Elizabeth of York (d 1503). Elizabeth's coffin was unadorned apart from an appliqué Maltese cross on her breast (Litten 1991, fig 43). It appears from the shape of Elizabeth's tight fitting coffin that her arms were placed alongside her body, turned in at the elbows, with her hands on her groin. Interestingly, the shape of Anne's coffin suggests that her arms probably occupied a very similar posture. Henry VII's much more tubular lead coffin suggests that he is holding funerary sceptres. Along the top of the right-hand side of his coffin is an appliqué rectangular lead plaque (61cm long and 10cm wide) bearing a cast Latin inscription in raised letters listing his titles and the date of his death. The inscription is preceded by a cross painted directly on to the lead.⁹⁵

One feature not mentioned in the procedure for royal burial and unique in the context of investigated contemporary royal burials was the presence of a 'cushion', probably a pillow of vegetation, under Anne's wrapped head. The nature of the plant remains recovered from the fill of the coffin is unclear – one sample contained a possible legume seed and possibly traces of grass, sedge or rushes were present (see above). These types of plants could have been used to stuff the pillow. Unfortunately most of the plant remains present inside the coffin were too badly decayed for their identification to be certain. The presence of cushions or pillows stuffed with organic material or vegetation is known from other medieval burials, but they only survive in exceptional circumstances. A grass-filled pillow was identified in one of the medieval graves at St Peter's Church, Barton-on-Humber, Lincolnshire (Rodwell 1989, 171), and some burials at Glastonbury Abbey, Somerset, possessed pillows stuffed with wood shavings (Rahtz 1993b, 83, 88). Under the head of Archbishop de Gray (d 1255), who was buried in York Minster, Yorkshire, was a very

decayed, small embroidered cloth (probably linen) cushion about 12in (30cm) square (Ramm 1971, 129). Several examples of 13th-century cushions with woven, embroidered or knitted covers have been found in the royal tombs in the Abbey of Las Huelgas, near Burgos (Gómez-Moreno 1946, pls XXV, XXVI). The presence of a pillow under Anne's head is an intriguing possibility. If one was present then it must have been small and tightly packed, as this part of her coffin was close-fitting. A pillow might have been a measure of comfort or tenderness offered to the dead girl. There was no evidence for a wooden outer coffin when Anne's remains were discovered, so whether one had been provided originally is unknown.

In 2012 the rediscovery of Richard III's (d 1485) grave inside the choir of the former Franciscan friary church in Leicester, Leicestershire, revealed a royal burial of a quite different nature (Buckley *et al* 2013, 531; King *et al* 2014).⁹⁶ Richard's mutilated corpse appears to have been hastily interred with 'minimal reverence' in a grave that was too small for it, so his skull was upright. This haste may have been necessitated by the fact his corpse was already decomposing, as at least two days elapsed between his death in battle and his burial.⁹⁷ There was no evidence of any clothing, a coffin or even a shroud (Buckley *et al* 2013, 533). However, it would have been highly irreverent of the friars not to have wrapped Richard's corpse in a cloth shroud, which would have left no archaeological trace. The fact that Richard's wrists were crossed over his right pelvis has been misinterpreted as evidence that they may have been tied together (Buckley *et al* 2013, 535). During the medieval period some individuals were buried with their crossed wrists placed over their chest or pelvis in a position of prayer, as were Richard's; this was a sign of reverence (Gilchrist & Sloane 2005, 152). Richard III's completely untypical royal burial can be attributed to the unexpected manner of his death and loss of former status.⁹⁸

The discovery and subsequent investigation of Anne Mowbray's burial was undoubtedly of value to our understanding of the archaeology of death and burial during the late 15th century. The emergence of private, accessible vaults designed either for dynastic purposes or (as with Humphrey of

Gloucester) as statements of influence and piety appears to coincide with the formal use of external, visible depositum plates and with a wider use in elite circles of various methods for embalming. By the second half of the 15th century, the elite appear to have wanted their mortal remains to survive intact, named and identified, and indeed accessible (at least to some). This impression (and wanting further archaeological evidence, it is just that) seems to us to ask questions of a shift from the value accorded to the soul in previous centuries to that accorded to the individual. Such a shift is of great interest in the context of the growing strength of the Renaissance influence and potentially in the seismic events of the Reformation.

APPENDIX

Anne Mowbray: The Princess in the Press, Parliament and Periodicals

Bruce Watson and Geoffrey Wheeler

A catalogue of the UK press coverage, including articles in magazines, academic journals, together with published material and unpublished archive reports, all relating to the discovery and reburial of Anne Mowbray, Duchess of York, is available from the LAMAS website as a PDF file.

Contents

1. Commentary
2. Catalogue of Newspaper Articles and Hansard Entries
3. Catalogue of Journal or Magazine Articles and Items concerning Anne Mowbray
4. Catalogue of Books About Anne Mowbray
5. Catalogue of Museum of London Archaeological Archive Reports (LAA AMS 64) and Related Documents Concerning Anne Mowbray
 - Correspondence
 - Photographs
 - Draft Copies of London Museum Documents
 - Copies of London Museum Documents
 - Copies of Other Documents
6. Catalogue of Anne Mowbray Material Included in Books, Exhibition Catalogues *Etc*
7. Catalogue of Anne Mowbray Material Included in the *Paston Letters*
8. Catalogue of Anne Mowbray Material in the Wellcome Trust Records

ACKNOWLEDGEMENTS

1960s Research

Thanks to the Wellcome Trust for their support of the ‘Anne Mowbray Research Project’ and to both Perivale and Unilever Laboratories for their analytical services.

The research on Anne’s hair was carried out by the following team: Dr C B Baddiel, Dr M M Breuer, Mr F G Brown, Mr H L Frowde, Mrs D M Gabriel, Dr A W Holmes, Mr G G Jewell, Dr J A Jewell, Dr J A Swift and Mr I F Taylor, all of Unilever Research Laboratory, Isleworth; Mr A G Davison, and Mr F G Bailey of Unilever Research Laboratory, Colworth House; Mr E Segerman of Unilever Research Laboratory, Port Sunlight; Mr S G Whittington of Unilever Research Laboratory, Welwyn; Dr R F Coleman of the UK Atomic Energy Authority, Aldermaston, and Dr J M A Lenihan of the Western Regional Hospital Board, Glasgow, for assisting with the determination of trace metals by neutron activation analysis.

It is believed that the photographs reproduced as Figs 4 and 6–8 were taken by the late Arthur Trotman, Conservator, London Museum.

Research and Publication (1998–2015)

The authors wish to thank Cath Maloney of the Museum of London Archaeological Archive, Bob Mclean, Records Manager at the Wellcome Trust, and the late Professor Roger Warwick, for their assistance during our research. Thanks are also due to Caroline Wakeham, Herbarium, Library, Art and Archives of the Royal Botanic Gardens Kew, for supplying copies of the Anne Mowbray correspondence, part of which is reproduced by kind permission of the Royal Botanic Gardens. We have made extensive use of the research of the late Brian Spencer of the Museum of London, and also of the account of the discovery of Anne’s burial compiled by the late William Winmill. Thanks also to Dr Philip Lankester for his information on face cloths and other aspects of medieval funerary practice, to John Clark of the Early Department of the Museum of London (now Curator Emeritus) for his assistance during our research and his comments on earlier drafts of this article, to Geoffrey Wheeler for

supplying many of the details concerning the press coverage of Anne Mowbray’s discovery, and to the Society of Antiquaries of London for funding the production of the illustrations in 2009.

While this article was being drafted William (Bill) White FSA, formerly head of the Museum of London Centre for Human Bioarchaeology, passed away on 14 November 2010. This research was started by Bill during 1996–7 and we are very sad that he did not live to see it completed.

The London and Middlesex Archaeological Society is very grateful to the Richard III Society for providing a generous grant towards the cost of publishing this article.

Images

Figs 1–3 were produced by Louise Davis of the Museum of London Archaeology (MOLA) Drawing Office; Fig 8 was produced by the Museum of London photographic section.

johnwatson111@talktalk.net

NOTES

¹ Thames Basin Archaeological Observers Group (1957–69) of which Celoria was a leading member in the early 1960s. See Turner (1967, 131–5) for details of their Southwark fieldwork.

² The London Museum was established during 1911–12 in the state apartments at Kensington Palace. In 1976 it was amalgamated with the City of London’s Guildhall Museum to form the Museum of London.

³ Celoria stated in a letter to the Director of the Museum of London (4 October 1998) that ‘all the original [text of the draft publication] was stored safely at Keele’. As Celoria had formerly taught at Keele University, it was assumed that this was the location of this archive. On 27 February 2014 Helen Burton (Special Collections and Archives Administrator of Keele University Library) assured me that Celoria had not deposited any material with either their archive or with the History Department.

⁴ All the material relating to this subject held by the Museum of London is stored in the London Archaeological Archive (LAA), reference AMS 64.

⁵ Bill’s greatest coup was tracking down the Unilever Research Laboratory report on the

analysis of Anne's hair (Holmes 1965). By chance his inquiry ended up on the desk of one of the last remaining members of the team (he was about to retire), who just happened to possess what was almost certainly the only remaining copy of the analytical report in his personal files.

⁶ Latterly Spencer was Keeper of Medieval Antiquities at the Museum of London; he died in 2003.

⁷ Anne's father was the only child of John (VI) Mowbray, third Duke of Norfolk.

⁸ After the death of her father, the fourth and last Duke of Norfolk in the Mowbray line, Anne was Duchess of Norfolk in her own right.

⁹ The wording of this letter (no. 884) is quoted in the Appendix, section 7.

¹⁰ The wording of Sir John's letter is quoted in the Appendix, section 7. It mentions 'the Kynys sonne' (singular), which could mean that he expected Anne to marry the elder boy, Edward (b 1470).

¹¹ Granted by Pope Sixtus IV (1471–84). Anne and Richard were related: see family trees in Black (1840b, iv); Molleson (1987, fig 2). Cecily, Duchess of York, was Richard's grandmother, and her sister was Catherine, Duchess of Norfolk, Anne's great-grandmother. Both were also descended from Edward I, Richard from his first queen and Anne from his second.

¹² The summons to William Fitzwilliam of Sprotborough was published as a letter to the *Daily Telegraph*, 12 March 1965, by Earl Fitzwilliam of Milton Northants (see Appendix, section 2, for complete text).

¹³ William Fitzwilliam was knighted by Richard Duke of Gloucester on 22 August 1482 (Watson 2015, 59).

¹⁴ This chapel was very badly damaged by fire in October 1834, when almost all of the medieval palace was destroyed. The chapel was subsequently replaced by St Stephen's Hall. Only its much restored undercroft (St Mary's Chapel) survives (Bradley & Pevsner 2003, 212, 228).

¹⁵ After her marriage, Anne became the Duchess of York as her husband's title took precedence, hence the wording of her coffin inscription.

¹⁶ Anne's sister-in-law, Elizabeth (b 11 February 1466), was the eldest of Edward IV's children. She married Henry VII on 18 January 1486.

¹⁷ Produced by Universal Pictures. The theme of this film is the struggle for power and the kingship of England between 1471 and 1485. Reviewed in *Picture Show* 18 May 1940, see Appendix, section 3.

¹⁸ In 1473 Richard's elder brother, Edward, the Prince of Wales, had been given his own household at Ludlow Castle, Shropshire.

¹⁹ The foundation stone of Henry VII's Chapel or the new Lady Chapel was laid on 24 January 1502/3. It was completed in 1519 (Colvin *et al* 1975, 211; RCHM(E) 1924, 59, 62).

²⁰ *Volume of Heraldic and Historical Collections formerly belonging to Elias Ashmole*, fol 21 'The Names of all persons of Noble blood whom be buried in the monastery of the minorities', British Library (BL), Lansdowne MS 205/2.

²¹ Winmill's (nd) account of the discovery states that there was only one coffin inside the vault.

²² It has been claimed that in 1461 Edward IV had either secretly married or been betrothed to Eleanor Butler, a young widow. She was formerly Lady Talbot, daughter of the first Earl of Shrewsbury. She died in 1468, aged about 32 years. Edward IV and Elizabeth Grey were married in a private ceremony on or about 1 May 1464. Their marriage remained secret until September, when Edward IV was obliged to announce it at a Great Council meeting to put an end to the Earl of Warwick's negotiations for his marriage to Louis XI's sister-in-law, Bona of Savoy (Seward 1997, 32). Subsequently, Elizabeth received a grand coronation on 26 May 1465. The *Titulus Regius* Act of Parliament passed in January 1484 (1 Richard III) stated that Edward IV at the time of his marriage to Elizabeth Grey was already 'married and troth-pledge to one Dame Eleanor Butler' (for text see *Parl R*). 'It seems very unlikely that Edward ever did enter into a full marriage with Eleanor, and [whether or not] a precontract [betrothal] with her, which, once consummated could be valid as a marriage is also debateable. Few people in England believed this claim and most saw it for the pretext that it was' (Norton 2011, 141).

²³ *Titulus Regius* Act of 1484, declared that all the children of Edward IV and Elizabeth Grey were illegitimate because he was a bigamist and that the title of king should pass to Richard III (*Parl R*).

²⁴ John Howard's father, Sir Robert, had married Lady Margaret Mowbray, daughter of the first Duke of Norfolk. Another of the first Duke's daughters had married James Berkeley.

²⁵ The detail that Stow provides suggests that he had seen an indictment that no longer survives (Horspool 2015, 179).

²⁶ Henry Tudor (later Henry VII) is often referred to during this period as the Earl of Richmond, but he had been deprived of this earldom by Edward IV in 1462.

²⁷ In the November 1485 repeal of Richard III's (1484) *Titulus Regius* Act, he was accused of 'unnatural, mischievous and great perjuries, treasons, homicides, and murders, in shedding of infants' blood' (Seward 1997, 147). This repeal also restored the status of Queen Elizabeth (widow of Edward IV) and Henry VI. If Richard's nephews were the 'infants' in question, why were they not mentioned by name? Possibly because since the autumn of 1483 rumours concerning their murder had been circulating so 'there was no need, by this stage, to say who those infants were' (Wroe 2003, 70).

²⁸ Henry VII, before he married the princes' eldest sister Elizabeth, repealed the 1484 *Titulus Regius* (see above) to restore her status as a legitimate princess, which meant that if her two brothers were still alive this repeal would have also restored them to the succession, creating two dangerous Yorkist rivals for the crown.

²⁹ The Latin inscription on the marble sarcophagus in the north aisle of Henry VII's Chapel describes them as 'Edward V' and 'Richard, Duke of York' (Horspool 2015, 183).

³⁰ It has been wrongly claimed that Molleson's (1987) reassessment of the ages of these two juveniles 'proves' that they died during 1484 and therefore they were murdered by Richard III (*The Times* 21 May 1987; see Appendix, section 2, for details).

³¹ Recent requests for the re-examination of their skeletal remains including radiocarbon dating and DNA analysis have been turned down. 'Now DNA team turn to Princes in the Tower' *The Times* 5 February 2013; 'Why the Princes in the Tower are staying six feet under' *Guardian* 6 February 2013).

³² Winmill was the site agent or manager during ground works. He subsequently compiled the only available account of the archaeological discoveries.

³³ 'Mummy found on City site' *Evening News* 11 December 1964.

³⁴ 'Buccaneers pluck prince's child bride from her grave' *Sunday Times* 17 January 1965. Police Sergeant Charles Stockley's statement is quoted at length in Thorn 2007, i, 1.

³⁵ 'The discovery of Anne Mowbray's coffin was hailed last week as a big historical find. It might have been a disaster but for the ... pirate diggers' *Sunday Times* 17 January 1965. The mention of the 'Southwark Rescue Group' is probably a mistake and the correct title of the organisation concerned was the Southwark Archaeological Excavation Committee.

³⁶ This appears to be street level (*c.*14.8m OD), rather than the truncated ground surface level within the site during its redevelopment.

³⁷ This internal recess is shown in one of the press photographs: see *Evening News* 11 December 1964. It is also depicted in a cut-away model of the vault (LAA AMS 64, slide 287).

³⁸ The drift geology of the area consists of Pleistocene Thames terrace gravels, capped by Holocene brickearth.

³⁹ No stairs were recorded, therefore the access arrangements to the vault cannot be confirmed.

⁴⁰ These dimensions are taken from a sketch plan, which accompanied a letter dated 11 March 1965 by Dr Harden to S E Dykes Bower, Surveyor of the Fabric of Westminster Abbey, concerning the arrangements for Anne's reburial (copy in LAA, AMS 64; see Appendix, section 5).

⁴¹ See 'Remains of Prince's child bride found: married aged 5 in 1478' *Daily Telegraph* 15 January 1965.

⁴² Court Circular: 'Duchess's coffin lid on show at museum' *The Times* 18 January 1965. Anne's coffin lid formed part of a temporary display about her burial. In two hours it was seen by 500 visitors. It was pictured in the *Illustrated London News* 23 January 1965. Material displayed included a brick from her burial vault.

⁴³ Letter by Brian Spencer: the year is missing from the carbon copy, but it was probably written in *c.*1967–8. See LAA AMS 64 material in Appendix, section 5.

⁴⁴ 'Little Anne from 1481 lies here: scientist claims: we may reconstruct her face' *Daily Express* 16 January 1965. The pathologists named in the press release were Dr W I Carter, Governor of Hammersmith Hospital, an 'expert diagnostician and trained archaeologist', and Dr G A K (Tony) Missen, Consultant Pathologist at Guy's Hospital, Southwark (some details taken from Celoria 1964a). 'The leading London pathologist' was not actually named, but he was presumably Dr Missen. The forensic application of this technique was popularised by Dr W M Krogman in 1962 with publication of a section on 'Craniological image and analysis reconstruction' in his book *The Human Skeleton in Forensic Medicine*. Celoria (1964a, 2) listed as one of his initial research aims: 'to enable Mr Manchester to reconstruct face if possible for illustrations; he should rehearse technique beforehand with skulls.' See also LAA AMS 64 material in Appendix, section 5.

⁴⁵ There is a black and white image of a

painting depicting the head of a girl with shoulder length dark hair, in the LAA AMS 64 photographic archive (no. 254), which is believed to represent Anne (see Appendix, section 5). It bears the initials 'G M'.

⁴⁶ 'Examination of the bones might establish the child's blood group. This would be of great interest to geneticists, as she was related to many prominent people' ('Late call to Mowbray find deplored' *Daily Telegraph* 16 January 1965). See also LAA AMS 64 material in Appendix, section 5.

⁴⁷ 'A child bride: amazing find' *Evening Standard* 14 January 1965; 'Child brides as pawns of politicians' *Birmingham Post* 15 January 1965; 'Tower Prince: child wife found' *Daily Mail* 15 January 1965; 'City mummy gives up its secrets' *Evening News* 15 January 1965; 'Duchess turns up in Stepney' *Guardian* 15 January 1965; 'Stepney coffin contains a Duchess of York: child bride of prince killed in Tower' *The Times* 15 January 1965; 'Coffin gives up its medieval secret' *Yorkshire Post* 15 January 1965; and 'Little Anne from 1481 lies here' *Daily Express* 16 January 1965 (see Appendix, section 2, for details).

⁴⁸ 'Child bride: expert hits out' *Bolton Evening News* 15 January 1965; 'Royal coffin mishandled' *Oxford Mail* 15 January 1965; 'Late call to Mowbray find deplored' *Daily Telegraph* 16 January 1965; and 'Broken pelvis in Duchess's remains' *The Times* 16 January 1965.

⁴⁹ In 1878 the baronies of Mowbray and Segrave came out of abeyance in favour of the 20th Lord Stourton, who then became 23rd Lord Mowbray and 24th Lord Segrave. The 26th Baron, Charles Edward Stourton died in 2006 (obituary in *The Times* 3 January 2007).

⁵⁰ 'Lords question on Anne Mowbray' *Guardian* 11 February 1965; 'Peers perturbed at delay in reburial of princess' *Daily Telegraph* 12 March 1965; 'Lords rally to Anne Mowbray's side: early reburial sought' *The Times* 12 March 1965; 'Anne Mowbray must be reburied by May 15th' *Daily Telegraph* 14 April 1965; and 'Reburial date for child Duchess' *The Times* 14 April 1965.

⁵¹ 'Buccaneers pluck prince's child bride from her grave' *Sunday Times* 17 January 1965. This was the only article that mentioned the unrecorded destruction of the capital's archaeological heritage.

⁵² A letter published in *The Times* 23 January 1965 from Arnold Keen stated that a Home Office burial licence was required for Anne Mowbray's exhumation to be legal (see Appendix, section 2, for details).

⁵³ In 1965, it was a criminal offence under

Section 25 (the regulation of the exhumation of human remains) of 1857 Burial Act, to remove any human remains from their place of burial without a Home Office licence (Garratt-Frost 1992, 2). However, during the 1960s in cases of the accidental disturbance of human remains during redevelopment (opposed to deliberate attempts to move them) retrospective burial licences were routinely issued by the Home Office.

⁵⁴ Quoted in Thorn 2007, i, 12.

⁵⁵ See *The Times* 14 April 1965: 'Reburial date for child Duchess'; and editorial 'Poor little rich girl'. The latter is a lament on Anne's 'treatment' since her rediscovery, which summed up the prevailing press view on the situation: 'the less than teenage heiress ... might have been left to rest in peace. She was so until last December, when her leaded casket was roughly manhandled in a manner that, to put it mildly, was irregular. The remarkable story of how the proper authority, the Home Office, was for long left out of the picture was told last February by Lord Stonham in the Upper House. He was able yesterday to tell their Lordships of a happy sequel to this affair. The remains of the child after the pundits have finished their delvings will be interred in Westminster Abbey. What of serious historical or scientific value may have been achieved will be made public in an official report'.

⁵⁶ Letter by James Copland Thorn 1 June 1965, quoted in Thorn (2007, ii, 24–5).

⁵⁷ There is a memorial to Anne set into the floor of this chapel, which is normally concealed by the portable organ. Her memorial is a grey stone slab bearing the coats of arms of Mowbray, Brotherton and Richard Duke of York impaling Brotherton. The inscription reads: '1472 ANNE 1481; Daughter of John Mowbray Duke of Norfolk child wife of Richard; Duke of York second son of King Edward IV was originally buried near this place. On the rebuilding of this chapel in 1502 her coffin was removed to the church of Minors of St Clare, London on the site of which church it was discovered in 1964 and reburied here 31 May 1965' (Roberts 2014, 3).

⁵⁸ 'Child Duchess returns to abbey after 500 years' *Daily Express* 1 June 1965; 'Re-interment of Anne Mowbray in abbey' *Daily Telegraph* 1 June 1965; and 'Anne Mowbray reburied in the abbey' *The Times* 1 June 1965. A feature article in the *Observer* colour magazine (23 May 1965) by Paul Kendall was devoted to 'The world of Lady Anne Mowbray' (see Appendix, section 3, for details).

⁵⁹ Celoria, in a document written in December 1964 before the coffin was opened, outlined a comprehensive list of initial research aims covering the following topics: skeletal remains; non-skeletal remains including hair, human organs and tissue; organic remains, such as pollen, plant and insect remains; artefacts including textiles; environmental study of the coffin fill; and 'other features' which included the study of the coffin, conservation and publication of the project (Celoria 1964b). At this stage he clearly had not realised that the coffin was not airtight, so there was no survival of body tissue or organs. See letter of 8 May 1965 by Celoria to the Wellcome Trust in Appendix, section 8. Celoria in another letter dated 24 July 1966 mentioned that he sent the lead report 'back for improvements' (see LAA AMS 64 material in Appendix, section 5).

⁶⁰ This is evidenced by a remark in a letter by Celoria to Warwick in 1981, stating that 'Rushton jumped the gun' by publishing his material separately in 1965 (R Warwick, pers comm).

⁶¹ See LAA AMS 64 material in Appendix, section 5, for details.

⁶² There is no synopsis available of this intended publication, but the range of topics included in the 'Programme of scientific research on burial' are comprehensive: see undated typescript in LAA AMS 64, details in Appendix, section 5.

⁶³ Preserved hair is rarely found in archaeologically excavated burials and none of the other discoveries of medieval child hair within the UK have been analysed yet.

⁶⁴ No report is available on the cholesterol sampling; this information was obtained from Stafford (1971, 8).

⁶⁵ A wiping solder is one which has a low melting point and can be manipulated with a wiping cloth.

⁶⁶ 'Plumbonacrite is an old, alternative name for white lead which ... [was] applied to a lower (more basic) carbonate of lead'. ... Both the name and composition of this compound are, however, not yet universally accepted' (Harris 1966).

⁶⁷ The LAA AMS 64 archive includes two resin blocks containing short cross sections of the metal of the coffin.

⁶⁸ The available archive material on this topic is limited as there is no report on the shroud. This information was mainly obtained from Trotman's report and later correspondence between Trotman and Celoria; see LAA AMS 64 material in Appendix, section 5, for details.

⁶⁹ There are a number of samples of the shroud (MoL acc no. NN8520), another sample mounted on a microscope slide, plus three more mounted samples of textiles retained as part of LAA AMS 64 (box 5/5).

⁷⁰ 'Have you among your photographs a good shot of that strange pad or cushion under Anne's head. I have a feeling that I have missed something. My notes seem to imply that the cerecloth shroud did not go round any part of Anne's head i.e. no cowl effect. We did work at the beginning on the assumption that her face was uncovered but I still don't feel sure about this. ... I am guessing that the girl's face was not covered by the multi-layered cerecloth; a cloth kerchief was all she had on her face' (extract from letter from Celoria 24 July 1966, to Arthur Trotman, copy in LAA AMS 64: see Appendix, section 5); for a close-up of the 'wrapping under the skull' see LAA AMS 64, slides 355 and 356.

⁷¹ Hypodontia is the term most frequently used to describe the phenomenon of congenitally missing teeth (Fekonja 2005).

⁷² Their genealogy is outlined in Black (1840b, iv) and Molleson (1987, fig 2).

⁷³ Royal College of Surgeons of England Collection, no. 89.

⁷⁴ The figure for arsenic was determined separately by essentially the same technique.

⁷⁵ Antimony was considered to be an excellent blood purifier. Basilius Valentinus, a 15th-century canon of the Benedictine Priory of St Peter, Erfurt, Germany, who was also an alchemist, claimed to have treated a wide range of diseases with antimony (Internet Sacred Text Archive).

⁷⁶ All Anne's hair was reburied along with her other remains in 1965.

⁷⁷ LAA AMS 64, box 5/5.

⁷⁸ Doncaster's unavailable report was discussed in Stafford 1971, 6. Francis Stafford appears to have been a pen name of Celoria (he was then editor of this newsletter and lived in Stafford).

⁷⁹ The sample residues (glass mounted microscope slides) are held as part of the LAA AMS 64 archive (box 5/5).

⁸⁰ While Edward V was imprisoned in the Tower of London he was treated by the royal physician Dr John Argentine, 'probably for toothache, to judge from his skull' (Seward 1997, 144).

⁸¹ Ashdown-Hill is trying to confirm the identity of one of the 16 burials excavated in 1958 at the Carmelite priory in Norwich as Eleanor Butler, sister of the Duchess of Norfolk. One of the two oak coffin inhumations discovered was an adult female aged between 26 and 44 years

(CF2), apparently with osteological evidence of hypodontia and spina bifida occulta. See above, n 22 for further biographical details on Eleanor.

⁸² The remains of the Duke and Duchess of Clarence were cleared during the early 18th century, when the vault was reused by the Hawling family. However, some of the *ex situ* skeletal material stored in the vault may possibly represent the remains of the Duke and Duchess (Ashdown-Hill 2015b; Donmall & Morris 2003, 32–6).

⁸³ *Rainer* – fine linen made in Rennes, Brittany, France.

⁸⁴ College of Arms MS I.7, fols 7–8v, quoted in Sutton & Visser-Fuchs 2005, 33–4.

⁸⁵ The shape of the king's coffin is not recorded, but Henry Emlyn's two views of it implies that it was rectangular not anthropomorphic. There is no evidence that it was contained inside a wooden outer covering.

⁸⁶ Hair is shown attached to the king's skull in Emlyn's watercolour of the opened coffin: see Marsden & Nurse 2007, no. 71; or Sutton & Visser-Fuchs 2005, fig 20.

⁸⁷ A lock of the king's hair is held in the Society of Antiquaries collection (Marsden & Nurse 2007, no. 72). The Museum of London possesses a fragment of gold velvet removed from inside the coffin (A12146) (Tudor-Craig 1973, no. 135).

⁸⁸ Parts of the surviving cloth was likened to lace, which was not fashionable in England until the late 16th century.

⁸⁹ 'A "murder" probe on child bride Anne' *Daily Mirror* 16 January 1965. The theme was the search for Anne's wedding ring within her coffin.

⁹⁰ John 11: 43–4; 20: 6–7.

⁹¹ We are extremely grateful to Philip Lankester for this information, which is drawn from his unpublished research on face cloths in medieval burials. It is possible the purpose of the separate *sudarium* was to allow the face of the corpse to be exposed while it was laid out perhaps to confirm identification or for the benefit of the mourners.

⁹² In 1981 an excavation within the south aisle of the chancel of the priory church of St Bees, Cumbria, revealed an ashlar vault, which contained a decayed wooden, iron-bound coffin, packed with clay, which contained a sheet lead coffin. Inside the lead coffin was an exceptionally well preserved adult body complete with hair and internal organs on which an autopsy was carried out before reburial. This individual was a man aged 35–45 years, who had died a violent death. His body

had been wrapped in two thicknesses of linen shroud, sealed with a 'dark resinous substance', probably beeswax. He has been identified as Anthony de Lucy, last Lord of Cockermonth, who died in Prussia during 1386, which may explain the unusual nature of his burial (see Todd 2007). Human hair placed on his chest has been radiocarbon dated to c.1350–90 (Knüsel *et al* 2010, table 3). Later a female burial (aged 36–45 years) was inserted into the vault and this skeleton has been radiocarbon dated to c.1301–1407. This individual is believed to have been Lady Maud de Lucy (d 1398), sister of Sir Anthony (*ibid*, 288–306).

⁹³ The whole body apart from the forearms had been wrapped in cerecloth.

⁹⁴ See frontispiece in Nash (1789) for an engraving of the coffin and a copy of its inscription.

⁹⁵ Litten 1991, 92–3, includes a copy of the inscription.

⁹⁶ University of Leicester announces discovery of King Richard III (University of Leicester).

⁹⁷ Richard died at the Battle of Bosworth, 22 August 1485, and his remains were apparently not buried in Leicester Greyfriars until either 24 or 25 August (Ashdown-Hill 2010, 93; Buckley *et al* 2013, 520).

⁹⁸ It appears that until c.1494, Richard's grave was not marked by a tomb (Ashdown-Hill 2010, 97–104).

BIBLIOGRAPHY

- Anon, 1770 'An extract relating to the burial of Edward IV from an MS of the late Mr Antis, now in the possession of Thomas Astle' *Archaeologia* I (second edition 1779), 375–81
- Anon, 1870 *Liber Regalis, seu ordo consecrandi Regem solum. Ordo consecrandi Reginam cum Rege. Ordo consecrandi Reginam solam. Rubrica de Regis exequiis. E codice Westmonasteriensi editus* [by Earl Beauchamp], London
- Ashdown-Hill, J, 2001 'Norfolk requiem: the passing of the House of Mowbray' *Ricardian* 12, 198–217
- Ashdown-Hill, J, 2010 *The Last Days of Richard III*, Stroud
- Ashdown-Hill, J, 2015a *The Dublin King: The True Story of Edward Earl of Warwick, Lambert Simnel and the 'Princes in the Tower'*, Stroud
- Ashdown-Hill, J, 2015b 'Opening the Clarence Vault' *Curr Archaeol* 302, 30–4
- Ashdown-Hill, J, 2016a *The Private Life of Edward IV*, Stroud
- Ashdown-Hill, J, 2016b 'Hypodontia and the bones from the Tower of London' *Ricardian Bull* December, 36–7

- Ayloff, J, 1786 'An account of the body of King Edward the first as it appeared on opening his tomb in the year 1774' *Archaeologia* 3, 376–413
- Bann, S, & Whiteley, L, 2010 *Painting History: Delaroche and Lady Jane Grey* National Gallery exhibition catalogue, London
- Biddle, M, & Hudson, D, with Heighway, C, 1973 *The Future of London's Past: A Survey of the Archaeological Implications of Planning and Development in the Nation's Capital* Rescue Publication 4, Worcester
- Birmingham Post*, 1965– [see Appendix for details]
- Black, H W, 1840a 'Narrative of the marriage of Richard Duke of York with Anne Mowbray of Norfolk: the "matrimonial feast", and the grand justing, AD 1478' in Black (ed) 1840b, 94–104
- Black, H W, (ed) 1840b *Illustrations of Ancient State and Chivalry: From Manuscripts Preserved in the Ashmolean Museum*, London
- Bolton Evening News* 1965– [see Appendix for details]
- Bradley, S, & Pevsner, N, 2003 *London: 6, Westminster*, London
- Brothwell, D R, 1986 *The Bog Man and the Archaeology of People*, London
- Buckley, R, Morris, M, Appleby, J, Cooper, N, King, T, O'Sullivan, D, & Foxhall, L, 2013 'The king in the car park: new light on the death and burial of Richard III in the Grey Friars church, Leicester in 1485' *Antiquity* 87, 519–38
- Cal Pap L* 1471–84: *Calendar of Entries in the Papal Registers relating to Great Britain and Ireland: Papal Letters* vol 13, 1955, London
- Cal Pat R* 1476–85: *Calendar of Patent Rolls Edward IV, Edward V, Richard III AD 1476–1485*, 1901, London
- Carlin, M, 1987 *Historical Gazetteer of London before the Great Fire. St Botolph Aldgate: Minories, East Side: the Abbey of St Clare; Holy Trinity Minories* unpub typescript in Institute of Historical Research, London and MOLA Library
- Celoria, F, 1964a *Lead Coffin found in St Clare St Stepney on 11 December 1964* unpub typescript, Museum of London Archaeological Archive AMS 64
- Celoria, F, 1964b *Stepney Burial Procedure for Opening, Sunday 20 December 1964* unpub typescript, Museum of London Archaeological Archive AMS 64
- Celoria, F, 1966 'Burials and archaeology: a survey of attitudes to research' *Folklore* 77, 161–83
- Celoria, F, 1970 'The archaeologist and science' *Sci Archaeol* 1, 4–8
- Colvin, H M, Ransome, D R, & Summerson, J, 1975 *The History of the King's Works: Vol 3 Part I (1485–1660)*, London
- Cowal, L, Mikulski, R, & White, W, 2008 'The human bone' in I Grainger, L Cowal, D Hawkins & R Mikulski *The Black Death Cemetery, East Smithfield, London* MoLAS Monograph 43, London, 42–55
- Daily Express*, 1965– [see Appendix for details]
- Daily Mail*, 1965– [see Appendix for details]
- Daily Mirror* 1965– [see Appendix for details]
- Daily Telegraph*, 1965– [see Appendix for details]
- Donmall, M, & Morris, R K, 2003 'The bones in the Clarence vault' in R K Morris & R Shoemith (eds) *Tewkesbury Abbey: History, Art and Architecture*, Almeley, 31–40
- Duffy, M, 2003 *Royal Tombs of England*, Stroud
- Dyer, C, 1989 *Standards of Living in the Later Middle Ages: Social Change in England c 1200–1500*, Cambridge
- Ellis, R, 1985 'Excavations at 9 St Clare Street' *London Archaeol* 5, 115–21
- Evening News*, 1964– [see Appendix for details]
- Evening Standard*, 1965– [see Appendix for details]
- Eynde, G van den, & de Roode, F, (eds) 1996 *Het Onderzoek van d Grafkelder onder het Nassau-monument in de Grote of O L V Kerk te Breda*, Breda
- Fekonja, A, 2005 'Hypodontia in orthodontically treated children' *European J Orthodont* 27, 457–60
- Gairdner, J, (ed) 1986 *The Paston Letters* 6 vols (reprint of 1904 edition in a single vol), Gloucester
- Garratt-Frost, S, 1992 *The Law and Burial Archaeology* Institute of Field Archaeologists Technical Paper 11, Birmingham
- Gilchrist, R, & Sloane, B, 2005 *Requiem: The Medieval Monastic Cemetery in Britain*, London
- Giles, J C, (ed) 1843 'Appendix: usurpation of Richard III' in *The Chronicles of the White Rose*, London, 271–82
- Gómez-Moreno, M, 1946 *El Panteon Real de Las Huelgas de Burgos*, Madrid
- Goodall, J, & Monckton, L, 2001 'The chantry of Humphrey Duke of Gloucester' in M Henig & P Lindley (eds) *Alban and St Albans: Roman, Medieval Architecture, Art and Archaeology* British Archaeological Association Conference Transactions 24, Leeds, 234–6
- Guardian*, 1965– [see Appendix for details]
- Hammond, P W, & White, W J, 2000 'The sons of Edward IV: a re-examination of the evidence on their death and on the bones in Westminster Abbey' in P W Hammond (ed) *Richard III: Loyalty, Lordship and Law*, London, 121–70
- Hanham, A, (ed) 1975 *The Cely Letters 1472–1488* Early English Text Society 273, Oxford
- Hansard*, 1965 'Reinterment of Anne Mowbray remains' House of Lords debate 11 March vol 264 cc182–5, <http://hansard.millbanksystems>.

- com/lords/1965/mar/11/reinterment-of-anne-mowbray-remains (accessed 15 January 2017)
- Hargreaves, A S, & MacLeod, R I, 1994 'Did Edward V suffer from histiocytosis X?' *J Roy Soc Medicine* 87, 98–101
- Harris, H C, 1966 *The Metallurgy of the Lead Coffin of Anne Mowbray* unpub archive report by Perivale Laboratories, Museum of London Archaeological Archive AMS 64
- Holmes, A W, (compiler) 1965 *An Examination of the Hair from the Exhumed Body of Anne Mowbray* typescript of unpub illustrated report by Unilever Research Laboratory team, Museum of London Archaeological Archive AMS 64
- Horrox, R, 2004 'Richard, Duke of York and Duke of Norfolk' in H C G Matthew & B Harrison (eds) *Oxford Dictionary of National Biography* 46, Oxford, 713–14
- Horspool, D, 2015 *Richard III: A Ruler and his Reputation*, London
- Howes, E, 1631 *Annales of a General Chronicle of England began by John Stow: Continued and Augmented with Matters Foraigne and Domeftique, Ancient and Moderne unto the end this Present Yeere*, London
- Illustrated London News*, 1965– [see Appendix for details]
- Internet Sacred Text Archive, 'Basil Valentine: his triumphant chariot of antimony with annotations of Theodore Kirkringus (1678)' <http://www.sacred-texts.com/alc/antimony.htm> (accessed 16 December 2016)
- JHS, 1872 'Tomb of Henry IV in Canterbury Cathedral' *Archaeol Cantiana* 8, 294–9
- JPR: Joint Press Release, 1965 [joint press release on the Stepney Child Bride produced by the London Museum and Westminster Abbey] (release for 15 January 1965), Museum of London Archaeological Archive AMS 64
- King, T E, Fortes, G G, Balaesque, P, Thomas, M G, Balding, D, Deiser, P M, Neumann, R, Person, W, Knapp, M, Walsh, S, Tonasso, L, Holt, J, Kayser, M, Appleby, J, Forster, P, Ekserdjian, D, Hofreiter, M, & Schürer, K, 2014 'Identification of the remains of King Richard III' *Nature Commun* 5, article no. 5631 (2014) doi: 10.1038/ncomms6631, www.nature.com/articles/ncomms6631 (accessed 12 December 2016)
- Knüsel, C J, Batt, C M, Cook, G, Montgomery, J, Müller, G, Ogdan, A R, Palmer, C, Stern, B, Todd, J, & Wilson, A S, 2010 'The identity of the St Bees lady, Cumbria: an osteobiographical approach' *Medieval Archaeol* 54, 271–311
- Krogman, W M, 1962 *The Human Skeleton in Forensic Medicine*, Springfield
- Lewis, M E, 2007 *The Bioarchaeology of Children: Perspectives from Biological and Forensic Anthropology*, Cambridge
- Lisle, de L, 2013 *Tudor: The Family Story*, London
- Litten, J, 1991 *The English Way of Death: The Common Funeral since 1450*, London
- Marsden, B M, & Nurse, B, 2007 'Opening the tomb' in *Making History: Antiquaries in Britain 1707–2007* Royal Academy of Arts Exhibition Catalogue, London, 95–107
- Metcalf, C R, 1965 [Results of botanical sample identification summarised in letter of 5 July 1965] Royal Botanic Gardens Kew archive QG35 excavation file
- Molleson, T, 1987 'Anne Mowbray and the Princes in the Tower: a study in historical identity' *London Archaeol* 5, 258–62
- Molleson, T, 2002 'Anne Mowbray and the skeletons in the Tower' in P Bahn (ed) *Written in Bones: How Human Remains Unlock the Secrets of the Dead*, London, 151–4, 190–1
- Molleson, T, & Cox, M, with Waldron, A H, & Whittaker, D K, 1993 'The children' in *The Spitalfields Project: Vol 2, The Anthropology: The Middling Sort* Council British Archaeology Research Report 86, York, 145–55
- Nash, T, 1789 'Observations on the time and the death and place of burial of Queen Katharine Parr' *Archaeologia* 9, 1–9
- Northcroft, G, 1936 'A lantern lecture delivered at the opening of the new headquarters' *Brit Dental J* 60, 157–70
- Norton, E, 2011 *England's Queens: The Biography*, London
- Observer*, 1965– [see Appendix for details]
- Oxford Mail*, 1965– [see Appendix for details]
- Parl R: Parliament Rolls of Medieval England*, 'Richard III: January 1484' (eds) C Given-Wilson, P Brand, S Phillips, M Ormrod, G Martin, A Curry & R Horrox, 2005, Woodbridge, <http://www.british-history.ac.uk/no-series/parliament-rolls-medieval/january-1484> (accessed 20 December 2016)
- Penny-Mason, B J, & Gowland, R, 2014 'The children of the Reformation: childhood palaeoepidemiology in Britain' *Medieval Archaeol* 58, 162–94
- Picture Show*, 1940 'Review of *The Tower of London*' 18 May 1940, p 10
- Powers, R, 1988 'Appendix 4: a tool for coping with juvenile human bones from archaeological excavations' in W White *Skeletal Remains from the Cemetery of St Nicholas Shambles, City of London* London & Middlesex Archaeological Society Special Paper 9, London, 74–8
- Prior, J, Pettigrew, T J, Thomas, W J, Bruce, J, & Akerman, J Y, 1852 'Report of the committee appointed by the council of the Society of Antiquaries to investigate the circumstances attending the recent discovery of a body in St Stephen's Chapel, Westminster' *Archaeologia* 34, 406–30

- Rahtz, P, 1993a 'Mortuary procedures' in M Gray (ed) *The Trinitarian Order in England: Excavations at Thelsford Priory* British Archaeology Reports (British Series) 226, Oxford, 96–8
- Rahtz, P, 1993b *Glastonbury*, London
- Ramm, H G, 1971 'The tombs of Archbishops Walter de Gray (1261–55) and Godfrey de Ludham (1258–65)' *Archaeologia* 103, 101–47
- RCHM(E): Royal Commission Historical Monuments (England), 1924 *London Inventory Vol 1: Westminster*, London
- Reddan, M, 2007 'The Minoresses without at Aldgate' in C M Barron & M Davis (eds) *The Religious Houses of London and Middlesex*, London, 145–8
- Richmond, C, 2004 'Mowbray, John (VII), fourth Duke of Norfolk' in H C G Matthew & B Harrison (eds) *Oxford Dictionary of National Biography* 39, Oxford, 583–5
- Roberts, C A, 2009 *Human Remains in Archaeology: A Handbook* Council for British Archaeology Practical Handbook 19, York
- Roberts, M, 2014 *Lady Anne Mowbray the Most High and Excellent Princess: The Child Wife of a Prince in the Tower* (revised edition first published 2013), Scunthorpe
- Rodwell, W, 1989 *Church Archaeology*, London
- Rogers, J, & Waldron, T, 1986 'Anne Mowbray' *London Archaeol* 5, 232
- Röhrkasten, J, 2004 *The Mendicant Houses of Medieval London 1221–1539* Vit Regularis Ordnungen und Deutungen religiösen Lebens im Mittelalter, Abhandlungen 21, Lit Verlag, Münster
- Rushton, M A, 1965a *Anne Mowbray: The Teeth* unpub typescript, Museum of London Archaeological Archive AMS 64
- Rushton, M A, 1965b 'The teeth of Anne Mowbray' *Brit Dental J* 119, 355–9
- Seward, D, 1997 *Richard III: England's Black Legend*, London
- Spencer, B, c.1967 *Who was Anne Mowbray?* unpub manuscript, Museum of London Archaeological Archive AMS 64
- Stafford, F, 1971 'Insects of a medieval burial' *Sci Archaeol* 7, 6–10
- Stanley, A P, 1869 *Historical Memorials of Westminster Abbey*, London
- Sunday Times*, 1965– [see Appendix for details]
- Sutton, A F, & Visser-Fuchs, L, with Griffiths, R A, 2005 *The Royal Funerals of the House of York at Windsor*, London
- Tanner, L E, & Wright, W, 1934 'Recent investigations regarding the fate of the Princes in the Tower' *Archaeologia* 84, 1–26
- Thomas, C, & Watson, B, 2010 'The Mendicant Houses of medieval London: an archaeological review' in N Rogers (ed) *Harlaxton Medieval Studies* 19, Donington, 265–97
- Thorn, D, 2007 *The Discovery in 1964 of the Leaden Coffin of Anne Mowbray, Duchess of York and Norfolk, Vol 1; Anne Mowbray: The Forgotten Princess, Vol 2* unpub typescripts, Museum of London Archaeological Archive AMS 64
- Thorn, J C, 1981 'The burial of John Dygon, Abbot of St Augustine's, Canterbury' in A Detsicas (ed) *Collectanea Historica: Essays in Memory of Stuart Rigold*, Maidstone, 74–84
- The Times*, 1965– [see Appendix for details]
- Todd, J, 2007 'St Bees man and the medieval way of death' www.stbees.org.uk/history/stbeesman/stbees_man2_todd.html (accessed 9 December 2016)
- Trotman, A, 1966 *The Stepney Burial: The Conservation and Technical Considerations* London Museum unpub typescript, Museum of London Archaeological Archive AMS 64
- Tudor-Craig, P, 1973 *Richard III: Catalogue for Exhibition, 17th June–7th October 1973* National Portrait Gallery, London
- Turner, D J, 1967 'Recent excavations in Southwark and Lambeth' *London Natur* 46, 129–38
- University of Leicester, 'University of Leicester announces discovery of King Richard III' www2.le.ac.uk/offices/press/press-releases/2013/february/university-of-leicester-announces-discovery-of-king-richard-iii (accessed 9 December 2016)
- Warwick, R, 1986 'Anne Mowbray: skeletal remains of a medieval child' *London Archaeol* 5, 176–9
- Watson, B, 2013 'The princess in the police station' *Brit Archaeol* 130, 20–3
- Watson, B, 2015 'An invitation to the wedding of Richard, Duke of York' *Ricardian* 25, 55–9
- Webster, B, 2004 'Joan of the Tower' in H C G Matthew & B Harrison (eds) *Oxford Dictionary of National Biography* 30, Oxford, 136–7
- Werner, A, (compiler) 1998 *London Bodies: The Changing Shape of Londoners from Prehistoric Times to the Present Day* Museum of London exhibition catalogue, London
- Whittock, M, 2009 *A Brief History of Life in the Middle Ages*, London
- Williamson, H R, 1974 *Who was the Man in the Iron Mask? And Other Historical Mysteries*, London
- Winmill, W J J, nd *The Historical Finds (Medieval and Roman) Excavated from 14–18 St Clare Street, Minorities, EC3* unpub illustrated typescript, Museum of London Archaeological Archive AMS 64
- Wroe, A, 2003 *Perkin: A Story of Deception*, London
- Yorkshire Post*, 1965– [see Appendix for details]