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OFFICERS OF THE BRITISH BRICK SOCIETY

Chairman	Terence Paul Smith BA, MA, MLitt	Flat 6 6 Hart Hill Drive LUTON Bedfordshire LU2 0AX
Honorary Secretary Tel: 01494-520299 E-mail michael@mhammett.freemasonry.co.uk	Michael Hammett ARIBA	9 Bailey Close HIGH WYCOMBE Buckinghamshire HP13 6QA
Membership Secretary <i>(Receives all direct subscriptions, £7-00 per annum*)</i> Tel: 01732-358383 E-mail lapwing@tesco.uk	Keith Sanders	24 Woodside Road TONBRIDGE Kent TN9 2PD
Editor of BBS Information <i>(Receives all articles and items for BBS Information)</i> Tel: 01608-664039 E-mail: kennett_d@strat-avon.ac.uk (term-time only)	David H. Kennett BA, MSc	7 Watery Lane SHIPSTON-ON-STOUR Warwickshire CV36 4BE
Honorary Treasurer <i>(For matters concerning annual accounts, expenses)</i> and Bibliographer	Mrs W. Ann Los	"Peran" 30 Plaxton Bridge Woodmansey BEVERLEY East Yorkshire HU17 0RT
Publications Officer	Mr John Tibbles	Barff House 5 Ash Grove Sigglesthorne HULL East Yorkshire HU11 5QE
Enquiries Secretary <i>(Written enquiries only)</i>	Dr Ronald J. Firman	12 Elm Avenue Beeston NOTTINGHAM NG9 1BU

OFFICERS OF THE BRITISH ARCHAEOLOGICAL ASSOCIATION : BRICK SECTION*

Chairman	Terence Paul Smith	Address as above
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Cover Illustration

The offices of the Daneshill Brickworks at Basing visited by the society during the Autumn meeting in 2001 and the subject of one of the articles in this issue of *British Brick Society Information*. The offices were designed by E.L. (later Sir Edwin) Lutyens. They show every brick type produced by the brickworks.

Editorial: Liverpool Libraries

In the two weeks when this issue of *British Brick Society Information* was being put to bed, that is final editing was completed, the BBC broadcast a number of short films under the title 'Afoot in the Past', some repeated from items in an earlier series 'One Foot in the Past', not all of which the editor had seen before. Liverpool Libraries presented by the actress Jean Alexander, whose first job had been as a library assistant in Liverpool, was familiar but Whitehall Palace presented by the out-going Director of the Museum of London, Simon Thurley, was not: it was fascinating to see how the government buildings of Whitehall incorporate portions of Henry VIII's palace including the real tennis court. The game is still played, not merely at Hampton Court Palace but also in the specially built late-nineteenth-century courts on Blackfriars Road, Salford.

Miss Alexander's programme prompted the editor to look again at buildings in one of his favourite cities. She began with the Picton Library, the great stone-faced drum with its series of free-standing series of fluted Corinthian columns set between the earlier temple portico of Liverpool City Museum and the nearly contemporary Walker Art Gallery. Both the art gallery and the Picton Library are the work of Cornelius Sherlock, who if he did not use brick on the exterior, certainly employed the material for structural work internally.

Thomas Shelmardine became City Surveyor of Liverpool when aged twenty-six in 1871. His branch libraries belong essentially to the 1890s and all make extensive use of brick. Among the earliest is Kensington Public Library in Edge Hill, begun in 1890 and enlarged seven years later. The asymmetric design has a hooded entrance in stone, which has a quotation from Francis Bacon as the inscription:

Reading maketh a Full Man
Conference a Ready man,
and Writing an Exact man.

Everton Library, on St Domingo Road, stands on a triangular site, which is neatly closed by an octagonal turret in wide bands of red pressed brick and narrower bands of dark brick. The body of the building is under three gables of identical width, again faced with banded red brick and dark brick. The window pattern varies; beneath the northernmost gable, to the left of the entrance, is a full two-storeyed mullioned bay, whilst the southernmost is split into two separate floors. The ground floor and basement of the structure is faced in stone. When built in 1895-96, Everton Library cost £11,000.

Toxteth Library, not far from the Anglican cathedral, is more symmetrical than the other two. Built in an H-shape, it has two gabled wings each with a Venetian window set in a stone surround facing Windsor Street. The central panel of these, with the arched top, is much wider than the side portions, so as to allow as much light as possible to enter the reading rooms. Toxteth Library uses much less stone, merely a panel incorporating the arched door hood, in the recessed two-storeyed centre. It was opened in 1902.

Shelmardine's Libraries although they are small make an interesting comparison with those of his better-known contemporary, H.T. Hare, for instance the borough libraries of Hammersmith and Wolverhampton, and also the work of Arnold Thornley in Stafford.

Library building in Liverpool did not cease with Shelmdardine. The new estate of Norris Green was given a big, square, brown brick box by Lancelot Keay in 1938 which compares with contemporary buildings in east Oxford and Worksop. On its opening day, more books were issued at Norris Green than in any other new library of the inter-war years.

Everton Library stands on an interesting site, whose former use was noted at the opening ceremony:

the immediate vicinity [is] that formerly occupied by a beacon. This beacon guided vessels, richly laden with merchandise up the Mersey, and it is hoped that the building which has taken its place will guide the residents of Kirkdale and Everton to where the rich stores of knowledge lie.

And long may the public libraries of Liverpool and other cities, towns and villages in England, Wales and Scotland provide for their inhabitants access to the riches of the twin worlds of reading and knowledge.

This issue of *British Brick Society Information* was going to continue the account of 'Brick and its Uses in the Twentieth Century' with an article entitled 'Britain 1919-1939: Brick and Economic Reconstruction' the first of three on the uses of brick in the inter-war years. Due to unforeseen circumstances, completion of this article has been delayed and this will now form the principal contribution to *BBS Information*, 88, June 2002. It is quite long with several pages of tables and, with the accompanying editorial, therefore will occupy the majority of the pages of the issue in which it appears.

At various times in 2000 and 2001, the editor has received submissions of articles for use in future issues and in this issue of *British Brick Society Information* he has taken the opportunity in this issue to put into print pieces which have been in the files for some time.

James Campbell's relatively short article entitled 'The Myth of the Seventeenth-Century Pug Mill' in *BBS Information*, 86, December 2001, has aroused great interest. No fewer than five pieces have been received about early pug mills, including mentions of them in dictionaries, documents books and their representation on tiles. All of these are to be collected together for publication in a future issue of *British Brick Society Information*.

The editor is grateful to members who in December 2001 and January 2002 sent articles on other brick subjects for use in future issues of *BBS Information*. The current pile of contributions suggests that we have enough material for four issues of *BBS Information* in each of 2002 and 2003, although a fourth issue of *British Brick Society Information* in any one year is a bonus. It is hoped that any delays between submission of an article and its publication should not be excessive. Within the constraints of balancing articles on various aspects of the subject and making each issue fit a multiple of four pages, the editor does try to use articles roughly in the order of their submission.

One of the issues planned for later in 2002 will contain articles on historic bricklaying and it is hoped to have an issue on the uses of brick in churches in October 2003. Submission date for any additional articles on the subject of historic bricklaying is 31 July 2002; for articles for an issue on the uses of brick in churches, the date is 25 December 2002, although in the latter case actual texts can be sent up to 25 March 2003.

In the "box" - actually an in-try - are several articles on bricks and various aspects of transport, both their own and sundry uses therein. Road, canal and the complex at St Pancras, both the station and the hotel, are possible subjects for inclusion in a themed issue on bricks and transport, either late in 2004 or early in 2005.

DAVID H. KENNETT

Editor, *BBS Information*

Shipston-on-Stour, 24 February 2002

Dr Johanna Hollestelle: an appreciation

It was only belatedly that the British Brick Society learned of the death, in her home town of Arnhem in the Netherlands, of Dr Johanna Hollestelle on 19 May 2001. Dr Hollestelle had joined the British Brick Society soon after its formation in 1972 and remained a loyal member, sometimes managing to join us on our meetings if she was in Britain for other reasons. Most recently, she came to England specifically for the AGM held at the Ibstock works at Cattybrook, near Bristol, in June 1994, and joined us on the subsequent visit to Bridgwater. She was keen on all aspects of the history of bricks, including, for example, the special products used for flooring in maltings, whilst her 'Haardstenen', published in *Bulletin van de Koninklijke Nederlandse Oudheidkundige Bond* in 1959 remains the standard work on the too much neglected subject of decorative hearthbricks. But it is above all for her book, *De steenbakkerij in de Nederlanden tot omstreeks 1560*, first published in Assen in 1961 and re-issued in a second edition in Arnhem in 1976, that she will be remembered. Largely based on a full study of medieval documents from a number of Dutch towns, this work, at the time of its first publication, was the best study in any language of the medieval brickmaking industry. Forty years later the same is still true.

Dr Hollestelle was a gentle, kindly person, humble about her own achievements, who showed, too, a good, old-fashioned Dutch courtesy. Not for her the spurious intimacy of first names on early acquaintance. I had the pleasure of meeting her on a few occasions, but I remained *Mijnheer Smith* just as, to me, she was always *Doctor Hollestelle*. That in no way implied a lack of regard or friendliness and, I think, there was no occasion when we met that she failed to make me a small gift - sometimes of one of her own publications, sometimes of someone else's. A treasured possession is a booklet, *Shell-journaal van Nederlandse stadspoorten* by J.M. Fuchs and W.J. Simons (Rotterdam, 1978), which Dr Hollestelle gave to me in Utrecht in July 1993 when I was speaking on the related subject of Dutch town defences. The booklet was already hard to come by, even in the Netherlands, and her gift of it to me was symptomatic of her warmth and generosity.

Her publications remain as testimony to her hard work and to her profound knowledge of a subject which remained very dear to her. And personally it was a privilege to have known, albeit to have met only from time to time, such a human being as Dr Johanna Hollestelle.

TERENCE PAUL SMITH

BRICK GARDEN TOWERS AT ASHBY-DE-LA-ZOUCH CASTLE

Terence Paul Smith

In a previous issue of *British Brick Society Information*, David Kennett discoursed upon the topic of brick at play.¹ He was concerned principally, though not exclusively, with tiltyards insofar as these involved buildings in brick; but this aspect of brick history may be extended - as is done here under David Kennett's prompting - to include other instances of recreational buildings.

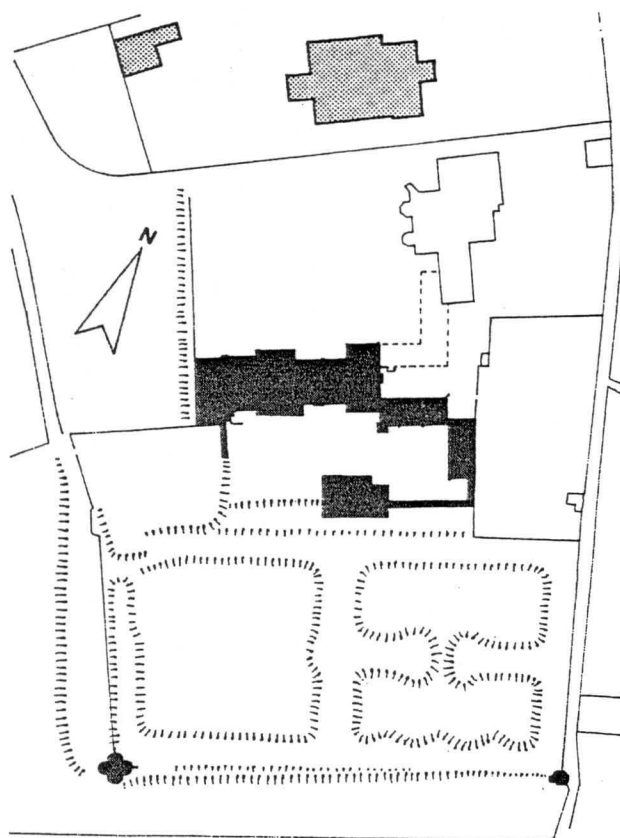


Fig. 1 Ashby-de-la-Zouch Castle, Leicestershire: top left (shaded) is the old grammar school and to its right (also shaded) is St Helen's Church. South of this is the castle, arranged around a rectangular courtyard with the late-fifteenth-century Hastings' Tower on the south side. South again is the area known as 'The Wilderness', with the two garden towers at its south-west and south-east angles. The large building between the church and the castle is the later grammar school (in outline).

Immediately south of Ashby-de-la-Zouch Castle, Leics., are the earthwork remains of a formal garden associated with the sixteenth-century domestication of the great medieval castle (fig. 1; in descriptions which follow it is assumed that north is at the top of figures 1 and 2). The archaeology of gardens is a relatively new subject, pioneered largely by Christopher Taylor during work with the Royal Commission on Historical Monuments.² Much of the work has

concentrated on the examination and recording of the earthwork traces of the gardens, which in the past have often gone unrecognised or have been mistaken for something else - medieval moats, for example. No such misrepresentation has affected the Ashby earthworks, whose purpose has long been understood, since eighteenth-century prints show that the western half contained a bowling green whilst ornamental ponds occupied the eastern half.³

The earthwork - known as the Wilderness - is rectangular with a bank or raised terrace all round and a north-south causeway dividing the rectangle into two square areas. That on the east - the former ornamental ponds - has bulbous-ended projections from each of the west and east terraces and a wavy-shaped southern side. Originally, the earthwork was walled, at least on the west, south and east sides, but of these walls all that survive are the two stubs attached to the south-west garden tower.

An engraving of 1730 by the brothers Samuel and Nathaniel Buck (fig. 3) shows a similar stub attached to the west side of the south-east tower stair turret, but all that now remains is the scar of this wall. The walls were of brick, as are both the garden towers, though they differ in size and planning.

THE SOUTH-WEST TOWER

The south-west tower is the larger of the two and has a quatrefoil plan some 33 ft (10m) across externally at its widest. The entrance is in the southern lobe and is of stone, partly repaired in modern brick, and with a four-centred arch-head. To its west - that is in the western face of the lobe - is a square-headed window of stone. There is a similar window in the west face of the western lobe. The eastern lobe has a brick fireplace at first-floor level, supported by a block of brickwork rising from the ground floor. A saltbox adjoins the fireplace. The Bucks' engraving of the castle shows a simple chimney of octagonal plan and with cap and base at the top of the lobe. In the northern lobe are the remains of a brick newel stair, although only the lowest steps remain: the edges of the treads are of bricks set on edge in the usual manner. Nothing remains of the newel-post. There is no sunken handhold, but a series of square or trapezoidal holes rises at a constant level above the treads and presumably supported a wooden handrail. There is no indication of how the steps were supported (but see below on the south-east tower). The stair rose clockwise and was lighted by a series of small stone-dressed windows or loops. The doorway from the stair to the main chamber has traces of a stone lintel; the doorway at second-floor level is entirely of brick. Windows lighting the upper stages are, or were, square-headed with mullions and transoms; they are concentrated on the western and southern sides of the tower. That at first-floor level in the south lobe was of four lights; at a higher level they were smaller and of two lights.

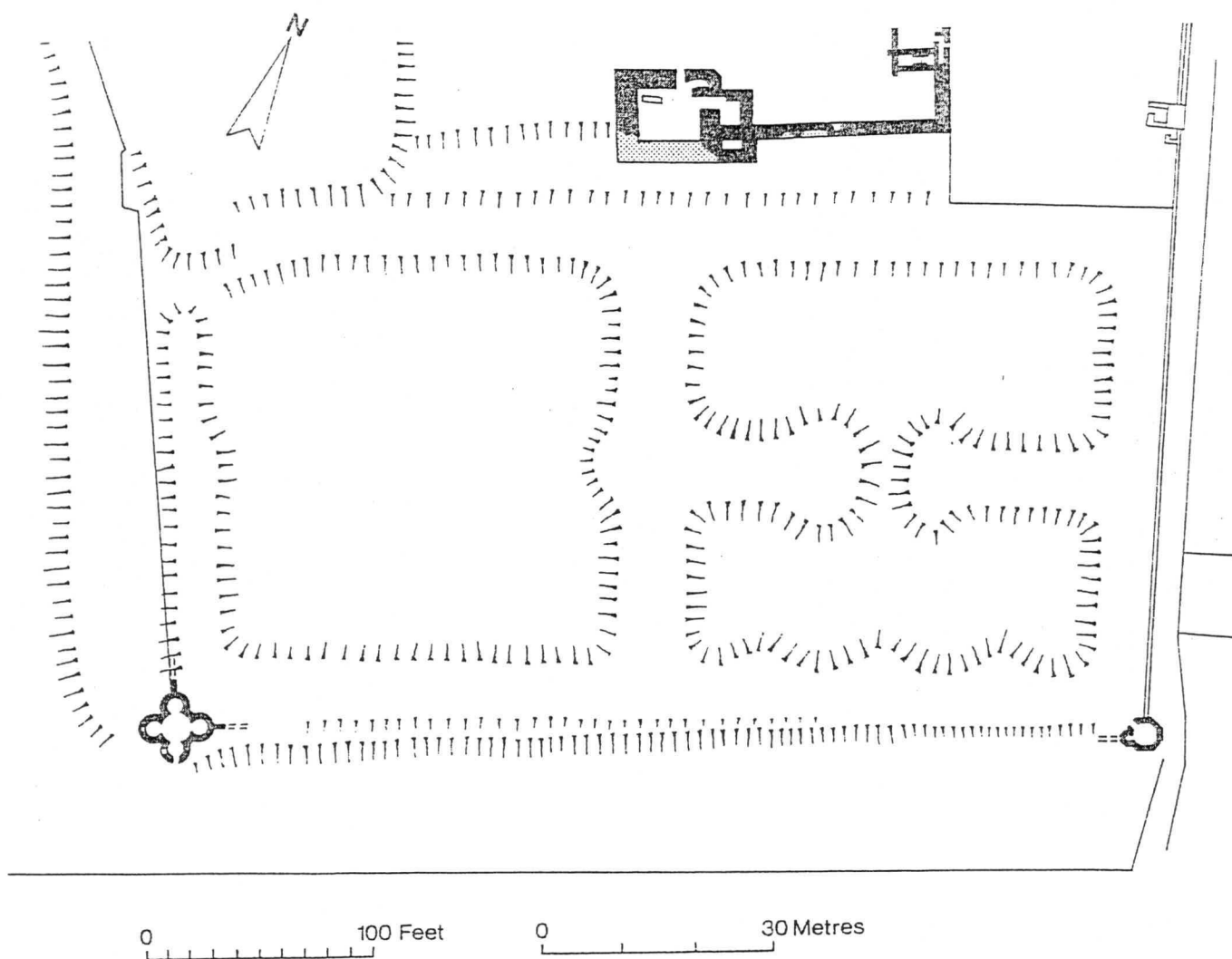
There is a slight external offset at second-floor level, corresponding to the internal ledge for supporting the floor joists. The first floor was also of timber, supported in joist-holes which remain, particularly in the east lobe. There are substantial traces of plaster in the stair-turret, but not elsewhere; odd holes in the brickwork may indicate that the walls were panelled.

The location of the former chimney makes it clear that there were never any more than the present three storeys, although the Bucks' engraving shows the staircase-lobe rising even higher, presumably to give access to the roof.

The tower is built of red bricks, measuring 7½-9 by 4 by 1¾-2 inches (190-230 by 110 by 45-50 mm), laid in English Bond.

THE SOUTH-EAST TOWER

The south-east tower is of only two storeys and is octagonal in plan with a half-octagonal stair-



ASHBY-DE-LA-ZOUCH CASTLE: THE WILDERNESS

Fig. 2 The Wilderness with the garden towers at the south-west and south-east angles.

turret attached to the west side. The main tower is some 17 ft (5 m) across. The entrance is in the north-west cant and is of stone with a four-centred arch-head, the spandrels carved with (?)oak-leaves. The main tower is octagonal internally as well as externally, and measures some 12 ft (3.5 m) across internally. There are joist-holes for the first floor, and a stone string at the top of that storey. The windows throughout are similar to those in the south-west tower. At first-floor level there was originally a corbelled-out fireplace in the south cant, clearly visible in the Bucks' engraving. Its head tapered towards a chimney-shaft at the top of the first-floor storey, indicating that the building never rose any higher; again, however, the Bucks' engraving shows that the stair-turret rose above the general level - once more, presumably, to give access to the roof. The stair-turret itself is semi-circular internally. There are brick steps with the edges of the treads of bricks set on-edge; the stair was carried on corbelled-out bricks, not on radiating arches or on a spiralling tunnel-vault which are the two usual methods. It runs clockwise. There is no indication of plastering, either in the stair-turret or elsewhere. The turret was entered through a stone doorway with a four-centred head; at first-floor level are brick chamfers (built up of squinchons) and the start of a brick arch. The stair-turret is lighted by small stone windows or loops.

The scars of the boundary wall may be seen in the west wall of the stair-turret and in the

north cant of the main tower. A modern wall replaces that originally running north from the tower.

FUNCTION AND PURPOSE OF THE TOWERS

Both towers probably date from the mid-sixteenth century as T.L. Jones suggests.⁴ Certainly the doorway and window forms are consistent with such a dating. If the Bucks' depiction of the chimney on the south-west tower is reliable, then this, with its simple form, would suggest a date not earlier than the middle years of the century. Both towers are similar in detail, although their different plan-forms and, more particularly, the differently-sized bricks may indicate that they were not exactly contemporary; but it seems unlikely that they are widely separated in date.

The stair construction may have been the same in both towers, although too little survives in the south-west tower to make this certain, and the different sizes of the two towers may possibly suggest that the south-west tower had a more elaborate stair. The construction of the stair in the south-east tower, as already noted, differs from the more usual types of construction; it also differs from the shallow vault type at Hatfield Old Palace (c. 1480-90) and from the flat 'vault' type in the gatehouse of Castle Acre Priory, Norfolk, (c. 1500).

The different plan-forms and very different sizes of the two towers suggest that their purposes too were different and it is presumably significant in this respect that the south-east tower was entered from *within* the boundary wall of the Wilderness, whilst the south-west tower was entered from *outside* that wall - though presumably there was a convenient gate in the

boundary wall itself. Even more significant is the fact that the windows of the south-east tower look *into* the Wilderness, whilst those of the south-west tower look *away* from it, towards the south and west. To these considerations may be added the fact that the south-west tower is better appointed, with a saltbox adjoining the first-floor fireplace and, possibly, panelled walls.

The south-east tower was probably, therefore, a 'pleasance', where one could sit and look out over the ornamental ponds in the eastern half of the bounded garden. The presence of a fireplace presumably means that such use was not confined to fine weather only.

The south-west tower, on the other hand, is much less intimately connected with the Wilderness - in fact, turning its back on it. The fact that the stair lobe rose higher than the rest means that even from the accessible roof of the tower, it would not have been possible to watch activities on the bowling green in the western half of the bounded area. All this suggests that the tower was more of a hunting lodge, looking out across the terrain to the west and south and providing a vantage point - from within through the large windows or from the roof - from which to view the chase. The presence of a fireplace again indicates no limitation to fine weather.⁵ But in addition, the better appointment of this tower, and in particular the presence of a saltbox, suggests that it could also double as a temporary dwelling or 'sweeping house' during 'secret house', as it was called in the sixteenth century - that is, the annual cleaning of the main house. Certainly the "fair tour of brike for a logge yn the park" at Leconfield, Yorkshire East Riding, thus described by John Leland in the 1530s, was used in precisely that way.⁶

There are not many of these small garden towers of the period, although a few are known.⁷ Sometimes they display a degree of playfulness in their planning, particularly in the quatrefoil plan of the south-west tower at Ashby-de-la-Zouch. They are an aspect of brick at play which has received rather little attention - and deserves more.

Notes and References

1. D.H. Kennett, 'Brick at Play', *BBS Information*, 51, December 1990, 15-20.
2. Christopher Taylor has provided a useful introduction to the subject in C. Taylor, *The Archaeology of Gardens*, Princes Risborough: Shire Publications, Shire Archaeology 30, 1983.
3. T.L. Jones, *Ashby-de-la-Zouch Castle, Leicestershire*, official guide, London; Ministry of Works, 1953, and subsequent editions, pagination differs from edition to edition; there is a triangular summerhouse of stone some way to the east of the Wilderness: see N. Pevsner, *The Buildings of England Leicestershire and Rutland*, Harmondsworth: Penguin Books, first ed., 1960, 53; 2nd edn., revised E. Williamson with G.K. Broadwood, London: Penguin Books, 1984, 83.
4. Jones, 1953, or later editions.
5. In the fifteenth century the brick-built Tower-on-the-Moor at Woodhall Spa, some 4 miles north of Tattershall Castle, Lincs., perhaps served as a hunting lodge: J.A. Wight, *Brick Building in England from the Middle Ages to 1530*, London: John Baker, 1972, 306. For a definite hunting lodge of brick of the fifteenth century see T.P. Smith and D.H. Kennett, 'Drayton Lodge: a Fifteenth-Century Hunting Lodge near Norwich' in preparation.
6. L.T. Smith (ed.), *The Itinerary of John leland in or about the Years 1535-1543*, London, 1909, reprinted London: Centaur Press, 1964, Vol. 1, p.46. M. Girouard, *Life in the Country House: a Social and Architectural History*, New Haven CT and London: Yale University Press, 1978, pp.76-77.
7. For example at Roydon Hall, East Peckham, Kent, and Hales Place, Tenterden, Kent: N. Lloyd *A History of English Brickwork* ..., London, 1925, re-issued Woodbridge: Antique Collectors' Club, 1983, pp.83, 321, 322; at Melford Hall, Long Melford, Suffolk: G. Mott, *Follies and Pleasure Pavilions*, London: Pavilion, 1989, p.83; at Basing House, Old Basing, Hants., seen by members during the meeting held on 21 July 2001; and (slightly later in date) at The Summerhouse, Eytton-on-Severn, Shropshire, *ex inf.* D.H. Kennett.

SEVENTEENTH-CENTURY BRICKLAYERS' CONTRACTS: WREN'S CITY CHURCHES

James W.P. Campbell

INTRODUCTION

The Great Fire of London started on 2 September 1666 and burned for four days. By 6 September most of the City of London within its medieval walls had been destroyed including some 13,200 houses¹ and eighty-six of its one hundred and six churches.² Rebuilding the City was of utmost importance and the Crown and the City set about the task as quickly as possible. In 1670 a tax was levied on coal to fund the rebuilding of St Paul's Cathedral and the repair and rebuilding of the city churches and a commission was created to oversee the distribution of this money. One of the first acts of this commission was to appoint Dr Christopher Wren as its architect.

Over the next thirty years, fifty-one churches were rebuilt with Wren and his office responsible both for their design and the supervision of their construction. As he was required by the commissioners, Wren dutifully kept a record of the building contracts in two modest quarto books which survive in the Guildhall Library (MSS 25 542 volumes 1 and 2). These provide vital clues to the nature of bricklaying practice in England at the time.

Late-seventeenth-century London was a hive of building activity. Evidence suggests that the ancient guild rules that had sought to control the supply of building craftsmen had been in decline before 1666, but after the Great Fire they were finally and unceremoniously swept away. The rebuilding of the city required a huge influx of labour from outside the metropolis and created a climate in which jerry building proliferated. All parties regularly sought legal redress and in such a litigious climate there was an inevitable increase in both the frequency and the complexity of building contracts.

SURVIVAL

On making their first contracts with the church commissioners the craftsmen signed an affidavit at the beginning of the book stating that they understood the contract they were entering into was with the church commissioner and not with Wren personally or its officers, who in turn could not be held in any way financially responsible for the outcome. The resulting list provides us with a useful set of signatures for the craftsmen involved, showing that most were literate. There were, however, exceptions, the most notable of which was John Fitch, one of the most important bricklayers in the capital, who signed with his mark. The individual contracts were entered under the church in question and each was then signed at the bottom. The entries in the books represent the office copies. The craftsmen no doubt took away duplicates for their own reference.

The City Church contracts are by no means complete. Although the entries in the book are original, there are obvious omissions both in brickwork contracts for individual churches and from churches which are completely unrepresented. Missing contracts are difficult to justify because there is no obvious pattern. Earlier contracts are not much better represented than later ones so it cannot be the case that contracts were initially entered carefully and that, in time, this was done less scrupulously. One possible suggestion is that the books only contain contracts actually made in the office. According to this theory, if a contract was drawn up outside the office, for whatever reason, it would have been made on two separate pieces of paper. One copy

would have been kept by the craftsman while the other would have been returned to the office, but the returned contract would be loose rather than bound in the books and, although doubtless they were kept together, the detached copies were easily lost. A loose copy of a contract which might be used as evidence of this practice is currently inserted in the MS 25 542/2. It is, of course, equally possible that many of the contracts that do not survive never existed. In these cases work had simply proceeded without them, on "gentlemen's agreements". Whatever the case the number of surviving City Church contracts is disappointingly low. Of the fifty-one churches rebuilt in the period only seventeen contracts mentioning brickwork or bricklayers survive. It is important to remember, however, that most of the churches were built in stone or at least were stone-faced (see list in Appendix 2). Of those which were outwardly of brick (listed in Appendix 1), all but three contracts survive.³ All the surviving contracts for brickwork are summarised in Tables 1 and 2.

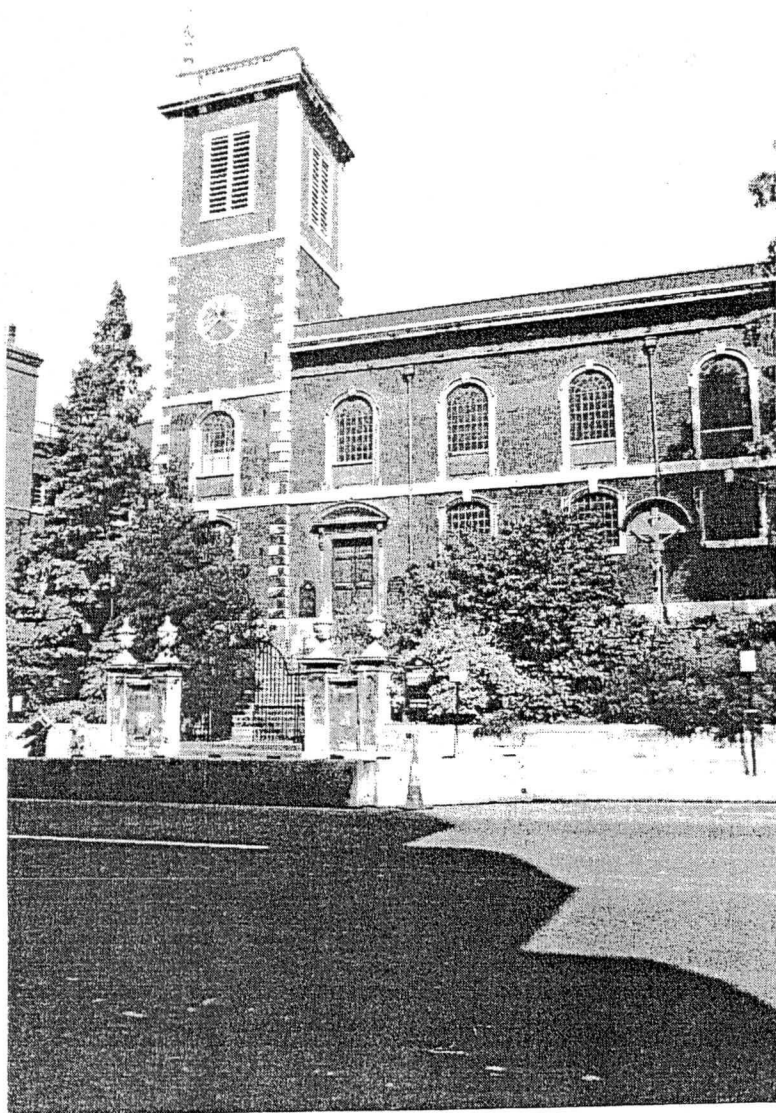


Fig. 1 St Andrew-by-the-Wardrobe has a contract of 1685 with Thomas Harris.

Church	Date	Work	Craftsman	Ms.Ref.
All Hallows Bread Street	5 August 1671	Brickwork on neighbouring dwelling	Edward Goodman	25 542/2 p.12
St Andrew-by-the-Wardrobe	15 October 1685	Brickwork of the church and tower	Thomas Harris	25 542/2 p.56
St Benet Fink	13 December 1670	Brickwork of the church	Nicholas Wood	25 542/1 p.210
St Edmund the King	16 August 1670	Brickwork of the church	Morris Emmett the younger	25 542/2 pp.85-86
St James Garlickhythe	1 August 1677	Brickwork of the church	Thomas Warren	25 542/2
St Mary Abchurch	17 May 1681	Brickwork and tiling of the church	John Bridges	25 542/2 p.141
St Mary-le-Bow	n.d.	Brickwork of the church	Anthony Tanner	25 542/1 p.26
St Michael Wood Street	10 April 1671	Brickwork on the south side of the church	Joseph Lemme	25 542/1 p.237
St Anne and St Agnes	8 March 1676/7	Carpentry and Brickwork*	John Fitch	25/542/1 pp.111-112
St Michael Bassishaw	10 May 1676	All Work*	John Fitch	25 542/1 pp.181-185

Table 1 Surviving Bricklayers' Contracts from the City Churches
Note: * indicates work by Great including Bricklayers' work.

It will be seen that a number of brick buildings are omitted from Table 1. This is because the brickwork was not carried out by bricklayers but by stone masons. This discovery, that stone masons were actively involved in bricklaying in the late seventeenth century is one of the most important facts to emerge from examination of the City Church contracts.

In his *Mechanick Exercises*, Joseph Moxon had begun by saying:

Whether the White Mason, which is the Hewer of Stone, or the Red Mason, which is the Hewer of Brick, be the most Ancient, I know not; but in Holy Writ, we may read of the making of Brick before we read of Digging or Hewing of Stones; therefore we may suppose the Red Masons or Bricklayer to be the most ancient.⁴

This identification of red and white mason is unusual and does not appear elsewhere, but if in Moxon's time - the book was published in 1703 - the distinctions were particularly blurred perhaps it is not so surprising. Table 2 lists the mason's contracts which specify brickwork. Most notable in the list of buildings of this type is St Benet Paul's Wharf, a church built entirely in brick.⁵ Bricklayers also undertook tiling work in the seventeenth century and one contract survives for this, (see Table 3).

Church	Date	Work	Craftsman	Reference
All Hallows Bread Street	n.d.	Mason's work in rebuilding the church	Samuel Fulkes	25 542/6 p.6
St Antholin Budge Row	n.d.	Mason's work on the church	Thomas Cartwright	25 542/2 pp.107-108
St Augustine Old Change	n.d.	Mason's work on the church	Thomas Strong	25 542/2 pp.124-125
St Benet Paul's Wharf	n.d.	Mason's and bricklayer's work	Thomas Strong	25 542/2 p.99
St Clement Eastcheap	n.d.	Mason's work on the church	Edward Strong	25 542/2 pp.159-161
St Lawrence Jewry	6 December 1671	Stone and brickwork of the tower	Edward Pearce	25 542/1 pp.200-201
St Stephen Coleman Street	n.d.	Brickwork in the bonding courses within stonework	Joshua Marshall	25 542/2 pp.14-15

Table 2 Stone Masons' Contracts containing brickwork clauses.

Church	Date	Work	Craftsman	Reference
St Michael Queenhithe	n.d.	Tiling of the roof of the church	Thomas Warren	25 542/1 p.173

Table 3 Contracts for tiling works carried out by bricklayers.

BASIC FORM OF THE CONTRACTS

All contracts which were entered in the City Church contract books share a similar basic structure: so masons' contracts and carpenters' contracts have features in common with bricklayers' and glaziers' contracts. All the contracts start with an opening paragraph naming the parties, the craft and the church involved. This is virtually always of a standard form. A typical example is the opening paragraph of the contract for brickwork for St Mary Abchurch:

1681 May 17 Item. It was agreed by the Rt Hon.^{ble} the Com^{ers} appointed by Act of Parl^t for rebuilding the Parochiall Churches or with John Bridges Cit. & Bricklay^r to rayse & rebuild the walls of the Church of Abbchurch in the manner following & for the rates and prices herein expressed.⁶

In every contract there follows a section of variable length listing the types of work to be carried out and the appropriate costs. Most items are listed "by rate", i.e. with a measure and a price for each unit, for example rods of brickwork at 2s. 6d. a rod.⁷ Some items are listed with a price for

that item in which case a detailed description of the item in question is usually given. An ornamental doorcase might be listed in this way, but it is less common in brickwork.

The contracts end in a variety of ways. the simplest is with a signature after the final rate. Sometimes other stipulations are added. In masons' and carpenters' work it is common to find a clause stating that the instructions of drawings of Sir Christopher Wren and his servants must be followed. More rarely a clause is added giving a date by which the work must be completed. Sometimes the contracts are witnessed.

LENGTH

The number of different prices and rates determines the length of the contract, varying from half a page to four or five pages. A typical brickwork contracts takes up about a page. Contracts for masonry and carpentry are slightly longer, averaging two to three pages, while those for plumbing, painting and glazier's work are usually shorter (averaging about half a page).

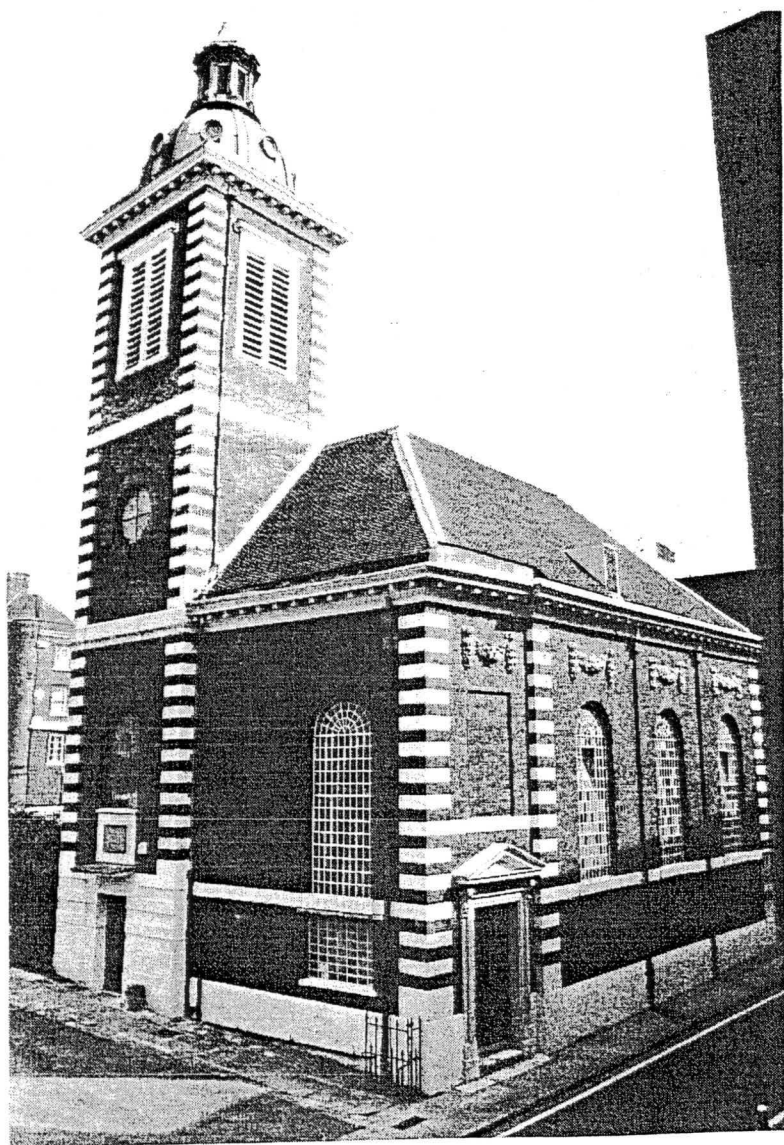


Fig. 2 St Benet, Paul's Wharf, where Thomas Strong was contracted to do both mason's and bricklayer's work at an unknown date. The church was consecrated in 1684.

NOTABLE OMISSIONS

Like all good building contracts, the City Church contracts aimed to ensure a level of quality in the end result. In brickwork contracts this was limited to stipulating the type of brick to be used and specifying the mix for the mortar. Other things which would seem crucial to us today were not mentioned. There is, for instance, no reference to types of "bonding" in the contracts. Some churches were built in Flemish bond⁸ and others in English⁹ but it does not seem to have been thought necessary to stipulate this in the contract.

Likewise although there are frequent instructions that the brickwork should be done "well and workmanlike" there are no references to the sizes of bricks or depths of courses. Such matters were taken as read or ordered directly on site.

COMMON CLAUSES

Common clauses cover such matters as wall construction, brick types, mortar, vaulting, and rates and prices.

WALL CONSTRUCTION

Walls in City Churches rebuilt after the Fire were made up in various ways. Stone walls were usually made up of two skins of ashlar and a central core of rubble taken from the ruins of the original church. Such walls might be bonded at intervals with brick courses. This was the form of construction used at St Edmund the King. If ashlar was not required the rubble walls might be faced with brick, as was the case at St Michael Bassishaw:

The walls of the Church to be taken downe to ye old pavement, the rubble to be sorted and screened, & ye walls to be rebuilt with stock bricks on all the outsides, & the coare with the sd rubbish in courses of two foot & a halfe or there abouts, and upon every such course to be bonded with good clamp bricks in 4 courses, the jambes of ye windows to be rubbed and gaged.¹⁰

Alternatively, of course, the walls could be solid brick, as is the case in churches like St Benet Paul's Wharf (fig. 2).¹¹

BRICK TYPES

No contracts survive for the making of bricks for the City Churches. the bricks were invariably supplied by the bricklayers themselves, presumably predominantly purchased from merchants in the City. "Stock" bricks were universally specified for external work, often with added stipulation that they should be "well-burnt" and not "samel". The sources of such bricks are never mentioned. Bricks for rubbing and gauged work are not specified separately. Samel (under-fired) bricks might be forbidden for external work, but their use on the inside of walls was not specifically ruled out.

MORTAR

Mortar, where specified, was normally only required to consist of "good" lime and "sharp" sand "well made up". The use of rubble from the ruins in mortar seems to have been controversial. In the contract for St James Garlickhythe the use of "skreened rubbish" in the mortar is expressly forbidden on outside walls, but in the contract for St Michael Wood Street it is only stated that a "good proportion of sharpe sand" must be included with it when mixing, while in the contract

for St Edmund the King the mortar was to be "one part lime and two parts of Screened Rubbish". The contract for St Benet Fink, the only one to provide mortar proportions, specifies that the mix of lime to sand of 1:2 must be used.



Fig. 3. St Mary Abchurch was one of the churches which avoided damage in World War II. For an illustration of rather drastic re-pointing see fig. 4. John Bridges signed a contract for the brickwork and the tiling on 17 May 1681.

VAULTING

The ceilings of Wren churches were usually vaulted in timber and plaster, but windows and crypts required arches or vaults of brick. A number of contracts specify brickwork for vaulting providing two standard stipulations

- ◆ That the walls of the vaults should be a brick and a half thick.
- ◆ That the centre part of the vault "next the Crowne should be all heading bricks".

The contracts for St Benet Fink and St Mary-le-Bow (fig. 5) specify that the "fourth part of the diameter next the Crowne" should be laid in this way. The bricklayers were expected to find scaffolding for vaulting work but not the centering.

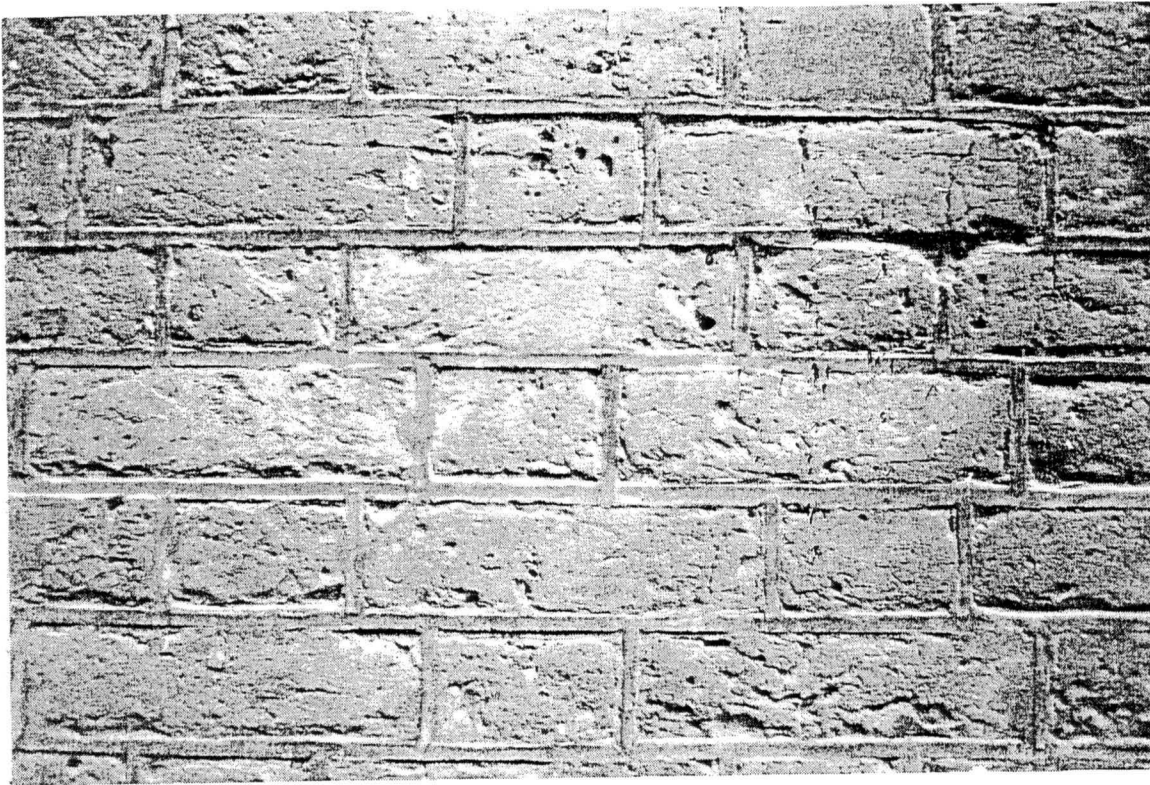


Fig. 4 St Mary Abchurch showing the rather drastic re-pointing of the seventeenth-century brickwork in a recent re-furbishment of the exterior.

RATES AND PRICES

Bricklaying contracts provide useful information on late-seventeenth-century building costs. Typically, brickwork on the City Churches seems to have been paid for with the bricklayer "finding all Materials, Scaffolding, workmanship [and] Labour". This meant that rates were higher than would have been the case for labour alone to take into account these items. Virtually all work on the City Churches was carried out "by Measure", the craftsmen being paid periodically according to the amount they had completed. On other projects in the period it was not uncommon to pay workmen by the day and provide the materials, but such a system was open to abuse. The modern system of carrying out work for a single lump sum paid in stages ("By Great") was used in the seventeenth century, but does not seem to have been commonly applied to brickwork.

The standard measure of brickwork was the rod, which was 272 square feet of wall, assuming a wall one-and-a-half bricks thick. Walls of other thicknesses had to be "reduced" to their equivalent volume in one-and-a-half brick thick walls, a fact that was almost always stipulated in the contracts even though it was common practice at the time. The difficult calculations involved in this and all the other pricings were done by a "Measurer". These individuals, whose existence is rarely noted, were specialists with a strong mathematical background who were called on site periodically to measure the work and were predecessors of the modern quantity surveyor.

Rubbed and gauged brickwork was more expensive and was priced "by the foot". The contracts for St Edmund the King, St Michael Bassishaw and St Michael Wood Street explicitly state that "per foot" is "running measure" rather than square feet. This was presumably the

normal practice for measuring gauged work, but some care needs to be taken in interpretation as square feet (normally referred to as "per foot superficial measure") were also used at the time for measuring many sorts of work.

Prices included in the contracts are summarised in Table 4.

Work	Churches	Rates
Ordinary Brickwork	St Mary Abchurch St James Garlickhythe St Andrew Wardrobe St Michael Bassishaw St Benet Paul's Wharf	£5 5s. 0d. per rod
Ordinary Brickwork	St Mary-le-Bow St Michael Wood Street St Edmund the King St Benet Fink	£5 10s. 0d. per rod
Ordinary brickwork in the tower	St Andrew Wardrobe	£5 8s. 0d. per rod
Ordinary brickwork in "Coines and Arches or fascias"	St Michael Wood Street St Edmund the King	9d. per foot "running measure"
"Fascias and any plaine rubbed and gaged work"	St Mary Abchurch	10d. per foot
Various types of rubbed brickwork all specified and priced according to complexity	St Michael Bassishaw	Between 8d. and 6s 0d. per foot
"Plaine vaulting"	St Benet Fink St Mary-le-Bow	£5 15s. 0d. per rod
Tiling	St Michael Queenhithe	£1 18s. 0d. per sq.(100 sq feet)
Tiling	St Mary Abchurch	£2 0s. 0d. per sq. (100 sq.feet)

Table 4 Prices of Bricklaying Work

ENDNOTE

The contracts of the City Churches raise a number of issues that warrant further research. Some things are clear: stone masons played a part in bricklaying which has not been hitherto noted or discussed; bonding seems to have been relatively unimportant to the architect as does the exact source of the bricks to be used; and there seems to be remarkable agreement in the rates paid to bricklayers over several decades. The part played by the architect in the overall process is less apparent and this can probably only be determined by looking beyond the contract.

How typical were the City Church contracts? This is the major question that remains to be answered. Many contracts for brickwork will no doubt survive for private houses, mostly now in county record offices. I would be most interested to hear from anyone who has come across any brick contracts from the seventeenth and eighteenth centuries that might shed further light on the subject.¹²

APPENDIX 1

The Notable City Churches in Brick

Church	Date of Contract Craftsman	Work specified (reference to Tables)	Bond used in exposed brickwork
St Andrew-by-the-Wardrobe† (fig. 1)	15 October 1685 Thomas Harris	Brickwork (prices) (T1, T4)	Flemish bond
St Anne and St Agnes†	8 March 1676/7 John Fitch	Brickwork (T1)	Flemish bond
St Benet Paul's Wharf (fig. 2)	n.d. Thomas Strong	Mason to do brickwork (prices) (T2, T4)	Flemish bond
St Clement Eastcheap	n.d. Edward Strong	Mason to do brickwork (T2)	rendered
St James Garlickhythe	1 August 1677 Thomas Warren	Brickwork (prices) (T1, T4)	Flemish bond Lower part rendered and stone
St Mary Abchurch (figs. 3 and 4)	17 May 1681 John Bridges	Brickwork (prices) (T1, T4)	Flemish bond
St Mary-le-Bow† (fig. 5)	n.d. Anthony Turner	Brickwork (prices) (T1, T4)	English bond
St Michael Bassishaw (demolished 1899)	10 May 1676 John Fitch	Brickwork (prices) (T1, T4)	unknown
St Peter Cornhill (subject to substantial recladding)	no contract survives		Flemish bond for the tower; rest is rendered
St Stephen Coleman Street (destroyed by bombing in 1940)	n.d. Joshua Marshall	Mason to do brickwork (T2)	unknown

Note: † church has been substantially rebuilt after bombing during World War II.

A full list of churches and other buildings by Wren and their current state can be found on the Internet at www.arct.cam.ac.uk/~Campbell/phd/wren/status.html.



Fig. 5 St Mary-le-Bow was bombed during the Second World War and has been heavily restored. The original contract with Anthony Turner for the brickwork is not dated.

APPENDIX 2

The Stone-built City Churches

The following churches were outwardly of stone, though often with brick in parts or as a core to the stone-faced walls. Those churches marked * have a contract specifying brickwork, which may be located in the tables to this paper.

* All Hallows Bread Street (T1, T2), All Hallows Lombard Street, All Hallows the Great, Christchurch Newgate, St Alban Wood Street, * St Antholin Budge Row (T2), * St Augustine Old Change (T2), St Bartholomew by the Exchange, * St Benet Fink (T1, T4), St Benet Gracechurch, St Bride Fleet Street, St Dunstan in the East, * St Edmund the King (T1, T4), St George Botolph Lane, * St Lawrence Jewry (T2), St Magnus the Martyr, St Margaret Lothbury, St Margaret Fish Street, St Martin Ludgate, St Mary Aldermanbury, St Mary-at-Hill, St Mary Somerset, St Mary Magdalene Old Fish Street, St Matthew Friday Street, St Michael Cornhill, St Michael Crooked Lane, St Michael Friday Street, St Michael Paternoster Royal, St Michael Queenhithe, * St Michael Wood Street (T1 T4), St Mildred Bread Street, St Mildred Poultry, St Nicholas Cole Abbey, St Olave Jewry, St Stephen Walbrook, St Swithun London Stone, St Vedast Foster Lane..

Notes and References

1. S. Porter, *The Great Fire of London*, Stroud: Sutton, 1996, p.71.
2. P. Jeffery, *The City Churches of Christopher Wren*, London: Hambledon, 1996, p.18.
3. Contracts are missing for St Mary Abchurch, St Nicholas Cole Abbey, and St Peter Cornhill.
4. J. Moxon, *Mechanick Exercises*, New York: Praeger, 1970, reprinting original of 1703, p.237.
5. T.P. Smith, 'The Church of St Benet, Paul's Wharf, City of London, and its Brickwork', *BBS Information*, 79, February 2000, 9-18.

6. MS 25 542/2 p.141.
7. A fuller explanation of rod is given below, in 'Rates and Prices'.
8. For example, surviving exposed brickwork at St Mary Abchurch, St Michael Paternoster, St James Garlickhythe, St Benet Paul's Wharf, St Anne and St Agnes, and St Andrew-by-the-Wardrobe is in Flemish bond.
9. Most notably St Vedast Foster Lane and St Mary-le-Bow, both early churches.
10. MS 25 542/1 p.181.
11. Smith, 2000.
12. Paper submitted February 2001. The research for this article was undertaken as part of a two-year project looking at seventeenth-century brickwork, under the direction of Prof. Andrew Saint at the Martin Centre, University of Cambridge. The research was funded by the Arts and Humanities Research Board

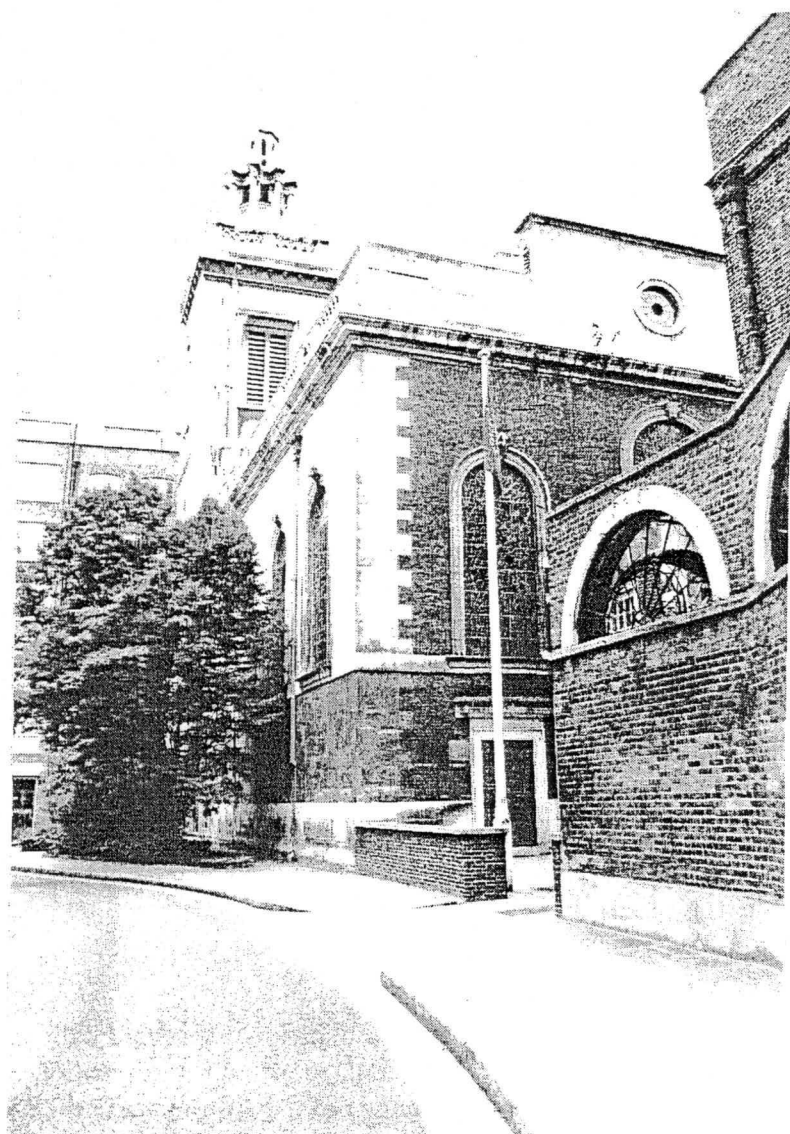


Fig. 6 St Michael Paternoster Royal is an example of a church faced with stone on the street frontage but with the other façades in brick.

SIR EDWIN LUTYENS AND DANESHILL BRICKWORKS

Tony Wright

During the British Brick Society's July Meeting in the Basingstoke area, a visit was made to the former office of the Daneshill Brick and Tile Company, near Old Basing. The cottage (fig. 1) is all that remains of the works and is unusual in that the range of products made at the works are included in the structure, primarily Tudor style, sand-faced, hand-made red bricks.

The brickworks came about through the instigation of Sir Edwin Lutyens (1869-1944) who saw potential in the quality of clay deposits on land owned by his friend Walter Hoare. Lutyens had agreed to design a second and more substantial house for Mr Hoare and his family and bricks were subsequently hand-made locally for its construction based on Tudor brick characteristics. Built in 1903, the style and format of this house, 'Daneshill', were to be hallmarks of the architect's later designs in the Tudor vernacular style incorporating tall chimneys.

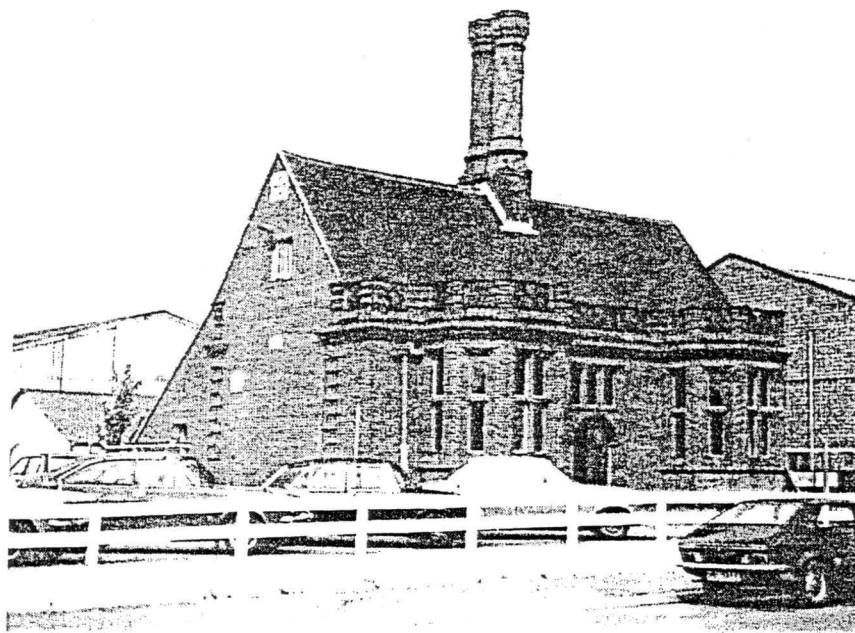


Fig. 1 Daneshill Brickworks, Basing, operative 1898-1945: the brickworks cottage. The office building is unusual in that the structure makes use of the full range of the products of the brickworks including the Tudor style chimney bricks and projecting "crows" supports.

From this simple beginning more formal brickmaking was established by Mr Hoare with the setting up of the Daneshill Brick and Tile Company. In 1905, the cottage office for the works was built based on Lutyens' designs. Such, no doubt, was the influence of the architect and the enthusiasm of Walter Hoare that a compressed version of the office was erected for the 1908 Building Trades Exhibition held at Olympia (fig. 3 shows an elevation and plan of the exhibited version of the office).



Fig. 2 The original offices of the Daneshill Brick and Tile Works, Basingstoke, display the variety of the bricks made on site. The brickworks office was designed by Lutyens for Walter Hoare. It has been restored and for some years served as the estate office for the Kinsland Business Park. The business park has been built over the land occupied by the brickworks and its associated clay pit.

About 1910, Walter Hoare published a prospectus on the brickworks entitled *Beautiful Brickwork*. In the introduction he described the features which an architect should consider when selecting a brick. He particularly referred to the possibility

to produce new work as good to see as the buildings of the 14th to 16th centuries undoubtedly were when new.

He wrote

that the important factors, in order of merit, should be texture, colour and form and, as to colour, explained that the variety was best obtained by burning in the old-fashioned Scotch Kilns in which the flare operates directly on the clay.

Not surprisingly, the then Mr E.L. Lutyens wrote in the foreword of the prospectus:

I have found the Daneshill Bricks satisfy all those requirements; the clay of which the are made is exceptionally good. I have used them in many of my buildings and have no hesitation in recommending them.

Indeed, included in the document was a list of properties, the architects and their builders where Daneshill bricks had been used (reproduced as Table 1); many have Lutyens' name as the architect. Such familiar names as Higgs and Hill, Trollope and Colls, and William Cubitt were included among the builders.

The 'Elizabethan' brick sold for 60s. per 1000 while stock bricks were 50s. per 1000. Roofing tiles, quarries and garden bricks were also made. Fireplaces were a speciality and the bricks required against Lutyens' designs retailed at £4 0s. 0d. for the billiard room model down to £1 10s. 0d. for a bedroom style.

At the conclusion of the prospectus, Hoare included a copy of tests on his bricks undertaken by the Chemical Laboratory and Testing Works, 2 Broadway, City of Westminster.

LIST OF PLACES WHERE
Daneshill Bricks and Tiles are in use,
with the names of their Builders and Architects.

<i>Building</i>	<i>Location</i>	<i>Builders</i>	<i>Architect</i>
Shop	Kensington High Street.	Messrs Holloway Bros Ltd	F.S. Chesterton, Esq.
Lodge	Sevenoaks, Kent	Messrs E. Punnett & Sons	F.S. Chesterton, Esq.
House	51 Grosvenor Sq Westminster	Messrs Higgs & Hill Ltd	Messrs Balfour & Turner
Church	London	Messrs Trollope & Colls	Messrs Balfour & Turner
Church	Barsham, Suffolk	Mr R. Williams	F.C. Eden, Esq.
(additions to north side, 1908)			
House	Gloucestershire	Messrs W. Howland & Sons	Messrs Emden & Egan
Two Houses	Silchester, Hants.	Messrs Mussellwhite & Sapp	N. Evill, Esq.
House	Teddington, Middx.	Messrs W.H. Gaze & Son	A. Jessop-Hardwick, Esq.
House	Berkshire	Messrs Adey & Son	W.L. Lucas, Esq.
Marsh Court	Stockbridge, Hants.	Messrs W. Cubitt & Co., Mr J. Palmer; Mr D. Fry	E.L. Lutyens, Esq.
New Place	Shedfield, Hants.	Messrs Parnell & Son	E.L. Lutyens, Esq.
Barton St Mary	East Grinstead Sussex	Messrs Parnell & Son	E.L. Lutyens, Esq.
Daneshill	Old Basing, Hants	Mr J. Harris	E.L. Lutyens, Esq.
Garden	Sulhamstead, Berks.	Messrs Mosdell & Son	E.L. Lutyens, Esq.
various	Hampstead Garden	Messrs Moss & Sons Ltd	Raymond Unwin, Esq.
buildings	City	Messrs Co-partnership Tenants Ltd.	E.L. Lutyens, Esq.
Dormy House	Walton Heath, Surrey	Messrs Godson & Son	E.L. Lutyens, Esq.
House	Walton Heath, Surrey	Mr G. Browning	E.L. Lutyens, Esq.
House and Park Wall	Nettlebed, Bucks.	Messrs Kingerlee & Sons	C.E. Mallows, Esq.
House	Upton Grey, Hants.	Mr J.A. Manser	Ernest Newton, Esq.
House	Shrewsbury	Building Material Supply Stores Ltd.	Ernest Newton, Esq.
Columbarium	Golders Green London.	Messrs Norman & Burt	Paul Phipps, Esq
House	Poplar's Farm, Cold Ash, Berks.	Messrs Houghton & Hitcham	Paul Phipps, Esq.
Chimneys	Manor Court, Harefield, Middx	Messrs Houghton & Hitcham	Paul Phipps, Esq.
House	Finchley	Mr G.W. Hart	C.H.B. Quennell, Esq.
Garden	Rottingdean Sussex	Messrs Margetts & Cook	H. Inigo Triggs, Esq.
House	Totton, Hants	Messrs Johnson & Co. Ltd.	E. Willmott, Esq.
Fireplace	East Grinstead, Sussex	Messrs Holloway Bros. Ltd.	M. Webb, Esq.
Tudor House	Exhibition. Earl's Court, London	Messrs Whitehead & Co.	

TABLE 1 Houses and other structures where bricks produced by Daneshill Brick and Tile Company were used, from *Beautiful Brickwork*

The tests covered resistance to both frost and corrosive agencies (1903) as well as numerous crushing tests (1908) and proved sufficiently satisfactory for him to include the details.

Regarding frost, test piece was saturated with water and frozen and thawed repeatedly, in fact twelve times. The sample remained free from cracks or deformation. Similarly, a test piece was exposed to moist atmosphere containing sulphur dioxide, typical in towns where coal was burned, for thirteen days. The specimen was reported as unaffected.

Reports suggest that at its peak, Daneshill produced about 700,000 bricks per annum. It is believed that the company ceased working in 1957.

The office, listed Grade II in 1975 and now known as The Lutyens Building, is still in commercial use. The Basingstoke Heritage Society commissioned plaque for the building commemorating its previous role and this was unveiled by the Chairman of the Lutyens Trust on 25 June 2000.

I would like to thank Deborah Reavons of the Basingstoke Heritage Society who provided press cuttings and other information on the commemoration of the building.

MATHEMATICAL TILES: SUBTRACTION AND ADDITION IN LINCOLNSHIRE

Terence Paul Smith

In 1987 I drew attention to what I claimed were mathematical tiles (brick tiles) within an upper recess of a large Victorian building at 27 Broadgate, Lincoln.¹ More recently, I have been able to view this feature at closer quarters and it is clear that the work is of well made bricks laid with very fine joints: it is not of mathematical tiles. Two examples were already known in the former county of Humberside,² but the supposed Lincoln example was the only one within the remainder of the historic county of Lincolnshire. This observation must now, of course, be dismissed as erroneous and the example subtracted from the number for the county.

The total for Lincolnshire, however, remains unchanged, since mathematical tiles *do* occur on a house, known as The Parks, in the parish of Frampton, some two miles south of Boston.³ They are of some interest in that they occur on a house which appears to date from between the two world wars, when mathematical tiles were unusual.⁴ They are used on the unglazed portions of two bay windows on the principal front of the house. They are red/brown in colour and simulate Header Bond - that is, the exposed faces of the tiles are all of header form with no stretcher forms. Lead flashings occur at the top and bottoms of the tiled portions. The total for Lincolnshire (excluding Humberside) therefore remains at just one.

Notes and References

1. T.P. Smith, 'Mathematical Tiles at Hatfield ... and in Lincoln', *BBS Information*, 43, November 1987, 18-19.
2. M. Exwood, 'Mathematical Tiles - the Latest Count', *BBS Information*, 41, February 1987, 12.
3. This example was observed and notes made on it some years ago but has not previously been published.
4. Examples of apparently early-twentieth-century date have been noted at Deal, Kent: T.P. Smith, query in *BBS Information*, 38, February 1986, 19; and at Hatfield, Herts.: Smith, 1987, 18-19. Mathematical tiles were made by the Keymer Company in the interwar period and they continued to manufacture them after the Second World War: C. Taylor, 'Keymer Tiles: Post-War Development', in M. Exwood (ed.), *Mathematical Tiles: Notes of the Ewell Symposium, 14 November 1981*, Ewell, 1981, pp.37-39; they are still made by a few brick and tile companies.

Brick and Tile in Print

From time to time the British Brick Society receives notice of short publications, either as booklets or as articles in periodicals, which are worthy of notice in *British Brick Society Information*. Similarly, there are publications not solely concerned with bricks which nevertheless may be of interest to members. Members involved in publication or who come across items of interest are invited to submit notice of them to the editor of *BBS Information*.

1. John Goodall, 'Gifford's Hall, Suffolk'
Country Life, 28 June 2001, pp.100-106.

The cover proclaimed "Tudor Magnificence in Suffolk" with the great gatehouse inviting us to view the buildings round the courtyard. The house of the Mannocks has brickwork of several periods: of soon after 1428 when the house became the family's property, of 1459, of between 1490 and 1520, and of the eighteenth century. There was a restoration of 1888-90 by James Britain, beginning two years after the Mannocks had ceased to own the house.

Sixty thousand bricks were bought in 1459 and many more in the 1490s when George Mannock built the great gatehouse. Brick is used on its own for the great gatehouse, of after 1494, and for the doorway and chimney stack of the great hall, parts of which were remodelled in the eighteenth century: some is now plastered. Brick is combined with timber-framing for other ranges. The nogging is mostly in herringbone pattern in the narrow spaces between the vertical studs, but below the windows it is laid in horizontal courses.

As with all *Country Life* assessments of houses, the article has beautiful colour photographs, in this case by June Buck.

DAVID H. KENNETT

2. Qinghua Guo, 'Tile and Brick Making in China: a Study of the *Yingzao Fashi*'.
Construction History, 16, 2000, 3-11

Daniel Schwarz, *The Great Wall of China*, new edition, London: Thames and Hudson, 2001; ISBN 0-500-54243-0; 215 pp., 149 black and white photographs, 6 maps, £24-00.

In 1103, the Song sovereign in China issued the *Yingzao Fashi*, a manual of building standards including those relating to brick and tile. The article by Qinghua Guo considers the various operations, beginning with clay preparation. The shaping of tiles of various sorts is discussed and a table of dimensions is given. Various surface treatments are mentioned, followed by a discussion of firing and glazing. Eight line drawings illustrate the text.

Daniel Schwarz's photographic essay is a re-issue, with a new preface, of a book first published in 1990. A sequence of excellent black and white photographs evokes this remarkable structure - or, rather, series of structures. There are brief essays by Jorge Luis Borges and by Franz Kafka, and an historical essay by Luo Zhewen. The last briefly mentions building materials. Much use was made of stone, whilst in the Gobi Desert construction was of layers of red palm fronds, reeds, and gravel. Where bricks were used they were locally produced (p. 214). A number of the photographs show the good quality of the bricks and of the brickwork. An expensive book, it is nevertheless a most attractive production.

TERENCE PAUL SMITH

3. Margaret Heilbrun, (editor), *Inventing the Skyline The Architecture of Cass Gilbert*, New York: Columbia University Press, 2000. ISBN 0-231-11872-4 306 + xxx pp., 121 line and black and white illustrations, 13 coloured plates. Price £31-00.

Cass Gilbert is best known in Britain for the terracotta-covered Woolworth Building in New

York. Gilbert is an architect whose papers and drawings survive in great quantity in the archives of the New York Historical Society. The volume is essentially five essays accompanying reproductions of some of the many drawings. Sharon Irish, who has already written *Cass Gilbert, Architect: Modern Traditionalist*, (New York: Monacelli Press, 1999), provides a valuable account of 'Cass Gilbert in Practice, 1882-1934', which examines both his practice in St Paul, Minnesota, between 1885 and 1909 although he been a resident of the imperial city from 1899 when he won the competition for the U.S. Custom House in New York City. Mary Beth Betts is the author of a much illustrated article on 'From Sketch to Architecture: Drawings in Cass Gilbert's Office' and also an account entitled 'Cass Gilbert: Twelve Projects'. 'The Architect as Planner: Cass Gilbert's Responses to Historic Open Space' is the subject of Barbara S. Christen's essay; Gail Fenske concludes the collection with 'Cass Gilbert's Skyscrapers in New York: The Twentieth-Century City and the Urban Picturesque'.

DAVID H. KENNETT

4. Arthur Perceval, 'Deeds speak louder than words', *Family Tree Magazine*, December 2001, 50-52.

In Kent, two members of the Faversham Society have been summarising local title deeds for over a decade. One of them, BBS member Arthur Perceval, explains how important these documents are.

In the course of the article, observations are made on the manufacture of London stock bricks, which were produced from the local clay between 1825 and 1930. Many bricks were produced from brickearth quarried from land owned by the 'George' public house and known as Kingsfield. In October 1845, brickmaking began on the site. William Rigden charged an annual rent of £253 5s. 0d. for the ground where brickearth was dug out to a depth of 13 feet; agricultural land was leased out at £3 5s 0d. After the ground was exhausted, this land was developed for housing from 1880 onwards.

ARTHUR PERCEVAL (adapted from summary and article text)

5. T.P. Smith, 'Early Recycling: the Anglo-Saxon and Norman Re-use of Roman Bricks with Special Reference to Hertfordshire', in M. Henig and P. Lindley (eds.), *Alban and St Albans Roman and Medieval Architecture, Art and Archaeology*, [being The British Archaeological Association, *Conference Transactions*, 24, 2001], pp.111-117.

Roman buildings, in towns especially, provided a source of ceramic building materials for Anglo-Saxon and Norman builders throughout much of England, with some materials being more useful than others. With a few exceptions, however, it was only in regions lacking good quality building stone that this potential was exploited. Anglo-Saxon churches in Hertfordshire and Norman work at St Albans Abbey, as well as buildings elsewhere, illustrate the various ways in which materials might be re-used. Their general absence from later work was probably due less to exhaustion of supplies than to other factors. Although much can be gleaned from the physical evidence, there are yet several unanswered questions concerning the organisation behind this re-use of Roman materials.

T.P. SMITH (Author's summary to paper).

BRITISH BRICK SOCIETY

MEETINGS IN 2002

The British Brick Society has arranged meetings in the year as follows:

Saturday 16 March 2002

South Warwickshire including the brick kiln of the Oxford Canal at Fenny Compton and the seventeenth-century Chesterton Arch.

(This is the re-arranged 2001 Spring Meeting which had to be postponed due to the restrictions imposed at the outbreak of the foot-and-mouth disease epidemic)

Saturday 13 April 2002

Spring Meeting

South Suffolk including an owner's tour of Kentwell Hall in the afternoon. The occupied building was described as newly completed in 1563, and has post-fire rebuilding of 1801, together with a twentieth-century maze and a fifteenth-century brick great hall beside the moat. A morning programme at Gestingthorpe has been arranged.

Details in this mailing.

Cost (including tea) £15-60 for the tour of Kentwell Hall.

Saturday 29 June

Annual General Meeting

St George's Parish Hall, Portsea, Portsmouth

The Palmerston Forts.

Note the date on the last Saturday in June.

Details in May mailing.

a Saturday in September 2002

Autumn Meeting

(date to be confirmed)

The Mausoleum at Castle Howard, North Yorkshire, which is only open to group visits. This is brick on the inside.

Details in both May and late June mailings.

a Saturday in November 2002

London November Meeting

(date to be confirmed)

Lord's Cricket Ground

The society is hoping to arrange a tour of the buildings of the Marylebone Cricket Club for one Saturday in November with a subsequent short afternoon visit (weather permitting) to see a number of interesting pieces of brickwork in the vicinity of St John's Wood.

Details, including costs in the May and late June mailings.

We hope also to arrange at least one other meeting in the year.

The officers of the British Brick Society welcome suggestions and ideas for future meetings. Notice of brickworks who would be willing to host a visit would be particularly invited. Please contact Michael Hammett, David H. Kennett or Terence Paul Smith. Thank you.