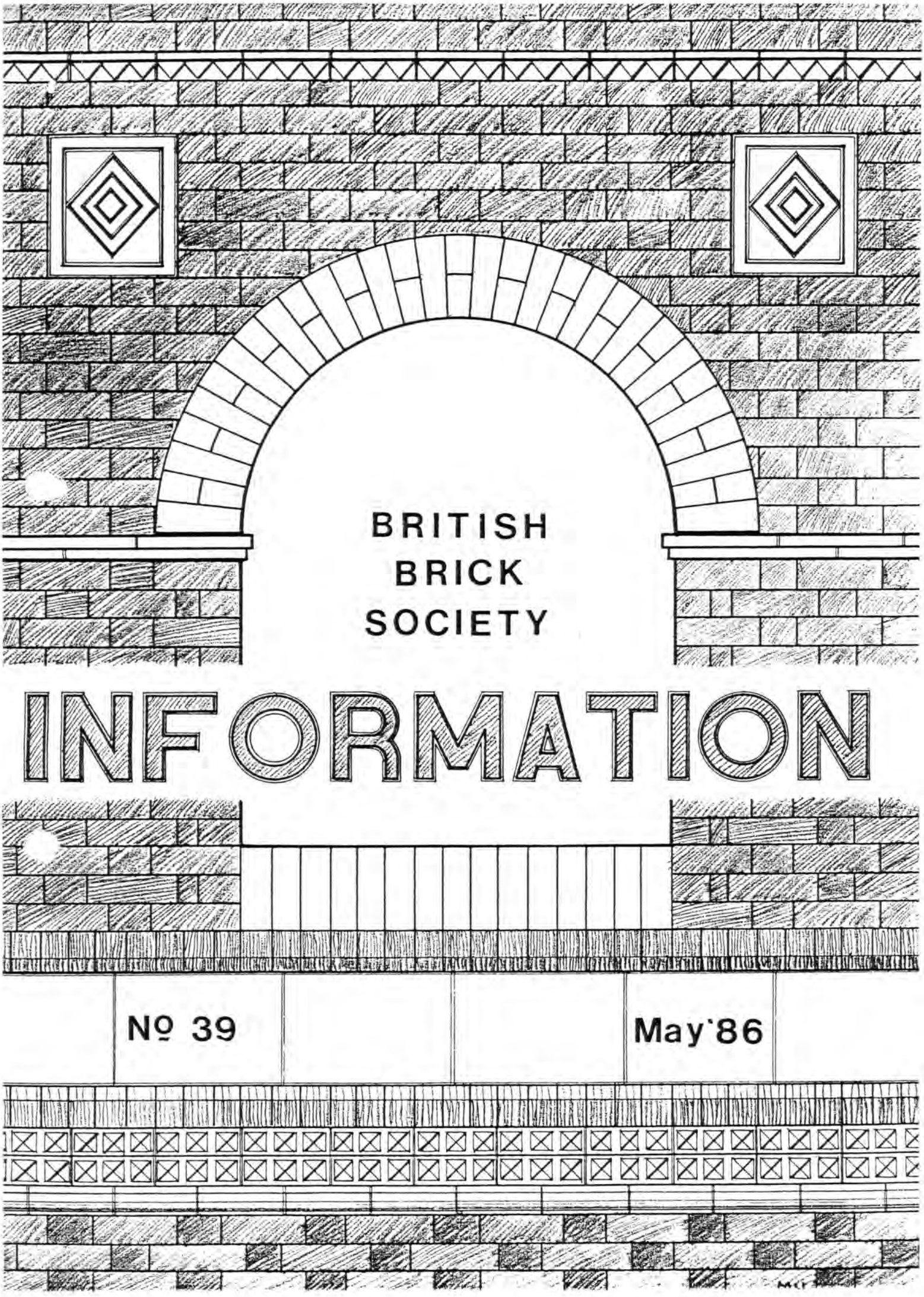
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EDITORIAL

Despite the recent fire at Hampton Court Palace much of the building is open to the public, and the Annual General Meeting of the Society will be held there as planned. As an introduction to this important brick building our retiring President/Chairman, Tim Tatton-Brown, has contributed an historical description to this issue of Information. This is followed by a small piece on Wren's work at Hampton Court, which may be of some interest to members attending the A.G.M. on 21 June.

As you will know, Tim will not be standing for re-election this year. What is surprising is that Tim has found time for the Society despite his many commitments, particularly with the Canterbury Archaeological Trust. Our Secretary, Michael Hammett, will also be standing down, although he will continue to liaise on our behalf with the Brick Development Association. Both these persons have worked hard for, and have given much time to, the Society, and I know that members will join me in a sincere thankyou for all that they have done.

I am reminded that of one hundred and sixty people whose names appear on the current membership list eighty-five have not paid subscriptions for several years. A note on this appears on page twenty of this issue of Information.

Terence Paul Smith Editor

HAMPTON COURT PALACE

Tim Tatton-Brown

Hampton Court is justly famous as one of the great Royal Palaces of England. It is, however, much more than this: it is the finest surviving Tudor Palace in Britain as well as being William and Mary's great new Palace built by Sir Christopher Wren. As such it contains perhaps the greatest collection of fine brickwork of the first half of the sixteenth century and of the period 1689 to c.1700 in England. It also has much good brickwork of the later period (particularly William Kent's work of 1732), although much of this is less appreciated because it is 'Victorian' restoration. (Many of the very famous 'Tudor' chimney stacks are brilliant Victorian restorations.) There are also several areas of twentieth-century brickwork. It is, therefore, an ideal place for the British Brick Society to hold its Annual General Meeting.

The idea for this huge palace perhaps took root at Otford, Kent in 1514, where William Warham (Archbishop of Canterbury 1503-32) had started to build for himself a huge new brick Palace. This was the year in which Thomas Wolsey became Archbishop of York, and also the year in which he obtained a ninety-nine-year lease on a small manor house on the Thames called Hampton Court from the Knights Hospitallers. Warham was already an old man and had been Lord Chancellor of England since 1504, and he was now Wolsey's only rival to supreme power under the king. A year later, in the autumn of 1515, Wolsey had won and had become not only a cardinal (which Warham was not) but also Lord Chancellor in succession to Warham. By the following March, Erasmus - a great friend of Warham - with caustic exaggeration called Wolsey 'omnipotent', whilst the Venetian ambassador styled him ipse rex for authority in England. This is therefore the background to Hampton Court, and it one compares the two Palaces one can see perhaps how Otford started as the grandest (in area it was c.370 by 530 feet, compared with Hampton Court, of c.300 by 550 feet), but was soon eclipsed by Wolsey's monumental plans. Today, little remains of Otford (although there is still some fine brickwork visible in the north-west corner tower), whilst at Hampton Court more survives of the Tudor Palace than anywhere else (and this despite the replacement of most of the royal lodgings by Sir Christopher Wren).

Much has been written about the fabric of Hampton Court, but perhaps the best recent study of the Tudor Palace is the section in The History of the King's Works, volume IV, Part 2, published in 1982 (pp.126-47), and the plans reproduced here (figs.1 and 2) are taken from this. A magnificent phased coloured plan was also produced at this time, and this can be purchased for £2.70 in the Palace Bookshop, which is reached from the south side of the Anne Boleyn gateway.

If the visitor walks right through the shop and out the other door he will see on his left, through a gap in the wall, the remains of two garderobe (privy) shutes which show brickwork from the earliest

visible phase of the Palace. These are the only surviving parts of the south range of the Inner (now the Clock) Court, although the rest of this range has been excavated and the plan is marked out in the paving of the Clock Court. The date of this brickwork is obscure, but it is perhaps of the early sixteenth century, at which time Hampton Court was visited by Henry VII and treated as a 'cell' of his own Palace of Richmond just down the Thames. The first major surviving remains, however, are of Wolsey's Great Palace of c.1515-29 (fig.1), and right at the beginning there is a record of bricks being made on site by a brickmaker from Greenwich. There were also several bricklayers at work under their master, Thomas Abraham. In June 1515 an agreement was made with two bricklayers for making 'two new chimneys to the two new lodgings without the court'. Ten years later much of the huge Palace must have been complete, including the five-storey Great Gatehouse and Outer Court Lodgings, the Inner (later the Clock) Court buildings with the Great Hall on the north, Wolsey's State Rooms on the east, and a new south range (behind Wren's Colonnade, and visible in part in the exhibition area). Wolsey had also built a new private chapel with a cloister on the west, and to the north was his great kitchen and serving place. This kitchen was greatly enlarged on the west by Henry VIII in 1529, and during restoration work in 1979 all the different phases of brickwork were surveyed before being white-washed. (Elevation drawings of this are displayed in the kitchen, although they are now somewhat faded.) The great serving place with its hatches, which is next to the kitchen, is another place to see splendid early brickwork. Wolsey's brickwork, though mostly plain (only the

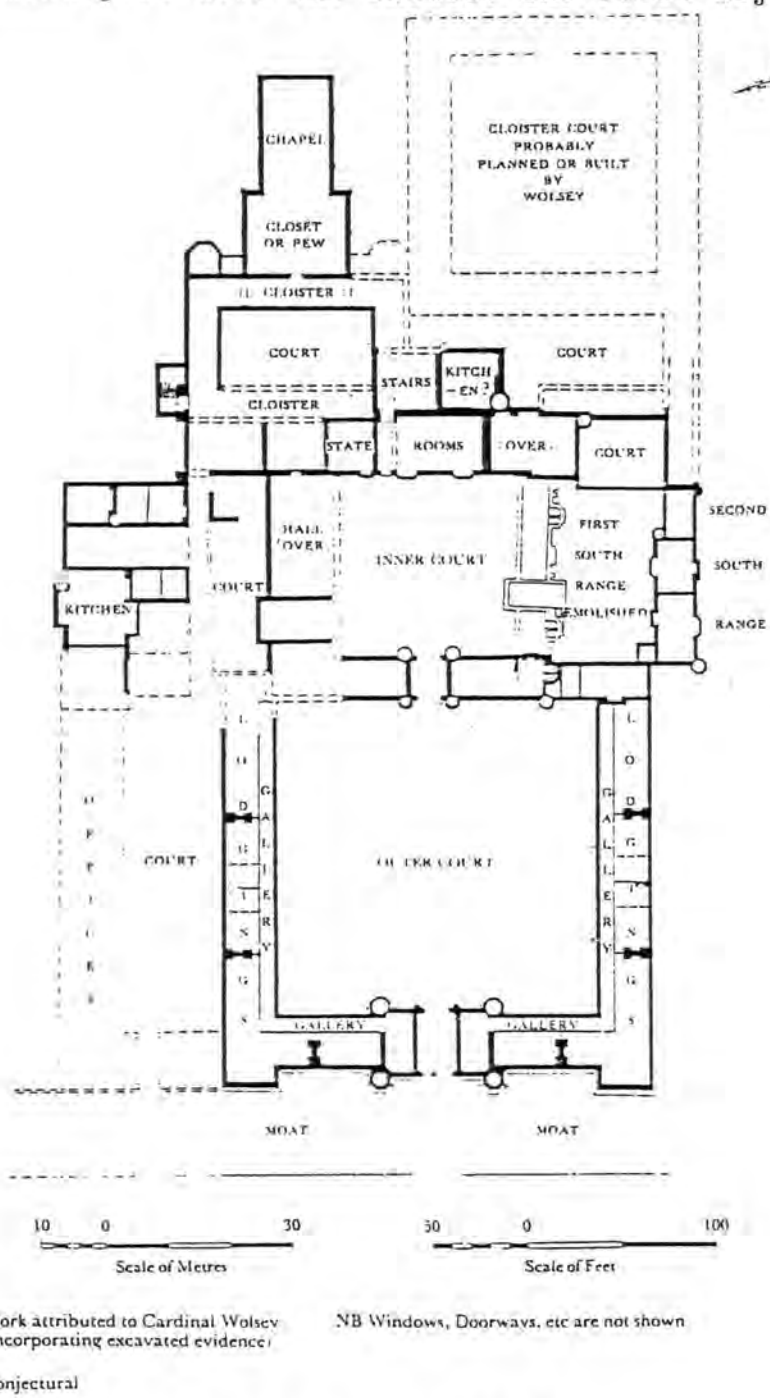


Fig.1 Buildings attributed to Wolsey

chimneys use specials) with Reigate stone quoins, is particularly characterised by the dark nature of the bricks - Jane Wight calls them 'russet, plum and damson'. They are all laid fairly roughly in thick mortar (of course in English Bond) and are 9 by 4 by 2-2¼ inches in size. The texture of the bricks can best be seen by the entrance to the exhibition, behind Wren's colonnade, where a spiral-stair turret has been demolished, leaving the broken ends of the bricks visible for all to see.

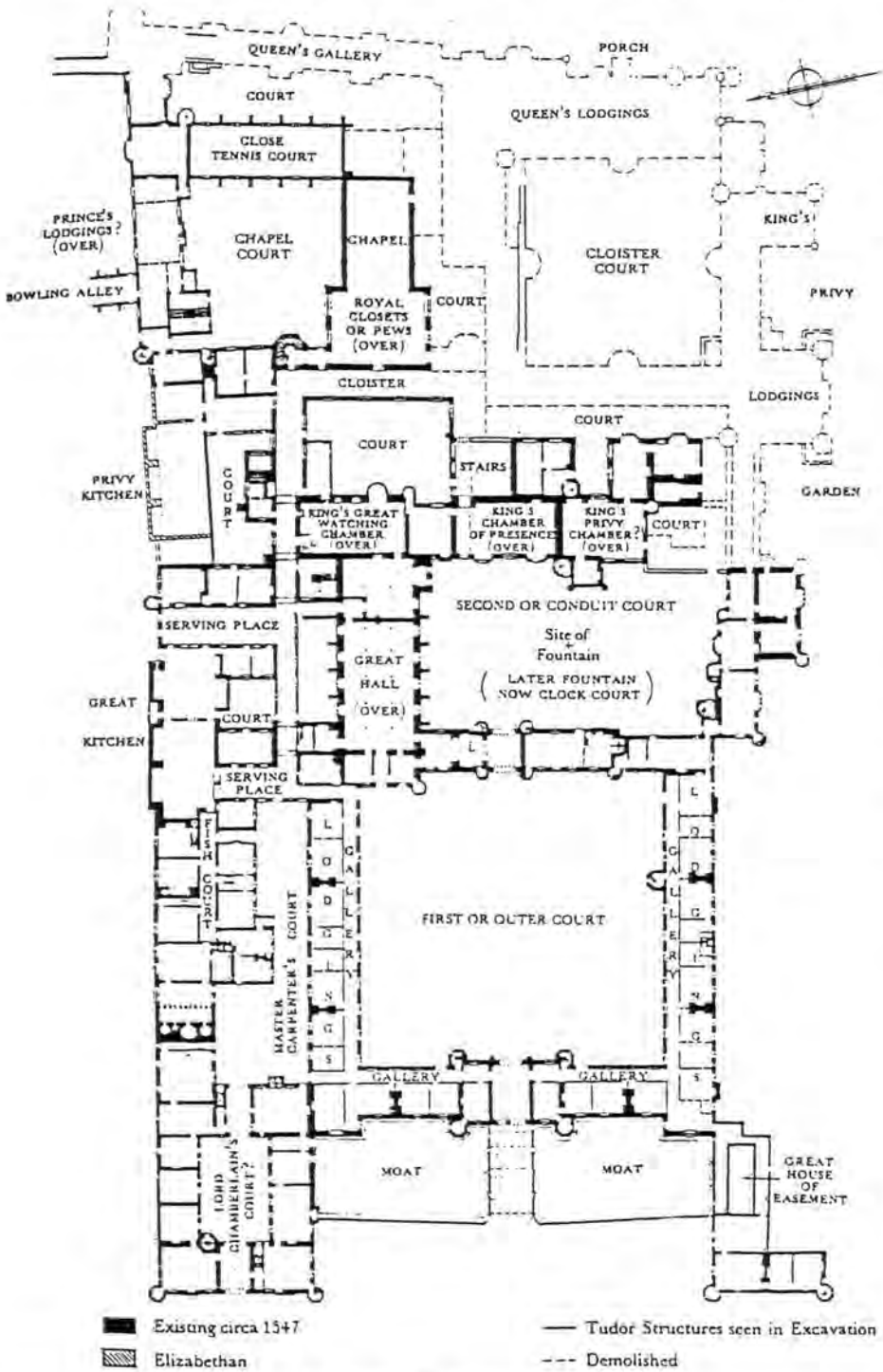


Fig. 2 The Tudor Palace

From 1529 Henry VIII assumed full control of the works at the Palace (which had been 'given' to him by Wolsey two years earlier), and between this date and 1538 the Royal accounts show that about £46,000 was spent on enlarging and rebuilding the Palace. The principal works were a new and larger great hall (1532-4), the re-modelling of the chapel (1535-6), and the building of new lodgings for the king and queen. Most of these new lodgings are gone, but the King's Great Watching Chamber over the Great Wine Cellar can still be visited. Of particular interest is the brick vault over the cellar, which we know was built 'by convention' in 1535 for £37. The architect was Christopher Dickinson, who was both Master Mason at Windsor and head of the bricklayers. (In this very year the records tell us that eighty-one bricklayers were at work!) A similar wine cellar to this can still be seen in Whitehall, the only surviving part of Wolsey's other palace, York Place, that also went to Henry VIII. The bricklayers were recruited (and 'pressed') from Berkshire, Buckinghamshire, Essex, and Suffolk, and though bricks were first bought from a Westminster brickmaker called John Laurence (at 3s. 4d per thousand), a new kiln was built in 1530 in the park to produce (at only 2s. 10d. per thousand) the millions of other bricks

needed for the new great hall and other work. Despite later restoration, many of these bricks can still be seen, and the outside of the Great Hall is particularly worth studying.

The main Palace buildings were probably complete by about 1538 (the king was moving his attentions to his extraordinary new fantasy Palace at Nonsuch, only 8 miles away) and little was added in the later Tudor period. The rear octagonal turrets of the Great Gatehouse are, however, worth inspecting as they were rebuilt in 1565-7 - the 'buylding of tooe Towers in the courte' is mentioned in these years - and stone panels in situ record this with a rose, crown, the letters E.R., and the date 1566. Unfortunately, the Great Gatehouse had its upper two storeys (and its elaborate lead cupolas) removed in 1770-72. The facing brickwork here was all renewed in 1887 with 'harsh' red bricks (as Pevsner calls them!), and this work is in Flemish, not English, Bond! In 1910, however, there was a bonus as the moat in front was re-excavated (it had been filled in the later seventeenth century), revealing Henry VIII's splendid bridge and the brick retaining walls of the moat.

Despite the recent very sad fire at the Palace, on 31 March 1986, which will necessitate massive rebuilding of the south range of the Wren Palace, one can inspect something of the superb brickwork of the 1690s, which is much lighter in colour than the Tudor brickwork. Finally, the George II gateway on the east side of the Clock Court (built in the 'Gothick' style in 1732 by William Kent) should be inspected.

Before concluding this brief article, I should not forget to mention the magnificent terracotta panels on the gateways, particularly the eight roundels of Roman emperors made for Wolsey by Giovanni da Maiaro in 1521 (a similar series was made for Henry VIII's 'Holbein' Gate at Whitehall Palace), and Wolsey's own arms and motto made in 1525. Although the latter were defaced by Henry VIII, they have been well restored and the Cardinal's Cap above and the putti on either side of his arms are particularly fine.

I hope that these notes are at least a pointer to the magnificence of Hampton Court Palace, and that you will come along and enjoy our A.G.M. on 21 June - and bring your friends!

Tim Tatton-Brown

WREN AS ILLUSIONIST AT HAMPTON COURT PALACE

Terence Paul Smith

The work which Sir Christopher Wren added to the royal palace of Hampton Court for William and Mary between 1689 and 1700 is a fine example of the architect's handling of brickwork on a large scale. The bricks are more orange in hue than those of the Tudor palace; they are laid in Flemish Bond with close-set joints and form a telling background to the white stone dressings. The contrast in colour accents the horizontality of the strings and balustrades on the upper levels, thus effectively countering the strong vertical emphasis of the window arrangements. It is sad that the south wing of this part - Fountain Court - of the palace was so severely damaged in the recent fire, although the external appearance - and Wren had little to do with the interior designing - is still clearly visible. Members of this Society will be especially interested in the brickwork itself,

but there are other aspects of Wren's work which are worth observing whilst on a visit to Hampton Court Palace.

Of the 'Great Triumvirate' of English Baroque architects, Vanburgh was the most theatrical and Hawksmoor certainly the most idiosyncratic, but Wren was the most urbane as well as the most technologically accomplished and the most wide-ranging in the nature of his projects - unquestionably the Master. One aspect of his work which is of some interest - and it is a theme not unknown in seventeenth-century architecture - is his use of illusion, the creation of effects by means which out-and-out purists would consider dishonest and improper. In a sense, this may be found as early as his Sheldonian Theatre in Oxford (1664-9), for this roofed building is meant to give the effect of an unroofed classical theatre. However, the illusion here is achieved by painting rolled-back awnings at the edges of the ceiling, and nobody would really be fooled by it. For more strictly architectonic illusion we may turn to Wren's Library at Trinity College, Cambridge (1676-84), where the problem was to provide both adequate lighting and uninterrupted ranges of bookshelves along the walls. The library is set over an open loggia and Wren ingeniously dropped the library floor to springing-level of the loggia arches, so that the arch-heads appear to be filled with tympana. The result is that long windows could be included which, from the outside, appear to rise from floor-level, although inside there is room between window-sills and actual floor-level for the bookshelves. In the city churches too there is a degree of illusion: many occupy awkward sites, sometimes with scarcely a right-angle in them, but Wren's achievement was to give the appearance of rectangular, rationally planned spaces. Again, at St Stephen Walbrook the dome gives the illusion of spaciousness in what is in reality a quite small building. On some of the churches the illusion of Gothic was given by the use of pinnacle-like obelisks at the corners of the towers: St Olave, Old Jewry (1670-79, demolished), All Hallows, Bread Street (1677-98, demolished), and St Mary Somerset (1686-94, tower survives) are examples.

Wren's masterpiece at St Paul's Cathedral (from 1675) also presents examples of illusion. Because of an optical illusion, large domes like that of St Paul's look wrong when viewed from inside - the experience is like looking up a large cylinder. Therefore, an inner dome is provided, much shallower than the dome which is seen from the outside. Moreover, both are actually relatively light structures, the actual load-bearing work being done by a huge brick cone which rises from the top of the drum to the lantern, between the two domes. Further, all this needs a more massive structure at the foot as 'visual support' than the actual building provides, and the upper halves of the aisle walls are in fact screen-walls, rising above the aisle roofs, and serving this visual, but non-structural, function. Thus, these walls too are part of an illusion.

At Hampton Court Palace there are also a number of illusory effects. Indeed, something like the Trinity Library technique is employed. Behind the semi-circular arch-heads of the ground-floor loggias may be seen segmental arches, and it is these latter that support the floor; thus, the tall first-floor windows can come down to what appears, externally, to be the floor level whilst internally the window-sills are set at a proper height above the floor. Moreover, a number of the circular 'windows' above first-floor windows are false: the coved ceilings of the rooms within rise above this level and there was no point in lighting the backs of coves! The apparent window-bars are simply painted on.

Another illusion is created on the east side of Fountain Court. The complete East Front of the building, as seen from the Gardens, is some 300 ft long; the east side of Fountain Court, however, is less than half this length and is set towards the south: thus the central entrance-way from the East Front opens asymmetrically into the Court.

This would not really do for a Baroque palace, being far too reminiscent of the higgledy-piggledy Tudor work that Wren was replacing. And so, he neatly provided two curved exedrae - one of them giving access to the real entrance way, the other no more than a blank niche balancing the first.

Perhaps the greatest illusionist effect, however, is that to be seen from the Gardens. Today, few will have any sympathy with Wren's first scheme - the 'Grand Design' - which consisted in nothing less than a complete demolition of the Tudor Palace (except for the Great Hall) and its replacement by a new Baroque palace. Fortunately, there was never enough cash for such a large-scale project, and Wren had to be content with partly rebuilding and partly remodelling the south-east corner of the building. What he managed to achieve, however, was, from the Gardens and from the river approach, the illusion of a complete Baroque palace. The grand East Front, indeed, is, at its northern end, really no more than a large screen-wall - not altogether different from those above the aisles at St Paul's - serving to mask, and to disguise, the Tudor work behind it. From this front, in fact, none of the Tudor work is visible. There is a tendency - not unconnected with the arrangements for visitors - to think of the East Front as the rear of the building, but Wren himself probably thought of it as an alternative principal front, and, as Professor Kerry Downes has pointed out, early illustrations show carriages drawing up on this side of the building. On a visit to Hampton Court Palace it is worth savouring the contrast between the view of a complete Tudor Palace from the west and the view of a complete Baroque palace from the east.

Suggested Reading

G.H.Chettle, J.Charlton, and J.Allan, Hampton Court Palace, Greater London, Department of the Environment guidebook, London, 1982.

M.Whinney, Wren, London, 1971.

K.Downes, The Architecture of Wren, London 1982.

The Fire. The fire which occurred at Hampton Court Palace on Monday 31 March caused extensive damage to the south wing of Fountain Court, built by Sir Christopher Wren between 1689 and 1700. The King's Audience Chamber and the Cartoon Gallery, as well as the apartments on the upper floors were damaged, including the fine carved panelling by Grinling Gibbons. Most of the invaluable works of art, however, were saved. Temporary weather protection has now been erected over the damaged parts of the Palace, and the courtyards and those parts of the Palace which are safe were quickly re-opened to the public. A press statement from the Department of the Environment (dated 8 April 1986) states that the 'Courtyards, the Tudor parts of the Palace and a limited number of State Apartments re-opened on 7 April.... It is hoped to open further parts of the Palace later this month when emergency works have been completed.' Current charges for admission are: 50p for the Courtyards only and £2 for the Palace (50p and £1 respectively for Old Age Pensioners and Children).

TPS

A.G.M. Saturday 21 June 1986, in the lecture room of the Building Conservation Trust, Hampton Court Palace, East Molesey, Surrey, at 11.30 a.m.

TECHNIQUES FOR DRYING BRICKS-A CRITICAL APPRAISAL OF THE EVIDENCE

R. J. Firman

Introduction

I was interested to read Terence Smith's note about two Dutch bricks with animal footprints,[1] in which he drew attention, once again, to the late fifteenth-century Dutch Bible illustration now in the Austrian National Library. It is, indeed, interesting that the bench-moulded bricks are here shown being laid out flat and singly to dry rather than stacked directly into a hack as shown in the better known and frequently reproduced Dutch Bible illustration now in the British Museum;[2] but these two illustrations do no more than provide further evidence that, in the Netherlands, as in Britain, more than one method was used for drying bench-moulded bricks.

'Way-up' evidence and its limitations

The presence of animal footprints certainly indicates that, at some stage in the drying process, the bricks were lying flat but it does not necessarily follow that they were made by the process depicted in the c.1470 biblical illustration. Two English bricks with animal footprints on LB faces have been recorded by the writer.[3] The brick from the Cow Tower at Norwich, c.1380, was almost certainly made in a totally different manner from that depicted in either Dutch Bible illustration. Almost certainly it was shaped by pressing a frame down onto clay which rested on straw strewn on the ground. The brick was then left to dry in the place where it was shaped.[4] The other brick, from Hempnall, Norfolk, c.1450-70, has a dog's footprint superimposed upon strike marks. This too could be frame-made in situ, but this brick needs to be re-examined in the light of current knowledge. The Dutch Bible pictures, therefore, illustrate only two of three common ways in which bricks were shaped and dried during the Middle Ages and the sixteenth century in England and on the Continent.

Animal footprints are not the only clues to the orientation of bricks during drying; others include 'mini-craters' left by raindrops (or hail) and the impressions of straw, hay, or reed. All need to be interpreted with care and, like footprints, indicate only that they were acquired at some stage before the brick was leather hard. Their mere presence on an LB face does not prove that the brick was initially laid flat to dry.

The many medieval and Tudor bricks which have abundant impressions of straw, hay, or reed on only one flat face certainly appear to have lain flat during drying. They were probably either: (i) in situ frame-made and left to dry, or (ii) bench-moulded and subsequently placed on a bed of straw to dry. It is, however, also possible that they acquired their straw-marks during moulding if the bench was strewn with chopped straw. Sometimes abundant straw marks on one LB face, and fewer and shallower impressions on one stretcher combined with very rare markings on the other LB face, strongly suggest that the brick was either left or placed face downwards on straw after moulding, then turned on its edge and finally laid flat on the other LB face before it became leather hard. Similarly on another brick from the Bridewell Alley Museum in

Norwich (fig.1) a favourable combination of strike marks, straw impressions and raindrop-pitting allows a sequence to be deduced which demonstrates that the brick was turned over before it was

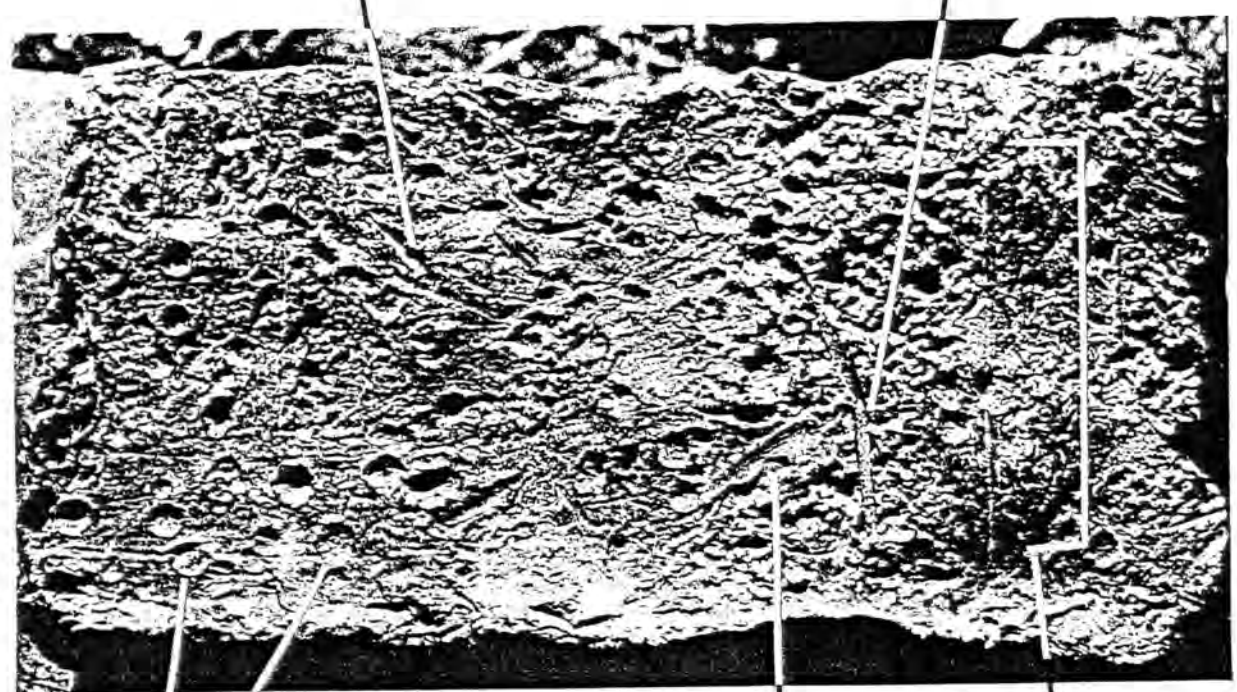


Fig.1 A fifteenth-century brick from Blakeney, Norfolk, now in the Bridewell Alley Museum, Norwich. Surface markings suggest that this was the topside of the brick when moulded and that it was pressed into a mould, the greatest pressure being exerted on the right-hand end. Excess clay was struck off, the strike having been moved from left to right. At some stage it was laid face downwards to dry on straw. Subsequently it was turned over and became exposed to rain or hail. Straw still adhering to the brick deflected the rain drops which are otherwise superimposed on both strike marks and straw impressions.

rained upon. In spite of this, a doubt still exists about the initial orientation of this brick and the method of shaping.

Documentary evidence of drying techniques

No such doubt exists where specific detailed descriptions of brick-making practices occur, such as that from France which was cited by Smith.[5] I am unfamiliar with the continental literature but was surprised to read that 'as late as c.1761 bricks were laid out flat and singly'. This statement contrasts oddly with the many descriptions of English brickmaking practices which confirm that both methods depicted in the Dutch Bible illustrations were practised until at least the mid-nineteenth century.[6] When wet sticky clay was used, bricks had to be laid out flat and singly to dry. This probably became unnecessary when machinery was introduced which pressed more water out of moulded bricks than was possible by hand. Where hand-moulded bricks continued to be made with wet sticky clays, as in Holland, this practice must surely have lingered into the early twentieth century.

For readers unfamiliar with the documentary evidence the following extracts may be of interest. Dobson, describing the practice in Nottingham c.1850 write:[7]

> 'After the bricks have remained for a few hours in the position in which they were first placed on the floors they are turned on their edges by a boy, who turns up two at once, one with each hand. They remain in this position a few hours longer, and are then laid flat on the opposite side to that on which they were first placed.'

After dressing and 'lying flat a few hours longer' they were built 'into hacks about 50 bricks long and 14 courses high, each hack containing about 700 bricks.'

The practice of drying bricks on a sanded drying floor before building them into hacks was evidently also the custom in Staffordshire, where, according to Prosser,[8] bricks lay on drying floors where

> 'they are allowed to dry until sufficiently hard to handle and placed in hacks, the length of time depending on the weather, in quick drying weather they will remain half a day as deposited from the mould, and half a day turned upon edge, and afterwards they are placed up in hacks, where they remain until placed in the oven.'

Both in Nottingham and in Staffordshire, therefore, bricks were dried flat and singly before being put into a hack and subsequently burnt in a kiln. In contrast, stock bricks, after they were moulded, were placed directly into hacks and later burnt in clamps. Dobson notes, for example, that London stock bricks were placed on edge, slantwise, directly into the hack after moulding.[9] To ensure that the green bricks had dried sufficiently before another layer was placed on top of them a second hack was constructed alongside the first:

> 'After the bottom row of one hack is completed, a second hack is commenced to give the bricks time to harden before a second course is laid on them; and when the second course is commenced the bricks must be placed fairly on each other or they will be marked, which injures their appearance.'

These bricks, after three to six weeks drying in the hack, were burnt in clamps, as were bricks at Cheshunt, Herts. which, according to Stockman,[10] were moulded, dried, and burnt in similar manner. Suffolk bricks were similarly dried in a hack rather than on a drying floor but unlike London Stocks and Cheshunt bricks they were burnt in kilns rather than in clamps.[11]

Evidence that in the eighteenth century some types of bricks were

laid out flat and singly to dry before being stacked in a hack is equally unequivocally stated in letters and articles quoted by Nathaniel Lloyd; for instance a description dated 1703 of place bricks includes the following passage:[12]

> 'Place Bricks ... so called because there is a Place just by where they strike (or mold) their bricks, which is a level, smooth piece of ground prepared for the Bearer-off (who carries the Bricks from the Strikes) to lay them singly down in Rows (which they call Ricks) as soon as they are Molded and there they are left till they are a little dried, viz., till they are stiff enough to be turned on their Edges and Drest (that is cut off their Inequalities and Rugosities) and when they are dry, they carry them to the Hacks...'.

In contrast, written evidence dated 1703 and 1683[13] shows that Stock bricks, as in the nineteenth century,[14] were put directly into a hack without prior drying on drying-floors and were subsequently burnt in clamps. Thus, throughout the eighteenth and much of the nineteenth centuries there appears to have been two contrasting methods of drying bricks similar to those illustrated in the two fifteenth-century Bible illustrations. Doubtless there were also local and regional variants of these techniques.

The reasons why

T.P.Smith suggests that the reason why the Dutch bricks with animal footprints were laid flat to dry was that they were thin even by Dutch standards. This explanation raises a more fundamental question: Why make thin bricks? Undoubtedly tradition, client demand, fashion, and so on are important, but, as perceptively discussed by Reeder,[15] the nature of the raw material is crucially important. In other,words, the Dutch made small thin bricks because most (though not all) of their brickmaking clays were so wet and sticky that big bricks would have been exceedingly difficult to dry. This view is reinforced by the fact that in the mid-nineteenth century one of the principal sources of clay in the Netherlands was slimes from the River IJssel and from Haarlem Meer.[16] Even when mixed with river sand it seems unlikely that thick bricks would be easy to make with this material using hand-moulding techniques. The crucial importance of the properties of the raw material in determining the appropriate brickmaking technique seems frequently to be neglected by historians in spite of quite unambiguous documentary evidence. For instance, in 1683[17] brickmakers at Ebbisham, Surrey selected a specific kind of brickearth which they called 'Haste-Mould' for making Stock Bricks. This was apparently a stiff loam with a little sand 'without one bit of Clay'. Although not described in this letter, it may reasonably be assumed that more clayey brickearths were used for Place Bricks. In 1703 Neve commented that Stock Bricks

> 'differ not from Place Bricks in form, their difference lying concealed in the Quality of the Earth,...' and 'Now Workmen tell me they are forced to have above one method in making of Bricks not for Fancy sake but out of pure Necessity; the reason of which proceeds from certain different Qualities inherent in different Earths.'[18]

Later, in the mid-nineteenth century, Dobson commented that

> 'It is scarcely necessary to observe that different clays require different treatment, according to their composition, some bricks bearing exposure to the sun and rain without injury, whilst others require to be carefully covered up to keep them from cracking under similar circumstances.'[19]

Paradoxically, it was the bricks which were stacked direct into a hack

which were the most troublesome to make. Dobson was wrong when he stated that 'It is scarcely necessary...', since evidently the over-riding importance of the properties of the raw material needs to be emphasised time and time again.

Conclusion

Tempting as it is to suppose that brickmaking techniques evolved and improved with time, all available evidence suggests that a wide variety of different methods were available and used in the Middle Ages. These same methods with little modification continued to be used at least until the mid-nineteenth century. The actual methods used were largely necessitated by the nature of the locally available raw material and did not change significantly until the advent of machinery for shaping bricks.

Notes and References

1. T.P.Smith, 'Two Dutch Bricks with Animal Footprints', BBS Information, 37, November 1985, 11.
2. From Nederladische Bijbel, Utrecht, c.1425; reproduced for example in N.Lloyd, A History of English Brickwork..., London, 1925, re-issued, Woodbridge, Suffolk, 1983, p.390; L.F.Salzman, Building in England down to 1540, Oxford, pl.12a; J.A.Wight, Brick Building in England from the Middle Ages to 1550, London, 1972, pl.1.
3. The author's unpublished notes (c.1966) contain records of a rat's footprint on a brick in the fabric of the Cow Tower, Norwich (c.1380) and a dog's footprint on a brick in the Bridewell Alley Museum, Norwich, from Long House, Hempnall, Norfolk (1450-70).
4. M.G.Reeder, 'The Size of a Brick', BBS Information, 29, February 1983, 1-4.
5. M.Gallon, 'Descriptions des Arts et Métiers' par Messieurs de l'Academie Royale des Sciences L'Art de Tuilier et la Briquetier, vol.xxiv, pl.vi, cited in Lloyd, op.cit., pp.30, 31, 390, 392.
6. E.Dobson, A Rudimentary Treatise on the Manufacture of Bricks and Tiles, 7th ed., London, 1882; the first edition, dated 1850, was revised and corrected by C.Tomlinson in 1863. Techniques first described by Dobson in 1850 may have lapsed by 1882.
7. Dobson, op.cit., pp.81-2.
8. R.Prosser, in Dobson, op.cit., p.99.
9. Ibid., pp.142-3.
10. B.P.Stockman, in Dobson, op.cit., pp.157-8.
11. R.Mallet, in appendix to 4th edition (1868) of Dobson, op.cit., pp.252-5.
12. R.Neve, The City and Country Purchaser..., London, 1703, quoted by Lloyd, op.cit., pp.35-6. (A facsimile of the second edition, 1726, of Neve's work was published by David and Charles, Newton Abbot, 1969, TPS.)
13. Ibid., and J.Houghton, Coll.Lett. etc. Impv. Husb. ii, vi, 186, quoted in Lloyd, op.cit., pp.33-5.
14. See notes 9 and 10, supra.
15. Reeder, op.cit., 1-4; and M.G.Reeder, 'The Size of a Brick, Part II', BBS Information, 30, May 1983, 1-3.

16. H.Clark, 'On the Manufacture of Bricks and Tiles in Holland', in Dobson, op.cit., pp.47-8.
17. See n.13, supra.
18. See n.12, supra.
19. Dobson, op.cit., p.38.
20. Neve, quoted in Lloyd, op.cit., p.36.

TERRACOTTAPOLIS REVISITED

Our Victorian forebears were nothing if not confident in their own technical proficiency. This confidence, often wedded to what the late Sir Nikolaus Pevsner aptly termed an 'aesthetic dumbness', is nowhere better displayed than in that familiar use of hard-surfaced red bricks and the even harder terracotta, red or yellow. Victorian ersatz Tudor usually fails to convince just because it uses these unyielding materials - sharp-edged red bricks, for example, as a backdrop to black diaper patterns picked out with drawing-board precision.

One of the main sources of these materials, as well as of encaustic and other tiles, was the Ruabon district near Wrexham in North Wales. Last year an exhibition was held at the Grosvenor Museum, Chester recalling this important industry, and the booklet accompanying the exhibition - Bricks, Tiles and Terracotta, by Michael J. Dillon, Wrexham, 1985 - is well worth obtaining. The industry was to a large extent an offshoot of the exploitation of the North Wales Coalfield. though it developed into a locally important industry in its own right. So dominant, indeed, did the manufacture of terracotta become that the village of Ruabon was actually nicknamed 'Terracottapolis'!

The booklet begins with an outline of the geological background, before going on to consider bricks, tiles, and terracotta separately. There are sections on some of the important figures in the industry: James Coster Edwards, Henry Dennis, and Henry Richard Bowers. Finally, a few lesser figures are mentioned and the state of the industry today is commented upon. In fact, the 'Dennis Works at Hafod is now the only firm which continues the traditions of these industries.'

The booklet contains a number of illustrations - old and new photographs of works and products as well as two pages from early catalogues illustrating the wares on offer. There are, for example, photographs of the terracotta buildings at the Classical Temple at Eaton Hall and at the Victoria Law Courts in Birmingham. It is hard, even for one who is none too fond of this material, to avoid being intrigued and fascinated - though not charmed - by the intricate details of these, and similar, buildings.

The exhibition organisers recognise the pioneering nature of their venture and would be glad to hear of any further information concerning their subject. We know, for instance, that the products were widely distributed in Britain as well as abroad, and it would be good to know more about distribution patterns.

The booklet costs £1-20 (including postage) and may be obtained from: The Museum Research Officer, 1 Grosvenor Road, Wrexham, Clwyd LL11 1BF. Cheques should be made payable to: Wrexham Maelor Borough Council (or, I suppose, to: Cyngor Bwrdeisdref Wrecsam Maelor).

T.P.Smith

DUAL OCCUPATIONS

M. Beswick

The editor's observations (Information, 38, February 1986, 1-2) about the number of brickmakers who had a secondary occupation, which they could use either to make some extra money in the 'off' season or to fall back on when times were hard, have prompted me to look for further examples in Sussex.

In the Weald, the farmer/brickmaker was the norm rather than the exception, as explained in an earlier article.[1] The only point I would make here is that farming was generally the main occupation and brick-making the secondary one. In the parish of Warbleton on the High Weald in East Sussex, there were three brickyards in 1838.[2] All were operated by small farmers who owned or leased between 15 and 20 acres of land. Before the coming of the railways in the nineteenth century bricks could not be moved any distance and brickmakers like these fulfilled purely local requirements. Therefore, when a stock of bricks had been built up and there was no demand for them in the neighbourhood as a result of a shortage of money due to a series of poor harvests, then the kiln would stand idle for a season or more. It is often difficult to trace these brickmakers, as they tended to describe themselves in their wills and other documents as farmers, or even yeomen. For example, Richard Guy of Chiddingly, yeoman, who made his will in 1802,[3] had substantial farming interests but also bequeathed to two of his sons his share of the stock of bricks and tiles in the brickmaking business in which he was engaged in partnership with another of his sons.

Brickmaking and limeburning also went hand-in-hand quite frequently in Sussex. In the clay and sandstone areas around Rye and Hastings chalk was brought by sea to brickyards near the coast, and the various rivers and navigations permitted chalk from the Downs to be sent quite considerable distances inland also. The 'flare' type of limekiln generally used in the Weald until quite recent times[4] was wood-fired, as were the brick kilns, and the underwood required for both was in plentiful supply. It was, of course, very convenient for customers to be able to purchase not only bricks and tiles but also the ingredients for lime/sand mortar at the same time. Examples of brickmakers who were also limeburners abound. The probate inventory of Stephen Pryor of Henfield, brickmaker, taken in 1723, includes under outdoor stock: 'two Horses a Cart Hay Thetching Rods Bricks burnt & unburnt Lyme Tiles burnt & unburnt Chalk Wood Faggotts and other things' together valued at £58 17s 6d.[5] Edward Wenham of Hellingly, brickmaker, who made his will in 1758, left to his son the lease of his premises which included a brick kiln and a limekiln.[3] Further evidence can be found in Manor Court Books, deeds of freehold property, and, of course, on maps. For example, a brick kiln and a limekiln on the south bank of the River Rother in the parish of Beckley appear both on the tithe award schedule of 1839[6] and on the Ordnance Survey map of 1872. The foregoing are instances of brickmakers who found it to their advantage to burn lime also. At the end of the nineteenth century, a firm of limeburners, Peppers of Amberley, operating on a more industrial scale, acquired several brickfields in the Littlehampton area[7] but conducted their business from the offices at the chalk pits (now the Southern Industrial Museum).

The link between brickmaking and bricklaying was also strong and it seems probable that a number of early bricklayers made their own

bricks. Several examples have been found of men who, in fact, changed their designation from 'brickmaker' to 'bricklayer', suggesting that, as their business expanded, they concentrated on the construction side and employed others to do the brickmaking. Philip Elen of Arlington was described in 1773 as a brickmaker, but twelve years later he appeared as a bricklayer.[8] By the nineteenth century the large-scale entrepreneur was beginning to take over from the artisan brickmaker, as opportunities grew with the expansion of the coastal resorts. Jesse Dann of Pevensey, near Eastbourne, had brickfields in the neighbouring parish of Westham, where he advertised as a brickmaker between 1867 and 1887.[7] He was evidently a man of substance since, on 9 October 1867, he was elected a freeman of the Borough of Pevensey. In the citation he was described as 'brick manufacturer'. However, on the list of addresses of freemen drawn up on 11 March 1883 he appeared as: 'Jesse Dann, Westham, Eastbourne, builder'.[9]

Trades directories reveal further examples of dual occupations. Other building trades, such as plumber and carpenter, appear in conjunction with brickmaking and, as new types of coal-burning kilns were introduced, the brickmaker sometimes plied as a coalmerchant also. Jesse Finch of Haywards Heath was 'Builder & contractor, Plumber & gasfitter, Clamp brickyard proprietor', and Thomas Rich of Hailsham advertised as 'Builder, Contractor, Undertaker, Wheelwright, Brick & Tile Maker'.[7] It will be noted, however, that these men were no longer acting as skilled operators themselves, but as employers of labour.

References

1. M.Beswick, 'The Country Brickmakers of the Weald', BBS Information, 30, May 1983, 9-10.
2. E(ast) S(ussex) R(ecord) O(ffice) TDE 50 - Warbleton tithe commutation award.
3. Details in M.Beswick, 'Brick- and Tilemaking on the Dicker in East Sussex', Sussex Industrial History, 13, 1983, 2-10.
4. W.Beswick, 'The Ashburnham Limeworks at Glaziers Forge', Sussex Industrial History, 15, 1986), 18-21.
5. ESRO W/Inv 1619.
6. ESRO TDE 34 - Beckley tithe commutation award.
7. Trades directories for Sussex 1867-1903.
8. Sussex Marriage Licences 1754-1837, Sussex Rec. Soc., vol.25, 1917.
9. ESRO PEV 390 & 391.

Brick is Best! The Observer on Sunday 30 March 1986 contained a report on tourism in Soviet Central Asia, especially in relation to a joint Sino-Soviet plan to attract tourists to the silk road from China to Europe. The route runs through Urumchi in China to Alma-Ata, Tashkent, Samarkand and on to Ashkhabad before going south round the coast of the Caspian Sea.

The report went on to describe successes and failures in the Soviet Republics of Kazahkstan, Kirghizia, and Uzbekistan. One of the failures was in housing design. In a land-locked desert where the temperatures are well over 20°C (70°F) for four months of the year, heat-conducting concrete was used for apartment blocks. Traditional houses were built of porous brick. They have gone back to using the best material.

DHK

THREE EARLY BRICK BUILDINGS IN DERBYSHIRE

David H. Kennett

In 1972 Jane Wight performed a most useful service in providing a gazetteer of the brick buildings of England constructed prior to 1550 (Wight 1972, pp.226-399). As with all pioneer works, it has omissions, and this is particularly the case with those counties which are peripheral to the principal area in which early brick buildings occur. Miss Wight lists a single building in each of the two North Midlands counties of Staffordshire and Derbyshire. In Staffordshire, St John's Hospital, Lichfield was re-endowed and rebuilt by Bishop William Smyth after 1493. In Derbyshire, Prior Overton's Tower at Repton, now part of Repton School, was built some time after 1437.

Three early brick houses are known in Staffordshire: Beaudesert, of c.1500; Pillaton Hall, of the late fifteenth century; and Chillington Hall, of before 1556. The number is similar to neighbouring Shropshire, where there are: Plaish Hall, of c.1540; Upton Hall at Upton Cressett, of c.1540; and Belswardine Hall, of 1542.

In Derbyshire, three early brick houses are known in the south-west part of the county, namely: Barton Hall, of the fifteenth century; Longford, of the sixteenth century; and Trusley, again of the sixteenth century. In what follows, notes on each of these houses are given, based entirely on the secondary sources and without personal inspection. These notes arose from a chance reference to the marriage of Sir Edward Coke and Mistress Katherine Dyer which was encountered during research into the Dyer family of Colmworth, Beds. It is worth noting these houses as additions to Miss Wight's provisional list. Moreover, each of the buildings would repay further study, and it is hoped that this note might elicit such investigation.

1. Barton Hall, Barton Blount SK 209348

This appears to be a conventional eighteenth- or nineteenth-century stone house, but the stone frontage is in fact an encasement of a fifteenth-century brick gatehouse. Other old brickwork survives at the rear. A possible date for the stonework is 1741. Earlier in the eighteenth century the back of the house was rebuilt in brick chequerwork.

The house belonged to the Blount family from 1381 until the middle of the sixteenth century. A possible builder of the brick gatehouse could be Walter Blount, First Lord Mountjoy (a creation of 1465), who was made Lord High Treasurer in 1464; he died 1 August 1474. His estates comprised three manors in Staffordshire, five in Leicestershire, eleven in Devon, two in Hampshire, one in Worcestershire, and twenty in Derbyshire. The subsequent owners were the Merrys, a recussant family, who were there until the eighteenth century.

Literature: Pevsner 1953, p.57; Thorold 1972, p.42; Beresford 1975, pp.5-6, 9-11, with fig. 3 and pl. 1a (the hall is just visible in the top right-hand corner of the photograph).

2. Longford Hall, Longford SK 215383

This is a brick house of 'Tudor' date, remodelled c.1700, best known for its south front with four chimney stacks, each with three brick chimneys, separating the run of fifteen sash windows into five groups of three. There are two storeys and a false upper storey below an

eighteenth-century balustrade. Originally, this was a courtyard house though it now consists of a single range only.

Until 1610 the house belonged to the Longford family, the earliest of whom - a Sir Nicholas Longford - died in 1357. The house then became the property of the Lord Chief Justice, Sir Edward Coke. His sixth son, Clement Coke, lived there. On his death, Longford passed to Clement's son, Sir Edward Coke, baronet. Sir Edward married Katherine Dyer at St Denis' Church, Colmworth, Beds. on 13 January 1641/2. There were two sons of the marriage, Sir Robert (died 1687), who married but had no surviving children, and Sir Edward, who died unmarried in 1727. He was followed by an unmarried cousin, another Sir Edward Coke, who died in 1733, and he in turn by other younger sons of the Coke family. The famous Thomas William Coke, first Earl of Leicester of the second creation (that is, Coke of Norfolk), who died in 1842, lived at Longford and is buried there.

It is difficult to connect the refenestration with a specific change of tenant. Pevsner comments that 'nothing seems to be known of the building history of the house'.

Literature: Pevsner 1953, pp.175-6; Thorold 1972, p.91 with photograph, 26 top; 'Parish Register of Colmworth', Beds. Parish Registers, 48, 1984; Holkham Hall (guide book), pedigree on inside back cover.

Trusley Hall, Trusley SK 254356

This is a complex of buildings belonging to the Coke family of Melbourne, Derbys. (not related to the Cokes of Norfolk). They owned the house from 1418. The earliest house, mostly demolished in the seventeenth century, was to the west of the present Old Hall. The latter is partly an Elizabethan building and partly of the eighteenth century. It is described as 'Tudor' with brickwork in stretcher courses. To this house belongs a tall gazebo with a pyramidal roof. There is a further, great new house, called Trusley Manor, 300m. to the south. This was built in 1902.

Literature: Pevsner 1953, p.238; Thorold 1972, p.119.

Bibliography of Works Cited

Beresford 1975 — G.Beresford, The Medieval Clay-Land Village: Excavations at Goltho and Barton Blount, Society for Medieval Archaeology Monograph Series no.6, London, 1975.

Pevsner 1953 — N.Pevsner, The Buildings of England: Derbyshire, Harmondsworth, 1953.

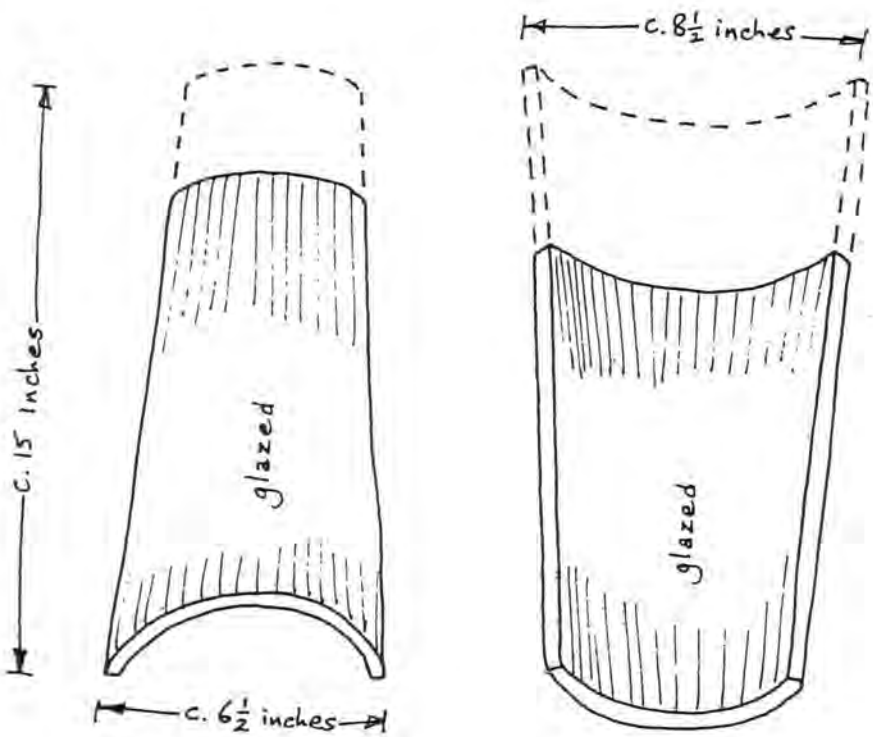
Thorold 1972 — H.Thorold, Derbyshire: a Shell Guide, London, 1972.

Wight 1972 — J.A.Wight, Brick Building in England from the Middle Ages to 1550, London, 1972.

A Correct Address. A couple of issues back Mr C.H.Blowers' new address was given but recently his old one has been inexplicably resurrected. Mr Blowers' address is: 'Derry Down', Maple Drive, Derrington, Stafford ST18 9NE. In case of urgent inquiries, Mr Blowers wishes his telephone number to be given: it is: 0785 - 52588.

QUERIES

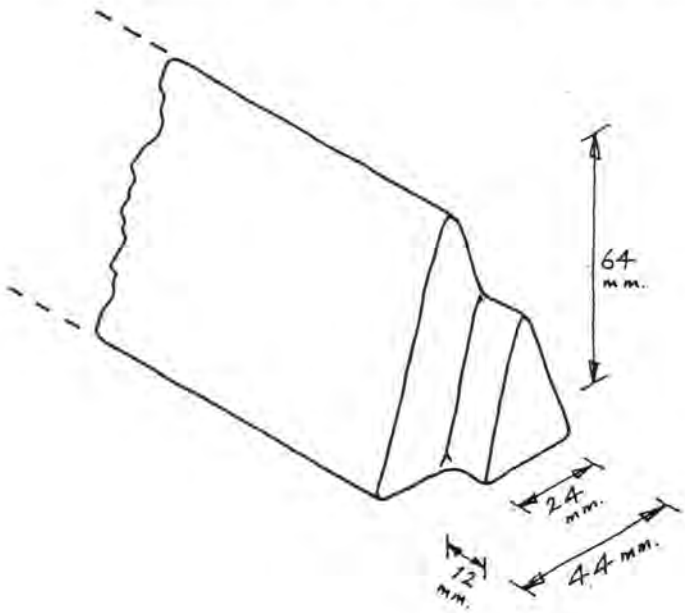
1 From: Miss Lesley Ketteringham. Miss Ketteringham is seeking information about some tiles which have been found in the retaining bank of Ivy Mill, Godstone, Surrey; this is a Domesday mill, although the bank must have been reinforced many times, so that the tiles may be of any date from the twelfth to the nineteenth century. Her own feeling is that they are post-medieval, perhaps from the sixteenth to the eighteenth century. But she would be grateful for any further information that readers may be able to supply.



Miss Ketteringham describes the tiles as follows (see also the sketch alongside): 'The tiles are about 15 in long (I have not obtained a complete length, so they may be a little longer) by 6½ in wide at the base for imbrices and about 8 in wide at the base for tegulae. Each tile is slightly tapered. The fabric is either a dark biscuit colour or red. Each tile is green glazed over white slip, especially on the red tiles, and the imbrices are glazed on the convex side only leaving about a quarter of the tile at the top unglazed. The tegulae are glazed on the concave side only, also leaving about a quarter unglazed. They seem to conform in shape to the example A5 in Norman Davey, A History of Building Materials (1961), p.156.

'I do not know', she adds, 'of any building in the neighbourhood which would have imported such tiles, say in the Victorian period. An analysis has been done at Southampton University of the fabric and this has been pronounced as "local", but I rather doubt this as the local clay always fires either red (Weald clay) or bright yellow (Gault). There are about twelve tiles represented in the sherds so far collected; these were all together in a dump, which seems to indicate that they were part of a reinforcing operation but had not come from very far away, since they were not scattered.' Replies to: Miss L.L.Ketteringham, 14 Court Road, Godstone, Surrey RH9 8BT.

From: T.P.Smith. The fragment of a brick product shown in the accompanying illustration was found by a schoolboy near Dartford, Kent. I was unable to comment on it and would be grateful for any information which members may have concerning it. The brick has a reddish finish and is fairly smooth on the larger faces. The lower, smaller surface, however, is yellow, as indeed is the fabric of the brick. This bottom surface is also rougher in texture, as well as showing at least one strike-mark. Stamped into this bottom surface are some capital letters, not altogether clear but seemingly 'RE..'. The letters are 15 mm in height. Other dimensions are as shown in the illustration. At the complete end of the brick is a lug-like feature, presumably intended to fit into a corresponding feature in an adjoining brick. Was this some kind of coping brick? Replies to: T.P. Smith, The School Flat, Dartford Grammar School for Boys, West Hill, Dartford, Kent DA1 2HW.



From David H. Kennett. In Information 33, May 1984, 7-12, D.H. Kennett gave a preliminary list of hearth tax assessments of early brick houses in Bedfordshire, Oxfordshire, Suffolk, and Surrey. This was followed up by 'Suffolk Houses in 1674', Information 37, November 1985, 4-11. A further account of the assessments for houses in Oxfordshire, Shropshire, Staffordshire, and Warwickshire has been prepared, together with some general comment on working with hearth taxes.

D.H.Kennett is also working on the assessments for Bedfordshire, Cambridgeshire, and Huntingdonshire. He anticipates working on the assessments for Norfolk and Essex at some future date.

However, considerations of distance and accessibility may well preclude work on other counties. He would welcome information on the assessments of Kent, Sussex, Hampshire, Middlesex, Hertfordshire, Buckinghamshire, and Lincolnshire. Offers of help to: D.H.Kennett, 27 Lord's Lane, Bradwell, Great Yarmouth, Norfolk NR31 8NY (Telephone: 0493 - 668605).

Please see urgent notice on next page!!