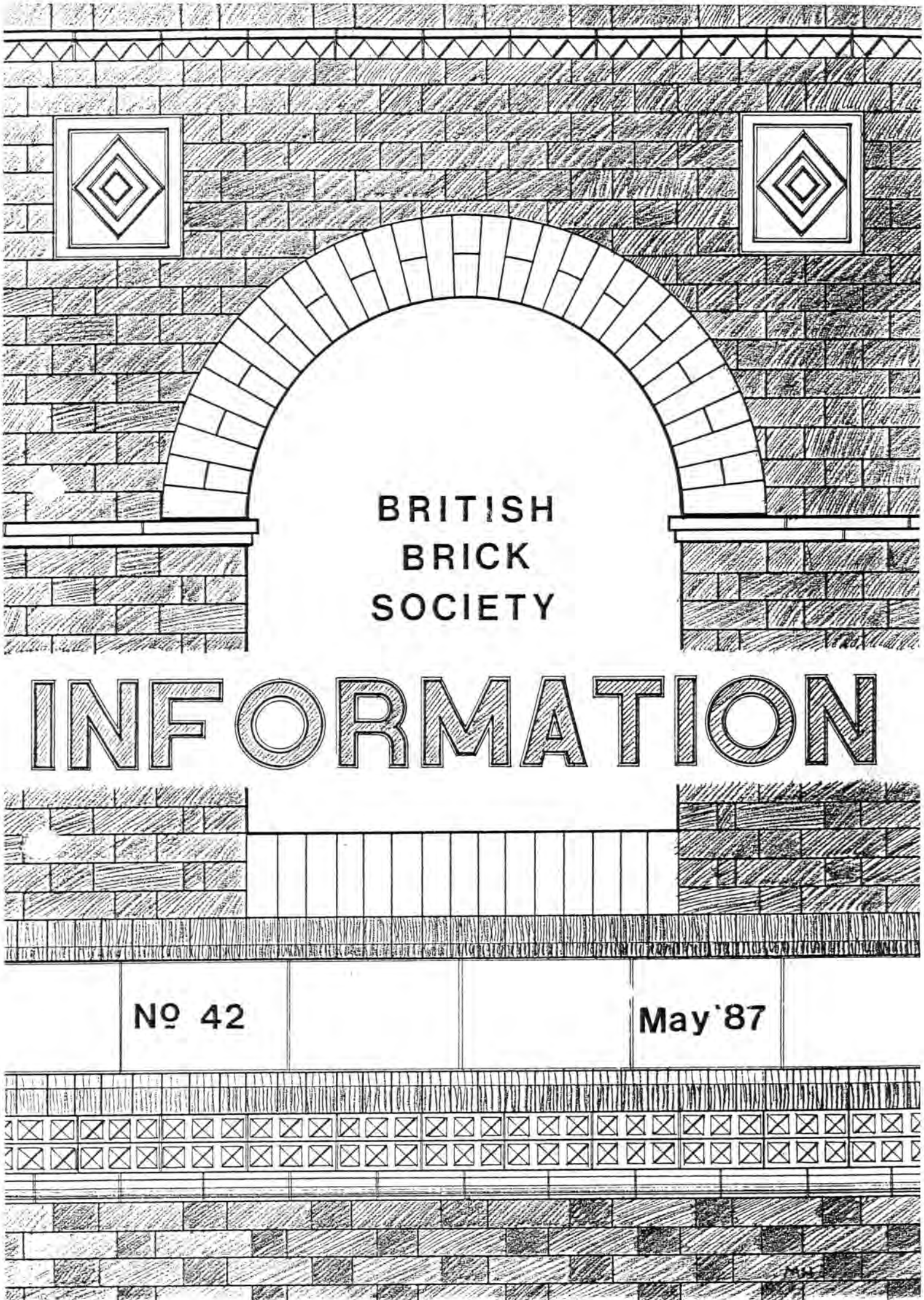
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No 42
May '87

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BRITISH BRICK SOCIETY

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INFORMATION 42

EDITORIAL: EARLY BOND

In the editorial to Information 37 I discussed, albeit briefly and inconclusively, the terms 'English Bond' and 'Flemish Bond'. This brought a welcome response and encouragement from Anthea Brian, who has herself produced a useful survey of brick bonding in English buildings (Vernacular Architecture, 11, 1980, 3-11). More recently, my interest has turned towards the actual laying of the bricks - and so to the creation of bonds - in early brick buildings. Necessarily, it is to ruined buildings or to excavated remains that one has to look for such an investigation, since one is considering more than the 'public face' of the buildings.

It is a commonplace that early - medieval and Tudor - brick buildings in this country predominantly use English Bond. Examples of early Flemish Bond on the Continent were noted in the editorial already mentioned, and Anthea Brian has noted several English instances. Often these show little consistentcy, or are used on only part of a building, although the fifteenth-century Middleton Tower in Norfolk is exceptional in this respect. Other bonds were used occasionally, normally for special purposes - for example, at Someries Castle, Bedfordshire (c.1448sqq.) Header Bond was used within the stair-turret, presumably to aid the achievement of a smooth curve; it may

be significant that this wall was certainly rendered, so that the bond would not have been seen. Despite these examples, however, it remains true that most late medieval and Tudor brick buildings were erected in English Bond, though one must add the rider that a deal of irregularity was permitted.

When one looks at the construction of this bond in these buildings, however, there are surprises. In reporting on thick-wall structures of sixteenth-century date uncovered at the Bridewell Palace, London, the excavators note what appears to be a 'proper' use of the bond - that is to say, one that more or less conforms with what a modern textbook on bricklaying or building would prescribe. This is not always, or even usually, the case, however. Perhaps one of the more startling instances comes from a 14-inch internal wall at Someries Castle. It is easy to lay the bricks of such a wall in English Bond - though the stretcher and header courses will be different in the two faces - and to maintain a fully bonded structure (fig.1; all the diagrams show sections; the letters S and H refer, respectively, to stretcher and header courses in the wall-faces): in section each course comprises one stretcher and one header. In the Someries wall, however, the bricks are arranged as in fig. 2, with half-bats being used in alternate courses to create the bonding pattern on the right-hand side. As a result, the 'skin' of stretchers and half-bats on the right is not bonded at all into the left-hand part of the wall. The same thing was done in a wall flanking the entrance passage at Nether Hall, Roydon, Essex - built in the second half of the fifteenth century, almost certainly by the same builders as those who put up Someries. Interestingly, this same group of craftsmen must have been responsible also for Rye House, Hertfordshire (c.1443sqq.), and at the latter, the edges of the crenellations show the proper arrangement of bricks in a 14-inch wall. Perhaps the fact that these edges were faces, and therefore visible, meant that the builders were more conscious of pattern.

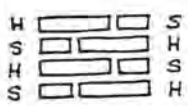


Fig.1

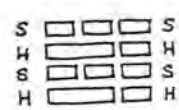


Fig. 2

Thicker walls too show deviations from what a modern bricklayer would do. One 18-inch wall at Someries is set out in text-book fashion (fig.3); but others once again depart from it (figs.4 and 5). Again, 19-inch walls at Nether Hall, Roydon shows the same feature, as does a 20-inch wall at Otford Palace, Kent (1503-18). Even thicker walls also show similar curiosities, particularly in the use of half- or three-quarter bats to form the headers in header courses. Someries again provides examples in 28-inch walls, and there is similar work in the 24-inch brick wall added in 1477 to the earlier stone wall of the London City Wall at St Alphege. The 44-inch wall at Otford Palace gatehouse (fig.6) is especially striking in the curious way in which it uses its bricks.

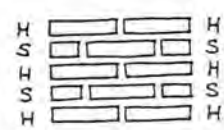


Fig. 3

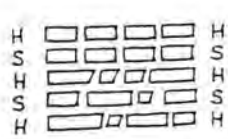


Fig. 4

The sixteenth-century work at Eltham Palace, London shows a slightly more regular use of brick-work, although the cores of many of the walls have bricks laid longitudinally (that is, parallel to the wall-faces) rather than transversly; it is the latter arrangement which forms the 'textbook

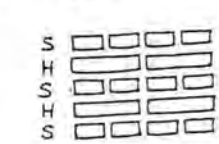


Fig. 5

method'. Moreover, at Eltham, half-bats and even, within the wall-thickness, quarter-bats are used to achieve the required thickness. At canted angles all sorts of broken bits of brick are used in a kind of crazy-paving approach to bricklaying!

Fig. 6

Even within the visible faces of brick buildings there are variations from later practice. There is usually no attempt, for instance, to align the bricks vertically so that perpends come directly above those of corresponding lower courses. In some cases, these variations are caused by the need to adjust positions of bricks in creating all-over diaper patterns. But this is not always the case. Moreover, the diaper patterns themselves are often decidedly irregular, most markedly (and perhaps most surprisingly) in Wolsey's work at Hampton Court Palace (1514-29). That on the Front Court of St John's College, Cambridge (1511-16) is better, though still far from perfect. Those on the London Wall at St Alphege, though earlier in date, are rather more accomplished in this respect; as are those at Otford Palace of 1503-18.

And yet the use of closers was known, as indeed it had to be, for some adjustment was always necessary when approaching doorways and windows, even with the relatively thick mortar joints (perpends in particular) in use at the time. These adjustments <u>might</u> have been made more or less haphazardly, but in fact were not always done thus. Like the adjustments in Anglican Chant, those in early brickmaking often come at the most felicitous points towards the end of a course. At Rye House in the middle years of the fifteenth century the closers were used in their 'proper' (that is, later textbook) way, close to angles and apertures, and quite consistently. If this could be done, then certainly perpends could have been brought into alignment and diaper set out more elegantly than was sometimes the case.

The object in putting forward these considerations is that of drawing attention to a somewhat neglected aspect of the study of medieval and Tudor brickwork. Where opportunities are available - that is, largely, when studying ruined buildings and excavated remains - note should be taken of the way in which the bricks are laid to form a particular bond rather than simply noting that the bond is used. The number of brick-bats used, either for facing ('snap headers') or within the core of a wall, might also be noted. At Someries, this seems to be quite high: is this connected with a quite large amount of wastage during firing? Certainly, these early bricklayers seem to have been disposed to make use of 'wasters' in a way that did not enhance the strength of the walls and which would not be tolerated by more recent bricklayers. Moreover, the disregard for proper bonding in some instances, as noted in the third paragraph above, is puzzling, and it would be good to know how widely it occurs.

Terence Paul Smith
Editor

A.G.M.

20 JUNE 1987

All members should have received separate notification about this event, which will take place at the Ironbridge Gorge Museum at 2.00 p.m. on Saturday 20 June. If you have not been notified please contact the Hon.Secretary, Mike Hammett, immediately!

BEECH HURST, POOLE

Martin Hammond

I have recently been concerned with some alteration work to this mansion, Beech Hurst, High Street, Poole, Dorset, which was built in 1798 for Samuel Rolles, a local merchant. The building is faced all round with dark red bricks, probably brought in from neighbouring Hampshire. They measure 225 by 110 by 60 mm, and rise nine courses to 600mm; they are laid in Flemish Bond. Traces of tuck-pointing remain in sheltered positions. These facings had an even wood-ash glaze on one stretcher face. When fired in the kiln, these bricks must have been set on end in double rows, back to back (fig.1), so that one stretcher face was glazed and the other evenly coloured from not being struck by the flames. The more usual, and more stable, method of setting is shown in fig.2; it produced bricks with two glazed header faces. The kiln would have been a Suffolk kiln. The glazed stretcher faces also showed a slightly raised diagonal stripe, from when the bricks were 'skintled' in the hacks.

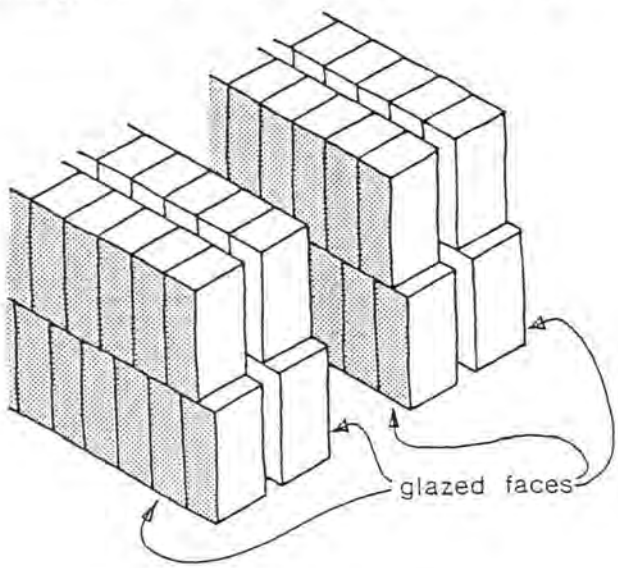


Fig. 1

The core of the walls, and all internal and foundation brick work, were of local bricks, light red in colour. In the foundations of the outbuildings a very large radial stretcher, in local fabric, was found (fig.3). Calculations show that seventeen of them would form a circle of 1.5m (5ft) internal diameter.

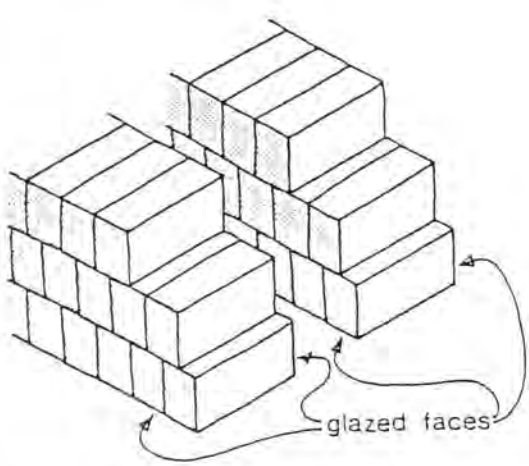


Fig. 2

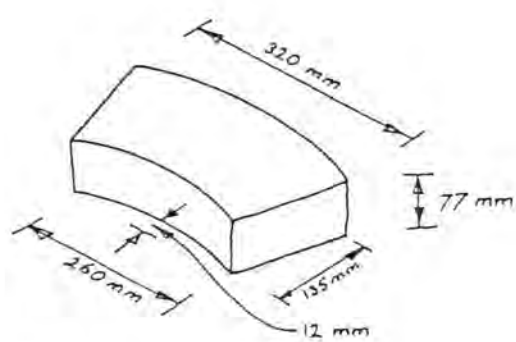


Fig. 3

RENDERED DETAILS TO BRICK BUILDINGS - SOME KENT EXAMPLES

Terence Paul Smith

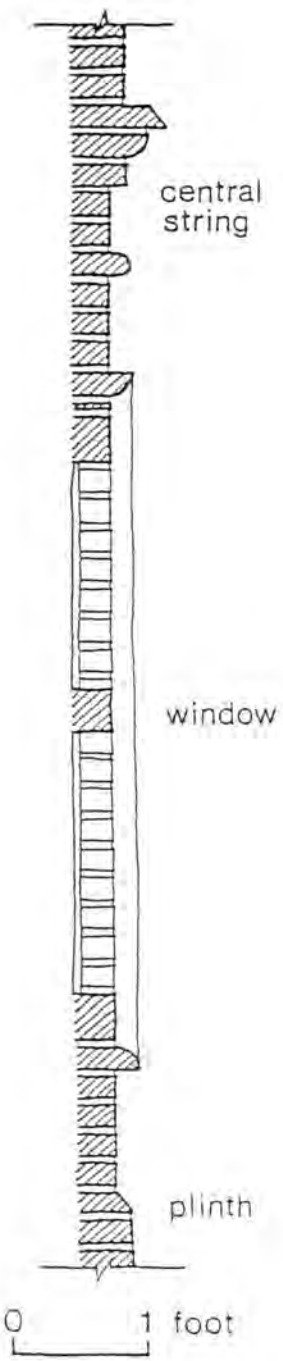


Fig. 1 Temple Manor, Strood: section through window in western extension (sketch)

In a description of the seventeenth-century brick western extension to the medieval stone-built Temple Manor at Strood, near Rochester, the late Stuart Rigold wrote of 'moulded string courses and squared fillets round the windows, originally rendered in mortar to simulate ashlar dressings - a local mannerism of the period...'.[1] A number of buildings from the previous century as well as from the seventeenth show this use of rendering over cut or moulded brickwork details in order to give the impression of stonework; and in other cases rendered 'stone' details are added to plain brickwork. The technique occurs elsewhere too,[2] though here it is some Kentish examples that will be examined.

Windows and doorways are obvious feature for this kind of treatment since it was here, even if nowhere else, that a brick building might have (real) stone dressings. Although there are a few instances of wooden windows - for example in the Tudor gatehouse at Lullingstone Castle, Kent - there were two principal ways of constructing windows in early brick buildings. One was to use stone components, just as in all-stone buildings; the other was to use brick components, often specially moulded but sometimes only cut to shape, left exposed as display brickwork; the richly decorative windows at Sutton Place, Surrey may be considered a special case of this second method. A different technique, however - that being considered here - combines the appearance of the former with the constructional nature of the latter.

At Temple Manor, Strood, in fact, the windows (fig.1) are simple in form: straight headed and divided into rectangular lights by unchamfered brick mullions and, in the larger windows, transoms. There are simply moulded fillets forming a frame around these windows. In earlier buildings, however, somewhat more elaborate forms might be treated in a similar way. At Eltham Well Hal an early sixteenth-century brick building in metropolitan Kent, for example, there are square-headed windows divided into separate

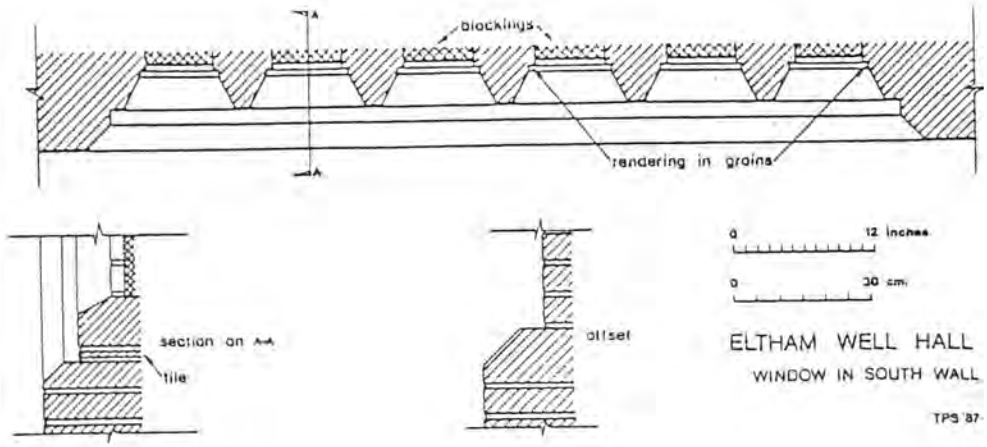


Fig. 2 Eltham Well Hall: window

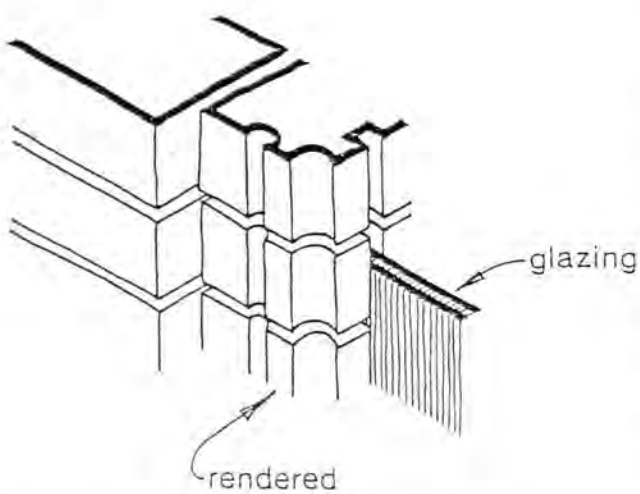


Fig. 3 Richard's Charity Almshouses, Goodnestone: window jamb bricks

lights by chamfered mullions; jambs heads, and sills are similarly chamfered (fig.2). Although all brickwork is now exposed, there are traces of a pinkish plaster/mortar in the re-entrant angles and on some of the brick faces, and it is clear that these windows were formerly rendered. The rendering is still intact at the contemporary Cale Hill Stables at Little Chart,[3] where there are square-headed windows with simply moulded jambs and mullions, all rendered to give the appearance of stonework; strangely, the labels above the windows are of exposed brickwork. Somewhat later (c.1588 sqq.) is the tall tower-like gatehouse at Sissinghurst Castle, the windows of which are square-headed and mullioned and transomed, with, on the first and second floors, elaborate entablatures also carried out in rendered brickwork.

Slightly more elaborate are the much later windows (of 1672) at Richard's Charity Almshouses, Goodnestone;[4] again, the windows are square-headed, but the mullions and jambs have hollow-chamfers as well as a half-round sinking in their faces (fig.3); again, all is rendered to resemble stone. Nathaniel Lloyd drew attention to the fact that these unusual mouldings are of the same form as those formerly at Broome Park, a

richly decorated house of some forty years earlier (1635-8), although these were replaced by stone windows by Lord Kitchener.[5]

From earlier in the seventeenth century is Ford House at Wrotham. The windows in the gable-end wall were perhaps always of exposed brickwork, but those of similar form in the principal face are rendered. Once more they are square-headed; set within plain-chamfered recesses, they have hollow-chamfers to the surrounds, mullions, and transoms (fig.4). Of similar date, but already a much more mannered building, is Charlton Court at East Sutton, dated in one gable to 1612.[6] The carefully proportioned and finely finished windows, with moulded surrounds as well as mullions and transoms, are carried out in rendered brickwork, as are other details of the building such as quoins and cornices.

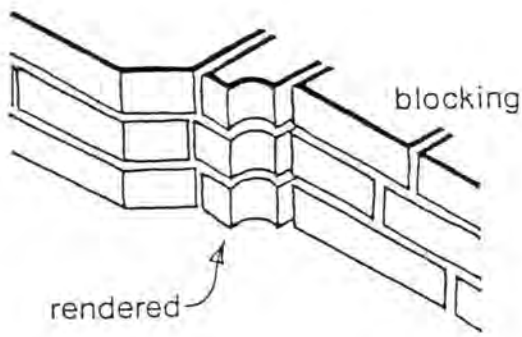


Fig. 4 Ford House, Wrotham: window jamb

Other examples are known too - for example at Ightham Court, Ightham (1575) and at Bybrook, Kennington, on the outskirts of Ashford, a red brick house with rendered mullions and transoms, with rusticated surrounds to the windows, also carried out in render. The doorway, with its rusticated surround and square label, is also rendered.

At Hollingbourne Manor, likewise a brick house of late sixteenth century date, the windows are essentially similar; the originally brick mullions and transoms of the square-headed windows, however, have been replaced, since William Twopenny drew them in 1825,[7] with wooden ones of similar form.

About 1628, a timber-framed house at Bicknor Court, Bicknor was encased in red brick. On the south side the windows are small - either of two or three square-headed lights set in an oblong recess. The ground-floor windows have rendered rustication but the upper ones have straight sides. These windows show, interestingly, that the rendering does not always reproduce exactly the form of the brickwork beneath: where the rendering has fallen away, it is clear that the mullions have hollow-chamfers; the rendering, however, has transformed these into plain-chamfers (fig.5). On the north side are much larger square-headed windows - of five or six lights. They are rendered, with rustication, although the moulded hood-mould - which continues as a string-course - is of exposed brick work. The plinths of the building too are rendered (fig.6).

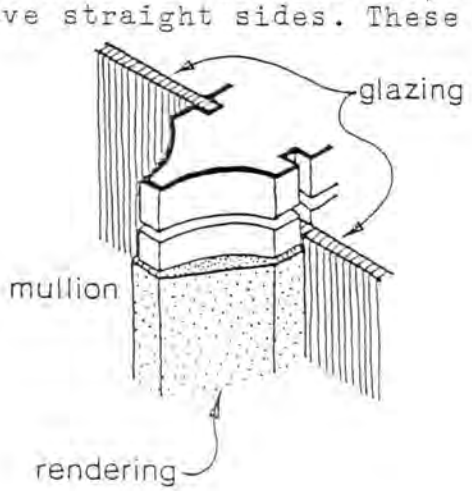


Fig. 5 Bicknor Court: mullion

Although this square-headed type of window was most common, arch-headed lights were also constructed using the same technique,

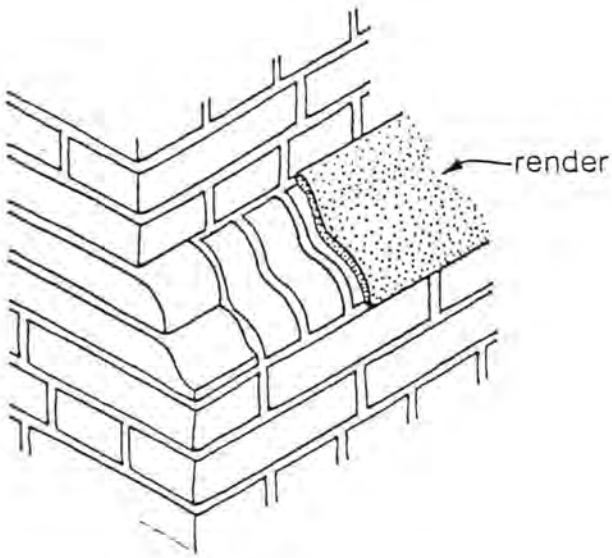


Fig. 6 Bicknor Court: plinth

as at the garden pavilion at Hales Place, Tenterden, of c.1530.[8] Here the windows are of two segmental-arched heads with simply moulded jambs and mullions, all contained within a rectangular frame and with a moulded string-course-cum-label above, also rendered to resemble stone.

Somewhat similar to windows are the cloister or gallery openings of the north wing at Otford Palace, built 1514-18. Here, as at Eltham, there is mortar remaining in the spandrels; this is taken by Anthony Stoyel to indicate that 'the north range brickwork, at least, was covered with rendering,'[9] but it is equally likely that only the opening surrounds were rendered so as to resemble stone dressings to a brick-built structure.

However, it was not only windows that might be treated in this way. At Hales Place, Tenterden (c.1530), for example, the segmental-arched doorway to the garden pavilion is of rendered brickwork, as are the surrounding rectangular frame and the flanking Tuscan columns The moulded string-courses and the crenellations were also rendered to resemble stone. Sometime later (c.1588sqq.) the gatehouse at Sissinghurst Castle had its rear archway made of rendered brickwork, although the front archway is of real stone; the flanking pilasters, with their moulded bases and capitals, of the rear archway are rendered (fig.7). The dressings at higher levels on both sides of the gatehouse are of rendered brickwork, including sections of entablature over the windows. The rusticated quoins to the tower and its stair-turret are also rendered.

At the Cale Hill Stables at Little Chart there is a decorative panel and pediment above the entrance; although the doorway itself is of real stone, the panel and pediment, ornamented with strapwork, are rendered. The much more sophisticated work at Charlton Court, East Sutton (1612) - including heavy moulded string-course, cornice, and angle-strips - is all in render.

Other buildings also show the use of render for quoins, as at the late sixteenth-century Bybrook at Kennington and at Hollingbourne Manor, of similar date. But at the contemporary Ightham Court, Ightham the quoins are of real

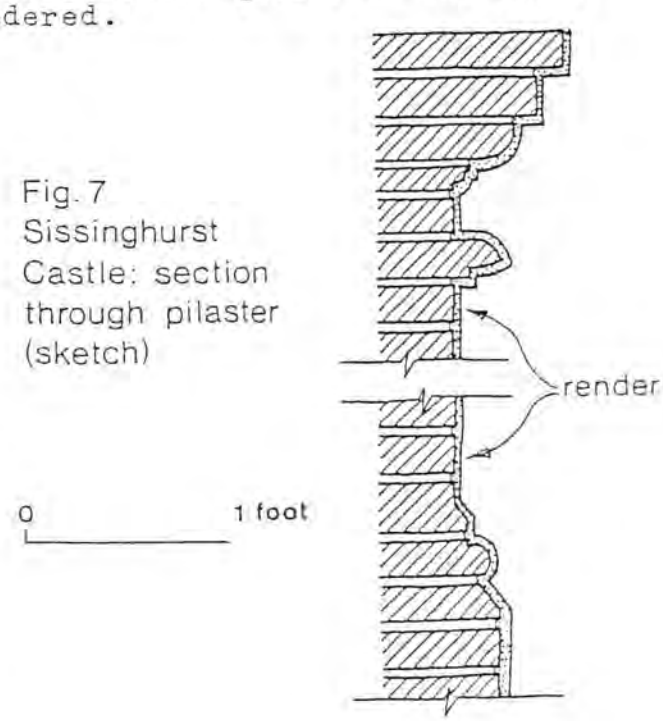


Fig. 7 Sissinghurst Castle: section through pilaster (sketch)

stone, although the windows and other details are rendered.

At Brenley Manor House (Brenley Farm) near Boughton-under-Blean the moulded brick string-course on the stable building of 1654 once had plaster on it (removed in 1935), and 'it is probable that it covered the other rubbed brick work' too; this included a doorway, square-headed two-light windows, and flat pilasters on the end elevation. The central doorway was, however, of stone. The building, incidentally, is a fine example of the endeavour to make a utilitarian building resemble some other - a long, two-storey house, in fact.[10]

Internal features, too, might be accorded such treatment, as, formerly, in the south wing added to an earlier building at Court Farm, Halling. Here four brick-built fireplaces with low three-centred ('basket'-) arches and simple mouldings were rendered to look like stone. Unfortunately, the wing containing these features - and other brickwork of interest - has been demolished.[11]

Churches - or, rather, later additions to churches - also made use of the technique of simulating stonework in rendering. The sophisticated windows considered so far contrast with the simpl chamfers used on the small windows of the seventeenth-century brick north porch added to St Augustine's Church, East Langdon, near Dover. Here too the doorframe, though not the arch itself, is rendered; it is rusticated, as are the quoins. Also carried out in render are a broad band across the front face and a small panel in the gable. The work, one assumes in this case, was by a local artisan craftsman. At All Saints' Church, Boughton Aluph the red-brick north porch, of late sixteenth- or of seventeenth-century date, has a simple round-headed archway with a quarter round moulding, rendered. The east quoins have rustication carried out in rendering, and the west quoins were originally similar although only traces of the rendering now remain; the east quoin even has horizontal lines incised on it to represent the joints between stones. A brick plinth of quarter-round section running around the foot of the porch was also rendered. At the Church of St Mary Magdalen, Stockbury a sixteenth- or seventeenth-century window of red brick in the south wall of the south transept has been almost totally rebuilt; a few old bricks, however, remain and show that the quarter-round mouldings to the jambs follow the primary form. A few traces of render on these old bricks suggest that the window may have been rendered to resemble stonework.

What is interesting about this technique of simulating stonework in render is the fact that it occurs on buildings of widely differing status, from Sir Richard Baker's large Elizabethan mansion at Sissinghurst to the small, local craftsmanship of the East Langdon church porch. This in itself precludes any naive economic explanation: clearly, there was nothing impoverishe about the soaring gatehouse-tower of Sissinghurst or the decorated stables at Cale Hill and Brenley Manor, for example. Nevertheless, an economic motive of a different sort may be postulated. Even the wealthy who were disposed to make a fine display of their position and status might, still, be prepared to save money where they could do so without appearing to be penny-pinching. In the fifteenth century a master (= architect) like John Cowper could clearly work in both brick and stone, and had in fact served his apprenticeship on buildings using both these materials.[12] On the other hand, the incident at York in 1491, involving the murder of a York 'tiler' (= bricklayer) by two masons, shows a separation of the two crafts: the dispute concerne the building of the Red Tower, part of the city's defences,

by bricklayers rather than by stonemasons.[13] In other building projects of the late medieval period one can see ordinary craftsmen (that is, those below the level of master) combining work in both brick and stone. As Knoop and Jones point out, 'interchange of work between layers of stone and layers of brick was quite common at Eton in the 1440's, and occasionally bricklayers acted as rough-masons at Kirby Muxloe in 1482.'[14] It may be, therefore, that at York we are seeing the beginnings of a rivalry which would develop in later decades. Tentatively, one might suggest that increasing antagonism would be likely to result from the ever greater use of brick in the sixteenth and seventeenth centuries; but this is an aspect of building history which needs further investigation.

Assuming this to be the case, then not only were bricks a relatively cheap material by the end of the sixteenth century, their prices remaining steady throughout the period of the Tudor inflation, but also the employment of only one group of craftsmen - the bricklayers - would be cheaper than engaging two separate groups - bricklayers and stonemasons. Moreover, at York at least, the bricklayers, tilers, and plasterers were associated in a trade guild,[15] whilst at Newcastle the wallers, bricklayers, and daubers were so associated in a fellowship in 1660 and 'it was provided that they should not be molested by the company of masons or by the slaters.'[16] The associations are not surprising: bricklayers would of course mix their own mortar, and even buildings of exposed brick often required internal rendering/plastering of the walls. Some bricklayers at least, we may suppose, were skilled enough in handling rendering to produce most of the work reviewed here, although the strapwork decoration at the Cale Hill stables may have called for separate specialist craftsmen. The case seems particularly likely in Kent, where, as Lloyd pointed out, some of the buildings are rendered with a 'thin mortar, often of sea sand and grit', whereas in 'some other localities the rendering was of almost pure lime putty, with hair mixed, as may be seen in most of the Essex houses'.[17]

The use of rendered detailing was to continue long after the period dealt with here. In 1695 it was used, possibly by Sir Christopher Wren, for banding, rusticated quoins, and columns at the entrance at Morden College, Blackheath, in what is now metropolitan Kent.[18] In the succeeding century it was by no means unusual for rusticated quoin-'stones' to be created in render on Georgiam houses, whether of brick proper or (a double deceit!) of brick-tiles.[19]

Notes

1. S.E.Rigold, Temple Manor, Strood, DOE guide, 1975 edition, p.17 (= MPBW guide, 1962, p.14).
2. Cf. N.Lloyd, A History of English Brickwork..., London, 1925, re-issued Woodbridge, 1983, pp.62-3.
3. Illustrated in ibid., p.270.
4. Illustrated in ibid., p.303.
5. Ibid., pp.62, 303; J.Newman, The Buildings of England: North East and East Kent, Harmondsworth, 1969, p.161.
6. J.Newman, The Buildings of England: West Kent and the Weald, Harmondsworth, 1969, pp.261-2 with photograph at pl.51.
7. E.R.Swain, William Twopenny in Kent, Doddington, Kent, 1986, pl.35, 36, and p.17.

8. Illustrated in Lloyd, op.cit., p.321.
9. A.D.Stoyel, 'The Lost Buildings of Otford Palace', Archaeologia Cantiana, 100, 1984, 268.
10. T.Snoxell, 'Brenley Farm', Traditional Kent Buildings, 3, 1983, 27-34
11. Swain, op.cit., p.14, pl.26, 27.
12. J.H.Harvey, English Mediaeval Architects: a Biographical Dictionary down to 1550, revised edition, Gloucester, 1984, pp.73-4.
13. J.H.Harvey, Mediaeval Craftsmen, London, 1975, p.144; Royal Commission on Historical Monuments, An Inventory of ... the City of York, II, The Defences, London, 1972, pp.139-40.
14. D.Knoop and G.P.Jones, The Mediaeval Mason, Manchester and New York, third edition, 1967, p.132.
15. Harvey, op.cit. in n.13, p.145.
16. Knoop and Jones, op.cit., p.207.
17. Lloyd, op.cit., pp.62-3.
18. Ibid., p.63.
19. T.P.Smith, 'Brick-Tiles (Mathematical Tiles) in Eighteenth- and Nineteenth-Century England', Journal of the British Archaeological Association, 138, 1985, 154.

THE BRICKWORK OF BURGH HALL, BURGH CASTLE, SUFFOLK

David H. Kennett

Burgh Hall, Burgh Castle (near Great Yarmouth), Suffolk (NGR: TG 496 045) was built for H.P.Fredericks, a local landowner, in 1846. More recently it had been used as a country club. Sometime before 2.30 a.m. on Friday 12 September 1986 the building caught fire and was gutted. Demolition is anticipated following extensive damage.

The building is three bays by three bays, of two storeys, and with a hipped roof. The entrance porch was in the centre of the east front. On this front and on the south and west fronts the bays were divided by double brick pilasters, two stretcher faces and one header face in width, alternate courses being a header and a closer either side of a stretcher. All three principal fronts were in white brick, very neatly coursed in Flemish Bond.

At the centre of the south front, on the ground floor, was a blind window. Behind this was the stub of a former cross-wall. The south front had an outer skin two bricks thick, inside which was an

inner skin of red brick, of inferior quality to the white facing bricks and, seemingly, to other red bricks in the house, and much less precisely laid. The bonding of the inner skin was largely Header Bond, but with the occasional single course of stretchers visible. There was no attempt to produce English Bond for engineering reasons. Let into the interior skin were horizontal wooden slats, one at about every twelve courses, for the fixing of plasterboard. Also embedded into the inner brickwork were the joists, which ran north-south in the southern third of the house but east-west in the north-west part (that is, the two northern bays of the west front) and presumably in the still ceiled north-east part.

The quadruple thickness of the south wall required deep splays to the fenestration. The ground-floor-level windows had a 45° splay made from angled bricks. The white facing bricks were laid one header face in from the termination of the splay.

The joists of the southern bay were supported to the north by the principal east-west cross-wall of the house, part of which had been removed on the first floor. The wall was of red brick, laid in English Bond, in good quality coursing. Original openings on the ground floor had wooden lintels; there was a circular-headed opening in the centre of the first-floor level. The load-bearing wall running north-south for the full height of the house, and delimiting the eastern side of the north-west portion of the house, was also red brick, well coursed in English Bond, with the pointing looking pristine.

Both the white facing bricks and the red bricks used internally are of standard size (9 by 4½ by 3 inches; 22.9 by 11.4 by 7.6 cm). They have the texture of the early products of the Somerleyton brickworks.

The fire gave an opportunity to examine the construction of an early Victorian gentleman's residence, of which there are several in the Great Yarmouth area. North of the River Yare are two houses built for the Gillet family: Halvergate Hall of 1840 and the undated house known as The Rookery, Halvergate. South-west of Yarmouth, at an increasing distance therefrom, are Haddiscoe Hall, Thorpe House at Haddiscoe Thorpe, Toft Monks Hall, and Sisland Rectory.

Lincolnshire Brick

In their series called 'A Visitor's Guide', Lincolnshire Museums issued, in 1982, a six-page fold-out leaflet on stiff card dealing with 'Early Brick Buildings in Lincolnshire'. Written by Andrew White, the leaflet gives brief notes on Brickmaking, Building Methods, Tattershall, Wainfleet School, Spalding, Bardney, Roughton, Goltho, Boston, Gainsborough, and Lincoln. There are drawings of moulded bricks as well as photographs of English Bond brickwork, the Tower-on-the-Moor at Woodhall Spa, Wainfleet School, the Abbey Buildings at Spalding, Bardney Church, the south side of Goltho Church, Boston Guildhall, and a detail of Gainsborough Old Hall. There are four suggested tours (for those with cars) with grid references and a simple location map. The leaflet is available from: City and County Museum, Lincoln, price 20p + self-addressed stamped envelope 9 by 4 inches.

The Museum also has a similar pamphlet entitled 'Six Lincolnshire Castles', again by Andrew White; this includes Tattershall Castle, illustrated with an artist's reconstruction by David Vale.

D.H.K.

THE QUALITY OF LONDON BRICKS IN THE EARLY EIGHTEENTH CENTURY

David Yeomans

One of the functions of the medieval trade guilds was to ensure the quality of the products of their members. To this end, the guilds appointed searchers who were empowered to find and destroy any defective goods. How well this system worked in general it is difficult to say, because one may imagine that it was a system that might well have been open to abuse; but at the end of the seventeenth century it seems to have been becoming ineffective, and in the buildin industry this meant that greater emphasis had to be placed upon contracts with the builders and upon control by clients or their surveyors or architects.

D.Knoop and G.P.Jones reported that the use of searchers was falling into desuetude in the Masons' Company in London by the beginning of the eighteenth century. The last record that they found of a search for defective stone which was to be broken up was in 1704, after which the practice appears to have ceased, and they concluded that 'the trade functions of the company may be regarded as of relatively little importance after the close of the seventeenth century.'[1]

Whatever the reason for this, there was a similar lack of contro over the quality of materials in brickwork. One cannot be sure to wha extent buildings work was affected by this, but the records of the building of the Commissioners' Churches,[2] which began in 1711, show that it was a serious problem in this major undertaking. The Commissioners had several churches in hand at any one time. In 1717 St John's, Smith Square and the churches at Deptford, Limehouse, and Wapping, as well as St Mary-le-Strand, were roofed although not yet complete. Christchurch, Spitalfields was well advanced, and St George Bloomsbury had just been started. At any one time, supervision of this work was in the hands of two Surveyors - Nicholas Hawksmoor and, at various times, William Dickinson, James Gibbs, and John James. The Surveyors' reports to the Commission throughout the work on these buildings frequently complained about the poor quality of the brick-work, sometimes because of workmanship by the bricklayers but largely it seems, because of the poor quality of the actual materials that were being used.

The problem first occurred in November 1713, in the brickwork of the foundations of St John's, Smith Square. The Surveyors reported on the quality of the work, noting that 'Some of the bricks are the common place bricks, mixt with sea cole ashes - after the infamous way of the City of London. They are burnt to a cinder except for a quarter which are "semel" and not thoroughly burnt.'[3] They then con-sidered the problem of ensuring adequate materials and recommended that 'It is our opinion that no Spanish should be used in the bricks that are made for if the brickmaker gets liberty to put in the least quantity of Spanish they will mix what they please and pretend there is no more than allowed by the Commissioners.'[4]

The problems are explained in a letter written to the Commission by the Company of Bricklayers and Tilers in 1714, and the following is extracted from that letter:

'It is with much regret we have for several years past observed the bricks made round this city to be very bad and of late worse than ever; and according to the powers granted us by Royal Charter and our ordinances approved by the judges; have yearly appointed searchers ... to view and destroy such bad materials.

'It is our opinion that the badness of bricks proceeds from ... the practice of using ashes commonly called Spanish in making bricks begun about forty years since, occasioned by digging up several fields contiguous to the city after the great fire which fields having ben much dunged with ashes it was observed the bricks made with earth in those fields would be sufficiently burned with one half of the coles commonly used since which time, coles being by the high duties on them of more value here, the quantity of spanish is increased, especially since the habit of strewing houses with sand hath prevailed the dust bucket in every house being the common receptacle for sand as well as ashes so that the spanish hath not the force as formerly since the corrupt mixture of it; which excessive quantity so corruptly mixed we take to be a great occasion of the badness of bricks. Another reason is the great quantity of grey stock bricks that are now being made and burn'd in the heart of the clamps where the best place bricks which used to be burn'd within.'[5]

The effect on costs can be seen in the Surveyors' report, where they estimated that bricks without Spanish would cost 14s. per thousand at the clamp whereas if six loads of Spanish were allowed per hundred thousand bricks the price would be only 12s. 6d. per thousand at the clamp. The nice irony of this is that the duties on coal, which were making the bricks so expensive to fire, were imposed in order to pay for the churches in which the bad bricks were now being used!

The problem of 'semel' ('sammel' or underburned) bricks was a little different.[6] Not all bricks will be fired to the same extent, particularly with rather primitive firing in clamps. The bricklayers' contracts specified that they were supposed to pick out such poorly fired bricks, but it is clear from the Surveyors' reports that they were not doing so, and at one stage a firm of bricklayers was discharged because of the poor quality of their work. Unfortunately, the Company searchers found themselves unable to do much about this because, as the letter points out, semel bricks were used by the brickmakers in building their clamps. The searchers could not therefore search for and destroy the semel bricks at the brickmakers' works; yet if they waited until the bricks had been delivered to the site, then the bricks would already have been paid for by the bricklayer, so that the innocent would suffer rather than the guilty.

The Commissioners' response to the problem seems to have been to explore the possibility of separately contracting with the brickmakers for the supply of bricks, because bricklayers' tenders gave separate prices for laying and supplying materials and for laying bricks supplied by the Commission. Contracts could then require that the brickmakers replaced any defective bricks. However, it is not clear how effective this measure was, because there was obviously some cost to the bricklayer in picking out the bad bricks and there is no indication that he was compensated for this; there is hardly a report from the Surveyors that does not complain about the quality of the brickwork in one or more of the churches.

cont./

Notes and References

1. D.Knoop and G.P.Jones, The London Mason in the Seventeenth Century. Manchester, 1935, p.18.
2. These are now at Lambeth Palace Library (hereinafter: L.P.L.).
3. L.P.L. 2717 f.83 - 10 Dec. 1713.
4. L.P.L. 2690 f.134 - 30 Dec. 1713.
5. L.P.L. 2723 ff.21v-22 - 13 May 1714.
6. For a brief note on sammel bricks see T.P.Smith, 'A Note on Samel Bricks', BBS Information, 31, November 1983, 5-7.

Mathematical Tiles - Bedfordshire's First at Stockwood, Luton

The previous issue of Information included an article by Maurice Exwood ('Mathematical Tiles - the Latest Count', BBS Information, 41, February 1987, 11-13) which listed and mapped the known instances of mathematical tile (brick-tile) cladding in England and Wales. Not included therein was the county of Bedfordshire, for which no examples were known. However, on a recent visit to the Stockwood Craft Museum and Gardens in Stockwood Park, Luton, Beds. information on some late brick-tiles was found. The museum is housed in the stable block, all that remains of a fine eighteenth-century house, latterly owned by the local authority and inexplicably demolished in 1964. The house had been built by John Crawley, Esq. c.1740 and had a nine-bay frontage of two storeys, the three central bays being slightly projected and topped by a triangular pediment. Although built of brick, the house was later stuccoed, and Frederick Davis, in his The History of Luton, with its Hamlets, Etc., Luton, 1855, p.26, noted that 'being stuccoed with a light colour, it presents a very pleasing appearance.' It was perhaps at the same time as the addition of the stucco that the rusticated and vermiculated Coade Stone quoins were added; the window surrounds were also rusticated. Some time after the middle of the nineteenth century, however, the stucco was replaced by red brick-tiles in Flemish Bond.

I am virtually certain that the 'bricks' on the south face of the surviving stable block (which differ from the bricks used elsewhere in that building) are in fact brick-tiles. They are of a hard bright red fabric - consistent with a Victorian date - and are in Flemish Bond with thin joints. Against the Coade Stone dressings (significantly, this is the only face of the stable block to have these) small pieces of tile are inserted as 'gap-fillers'; proper closers are not used. Stretcher faces measure 9 by 2¾ inches, header faces 4½ by 2¾ inches (22.9 by 7.0 cm and 11.4 by 7.0 cm).

Bedfordshire should now be added to the table accompanying Maurice Exwood's article, and the entry should read as follows:

Bedfordshire	1	(0)	0.08.

Further investigation of the building is intended.

T.P.Smith

BAUMBER BRICK KILN, LINCOLNSHIRE

Martin Hammond

As reported in Information 40, November 1986, 12, work started on restoration of this brick kiln in July 1986. By Christmas the vegetation and loose brickwork above the firing-chamber vault had been cleared and the original design identified and rebuilt; work then started on repairing the side walls, which had cracks in them up to 4 inches across, and on rebuilding the end wall with two wickets, which had been taken down when the kiln was used as a farm barn.

The kiln is believed to have been built in 1873 by William Jordon, a tenant farmer on the Sturton Hall estate, and was worked by him and then by his widow for about twenty years. The kiln was coal-fired, with an estimated capacity of 40,000 bricks, which were slop-moulded from the dark grey Kimmeridge Clay, and dried in sheds. They burn orange-red, often with black cores.

The large water-filled claypit nearby, said by local people to be over 70 feet deep, is used for fishing, but part has been re-excavated to form a swimming-hole, which was well used by the bricklayers during their lunch-breaks - and by me during my site visit last August! That was my first visit to the site since 1973, when I did a hasty survey. The story goes that a traction-engine was used to haul clay out of the pit. One day a spring was struck and the pit filled with water overnight, covering the traction-engine, which was parked on the pit bottom. It is said to be still there, although a search by a local sub-aqua club has revealed nothing.

Work stopped for the construction industry's two-week Christmas break. Then the severe weather came, but work has now resumed.

The brick floors of the firing sheds on each side of the kiln were exposed to form a firm base for scaffolding. The firing-chamber floor was cleared so that the vault could be propped whilst work continued on top of the kiln. I took measurements and have drawn plans for the reconstruction of the sheds. Mrs Fawcett, a school-teacher by profession, has kept me informed of progress on the works, has relayed queries from the builder, and has supplied me with photographs and measurements, all with great competence.

The New Architectural Pottery

In 1854 the Patent Architectural Pottery Company was established in Poole, and in 1895 was taken over by Carter Tiles. They made floor tiles, glazed bricks, and structural terracotta.

After several years' searching I was offered the use of a shed at Park Farm Museum at Milton Abbas, near Blandford, Dorset, for my brick and tile making. I am going to set up a permanent exhibiti of bricks and brickmaking and give demonstrations. The biggest job will be the building of a horizontal-draught kiln of 250 bricks capacity: about the same size as that formerly at my home, now demolished. Such a kiln can easily be fired in a day. The foundatio

of the new kiln are now being dug.

The kiln will be wood-fired. Besides assembling on site and laying some 1200 bricks, the moulding bench, moulds, fuel, and clay will have to be moved from home, a task already begun - in car-loads I hope to be in production in 1988, if not before. The venture will be known as the New Architectural Pottery, making not only bricks but also roofing tiles, floor tiles, and architectural terracotta. Glazed ridge-tiles and mathematical tiles may also be made.

Martin Hammond

BOOKS

Jim and Anne Andrews, Colwich Brickworks Survey, Journal of the Staffordshire Industrial Archaeology Society, 12, 1986. £2.50 including p&p.

This is an A4-size book of sixty pages with 9½ pages of maps and diagrams and 10 pages of photographs. The text deals with the situation of the works, a brief history, buildings and structures visible in 1983, and operation and economics of the brickworks. The final twenty-four pages consist of five appendices which include: I. Extracts from the Notebook of R.Heaton and Sons, Arbitrater; II. Orders for bricks; III. Orders and correspondence concerning machiner and for coal; IV. Replies to Advertisement for Agent; and V. Workers' time-cards. The work also lists sources of reference. Copies are available from: The Staffordshire Industrial Archaeology Society, Hon. Secretary Mrs Elaine G. Crabb, 4 Longstaff Croft, Lichfield, Staffordshire WS13 7DP.

(Information on this publication was also provided by Martin Hammond.

Richard Hillier, Clay that Burns, Yorkshire Dales Railway. £4.

This excellent well illustrated book is now available once again, from: John Keavey, Yorkshire Dales Railway, Embsay Station, Skipton, North Yorkshire BD23 6AX.

W.Ann Los

Publications available

Will members (and others) please note that the useful paper by R.J. and P.E.Firman, 'A Geological Approach to the Study of Medieval Bricks', Mercian Geologist, 2, 3, 1967, 299-318, has been sold out and is thus no longer available from the Society. The following publications, however, are still available:

The Story of Brick

This is an illustrated history of brick and its geological setting from proto-Neolithic Jericho to the present day, written by eight of our members anonymously. [It is good fun trying to spot who wrote what! TPS] There are about a thousand words and two photographs to each part, and the presentation is in eleven parts, each on a single-fold glossy card 295 by 210 mm:

cont./

Part I.	Geology: Romans-Tudors.	Part VII.	England 1400-1480.
Part II.	Geology: Elizabeth I-II.	Part VIII.	1480-1660 in East Ang
Part III.	Pisé-Adobe-Brick.	Part IX.	Bricks for the Masses, 1630-173(
Part IV.	Greece-Roman Britain.		
Part V.	European Beginnings.	Part X.	Handicraft to Factory.
Part VI.	Medieval England to 1400.	Part XI.	Observing and Recordi

£1.50 by post or £1 if collected at meetings.

J.Hollestelle, 'Soil-Marks of Late Medieval Brick Clamps at Wijk bij Duurstede [Netherlands] , Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek, 24, 1974, 185-9.

A short four-page paper containing a map, three plans, two photograph of soil-marks and an excellent photograph of three men firing a brick clamp on their farm in Vreden, West Germany.

£1 by post or 75p if collected at meetings.

Brick Information Sheets

This is a set of fourteen sheets of A4 thin card with drawings on one side and information on the other. The following topics are covered:

1.	Squares and Closers.
2.	Squints and Radials.
3.	Plinths.
4.	Splays and Angles.
5. and 6.	Bullnose.
7.	Copings.
8. to 12.	Brick Bonds.
13.	Thermal Insulation.
14.	Mortars and Jointing.

50p by post or 25p if collected at meetings.

All items may be obtained by post from W.A.Los, Peran, 30 Plaxton Bridge, Woodmansey, Beverley, East Yorkshire HU17 ORT. Cheques or postal orders should be made payable to British Brick Society, and a self-addressed label would be appreciated. Copies will also be available for purchase at the A.G.M.

W.Ann Los

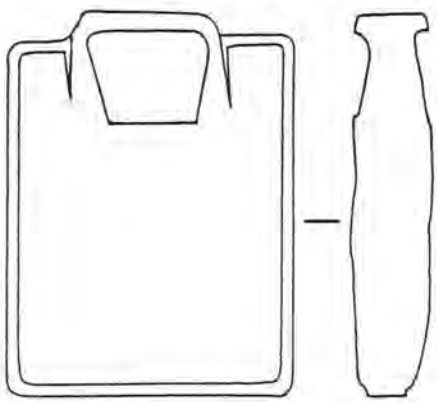
QUERIES

REFRACTORY BRICKS — From S. J. Rogers

Mr Rogers would be grateful for information - 'however slight' on a refractory brick supplied to Northern Ireland during the period 1866-1880. The sample examined measures 9 by 4¼ by 3 inches (22.9 by 10.8 by 7.6 cm), is predominantly buff/pink in colour, pressed, and with the letters O.M.O.A. stamped in a shallow frog. It is possible that quantities of these bricks were shipped to Northern Ireland from Scotland at that time. Replies to: S.J.Rogers, 1 Runnell Lane, Nassington, Peterborough PE8 6QD.

2 A BEDWARMER?

From Linda Babb



1:4

Miss Linda Babb, Keeper of History and Archaeology at Buckinghamshire County Museum, would be grateful for assistanc in the identification of a brick, a sketch of which is included. The brick is completely coated in a heavily crackled yellow glaze, whilst a damaged corner reveals a greyish-brown body packed with 1 mm-size grits. There is no mark or inscription. Because of its glaze and hand-hold, it is suggested that it is a bedwarmer. Any comments as to its use, date, maker, or area of origin would be welcomed. Replies to: Miss L.M.C.Babb, Keeper of History and Archaeology, Buckinghamshire County Museum, Church Street, Aylesbury, Bucks HP20 2QP.

3 17th-CENTURY KILN

From Simon Ward

Excavations at Cuppin Street, Chester in 1986 revealed the footings of a brick kiln (photograph in Grosvenor Museum Excavations Newsletter, Autumn 1986, inside front cover). The kiln may be dated to the early seventeenth century by the mid-seventeenth-century rubbish which had been allowed to accumulate in the hollow over it after the kiln had gone out of use. The whole structure had been built of unfired bricks, and those left in the ground were those which remained unfired or only partly fired after the firing process. The ends of the flues had been blocked with stones, presumably at the end of firing. Coal was the fuel used (it was availabl from sources in North Wales). After possibly only one firing, the kiln was abandoned and lay derelict for a period before being in-filled with soil and rubble. Only the north-east corner of the kiln lay within the excavation trench, so that its overall dimensions remain unknown. Mr Ward would be grateful for any references to or information on similar features of this period which are available. Replies to: Simon Ward, Supervisory Assistant, Grosvenor Museum, 27 Grosvenor Street, Chester CH1 2DD.

4 PRESTRESSED BRICKWORK

From David Greenfield

David Greenfield is the South-Western area member of the Panel for Historical Engineering Works of the Institution of Civil Engineers. He and BBS member Brian Murless have been investigating the historical aspects of Castle House, Bridgwater, which was built in 1851 and exhibits very early uses both of precast concrete and of reinforced and prestressed brickwork. Mr Greenfield would be grateful for any historical information on the application of reinforced and prestressed brickwork or information on lines of research or inquiry that might be pursued. Replies to: David Greenfield, 33 Barrow Drive Taunton, Somerset TA1 2UX.