# On 'small yellow bricks ... from Holland'

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#### Introduction

Washington Irving's delightfully named fictional narrator, Dietrich Knickerbocker, describes the shingle-covered houses of Rip van Winkle's Catskill Mountains village, dating from the time of Peter Stuyvesant (Governor of New Netherland 1647-64), as 'built of small yellow bricks brought from Holland'.<sup>1</sup> The bricks referred to were traded widely, from Scandinavia to the Channel Islands as well as to America, and many were imported through the eastern and southern ports of England. They are fairly common amongst the ceramic building materials recovered from post-medieval contexts of archaeological excavations in the London area. Little, however, has been published on them in English, and the aim of this contribution is to provide some basic information and discussion for those who may encounter them in the course of archaeological or historical work. It is concerned largely, though not exclusively, with London, but will be relevant to other areas in which the bricks occur.

# Terminology

It has become customary to refer to these bricks as 'clinkers', a transliteration of the Dutch klinkers.<sup>2</sup> Klinker (and its variants clin(c)er(t) and klinkaert) was indeed used from the fourteenth century in the Netherlands, but as the name of a hard type of brick used for paving, whatever the size.<sup>3</sup> The word continued in this sense, without specific reference to the small-format bricks with which we are here concerned, and became, in fact, a designation of good quality, as in the glossary of a recent Dutch study: 'Klinker: Old designation of quality; it refers to a hard quality.'<sup>4</sup> (Here and throughout, translations from the Dutch are my own.) Confusion is worse confounded by the circumstance that in England in the eighteenth and nineteenth centuries the word 'clinker' was usually applied to overfired bricks of distinctly *poor* quality, although an agreement of 1834 between the Marquis of Bute and a certain John Williams uses the word in something like the Dutch sense - as a designation for high quality paving bricks.<sup>5</sup> When seventeenth- and eighteenth-century English writers refer to the small bricks with which we are here concerned they use no specific term, although it is possible that the term 'brick stones' sometimes found in port books was reserved for such bricks (see below).

In the Netherlands itself they came to be called *IJsselstenen* (IJssel-bricks) or *Goudse-stenen* (Gouda-bricks) soon after their first manufacture there in the fifteenth century; and *IJsselstenen* (or *ijsselstenen*) is the term normally employed by Dutch historians and archaeologists.<sup>6</sup> (The double capitals, it may be explained, result from the fact that in Dutch *IJ* is treated as a single letter; it is pronounced somewhere between the *a* of English 'male' and the *i* of 'mile'; *-stenen* is the plural of *-steen*.) Sometimes the diminutive form *ijsselsteentje* - plural *ijsselsteentjes* - is used. The names reflect the original area of manufacture, along the River IJssel in the province of Holland, particularly in the region of Gouda (Fig. 1).

Despite the strict semantic inaccuracy, the term 'clinker' is probably too well established to be abandoned; there is, moreover, no entirely suitable alternative, unless the unfamiliar 'IJssel-bricks' be adopted. A literary writer, Aidan Chambers, uses the term 'brick cobbles': this nicely reflects their principal - though not their only - use, but is unfamiliar: after some consideration, I have

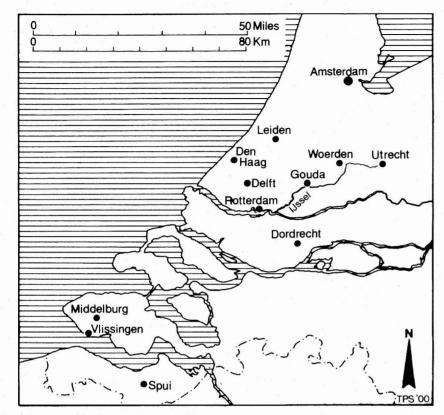


Figure 1. Map showing location of places mentioned in the text

decided not to adopt it.<sup>7</sup> 'Clinkers' is therefore used throughout this contribution, although it needs to be remembered that it does *not* correspond to the Dutch term; I have signalled this fact by placing it between inverted commas: 'clinker/s'.

### **Manufacture and Characteristics**

Along the River IJssel there was suitable tidal river mud which could be dredged up for brickmaking, with the advantage that the material was constantly being replaced by natural means. There were other advantages too: winning the raw material in this way did not create brick pits - an important consideration in a land much of which was below sea-level - and there was negligible encroachment upon valuable agricultural land, whilst the potamic location of the yards ensured easy waterborne communications with their markets. Somewhat similar materials were exploited at other riparian locations, especially around Dordrecht and along the Oude and Nieuwe Mass and at Spui on the Westerschelde. Later still they were made from the mud of the Haarlemermeer (Haarlem Lake), now drained and the location of Schipol Airport, south-west of Amsterdam.<sup>8</sup>

It was the use of dredged-up river mud, and the manufacturing techniques which such a raw material necessitated, that led to the distinctive qualities of the 'clinkers' (Fig. 2): their size, their

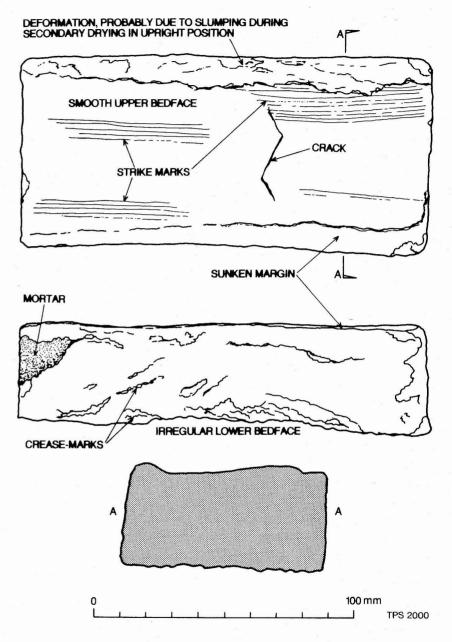


Figure 2. A 'clinker' from the churchyard wall at Whippingham, Isle of Wight, showing its various characteristics

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texture, their strength, their low porosity and high resistance to frost, their colour, their frequent deformities, and the almost universal presence of sunken margins along their top edges. Many of these features are immediately apparent and make the 'clinkers' amongst the most easily recognised of ceramic building materials.

The raw material was dredged up from the riverbed using scoops; it was brought to the banks in barges and stored on areas known as zellingen - the outer sides of the dikes, usually just under water.9 Obviously, such material was soft, and this necessitated manufacture of small-format bricks: bricks of normal size would have been unable to support their own weight and, once the mould was removed, would slowly have slumped into shapeless masses. The small size had the further advantage of speeding up the drying of the bricks since with a smaller format there is a greater surface area relative to the volume: a relatively larger area is therefore exposed to the air. Richard Neve, writing in the early eighteenth century, and using the abbreviation 'n.' for 'inch/es', displays a curious indifference with regard to size: 'I am informed by one tha[t] they are 6 n. [long,] 2 broad and 1 n. thick; another tells me that they are 6 n. long[,] 3 n. broad and 1 n. thick, as for my own part, I never measured any of them.'10 Had he done so, he would have found even wider variations than those given: in all traditional brickmaking practices it was impossible to control differential shrinkage during drying and firing, and the problem was compounded with so moist a material as that of the 'clinkers'. This is quite apart from the fact that different manufacturers would probably have used slightly differently sized moulds. Neve would have found few bricks as thin as 1 inch (25 mm), although they do very occasionally occur. Nathaniel Lloyd did take the trouble to measure some in standing buildings and found them to be consistently larger than Neve's dimensions; in the Netherlands, according to Dr Hollestelle, they vary in length from 157 to 180 mm, in breadth from 78 to 95 mm, and in thickness from 35 to 45 mm.<sup>11</sup> Excavations at Battle Bridge Lane, Southwark yielded a large number, and samples were retained for post-excavation examination: in length they vary between 163 and 188 mm (with a median of  $179 \cdot 5$  mm), in width between 65 and 93 mm (median 86 mm), and in thickness between 34 and 56 mm (median  $41 \cdot 5$  mm).<sup>12</sup>

It is sometimes supposed that there was a slight increase in size over time, eighteenth-century examples being somewhat larger than their seventeenth-century predecessors. But, as the Battle Bridge Lane assemblage demonstrates, sizes are so variable that it would be incautious to rely on sizes for dating purposes. The 'clinkers' used in the walls of the undercroft at St Botolph's Church, Billingsgate fall into two distinct size groups, 149-165 mm long and 175-187 mm long, but with no suggestion that these belong to different periods.<sup>13</sup> Indeed, brick sizes, whatever their format, do not provide an especially good guide to chronology:<sup>14</sup> there will be no Emerald City at the end of *this* yellow brick road!

The 'clinkers' usually show *strike-marks* - fine striations along the upper bedface from where surplus material was removed using a stick or small wooden board (the 'strike') - and *crease-marks* on their stretcher and header faces from where the material was pushed into the wooden mould (as with all handmade bricks). The stretcher and header faces are usually slightly rough, suggesting that the bricks were *sand-moulded* rather than *slop-moulded* - that is, the mould was dipped in sand rather than in water to prevent the raw material from sticking to the mould walls; this is what one would expect with such a moist raw material. The bricks also show a sandy lower bedface from where they were initially laid out flat to dry on a previously sanded surface (see below). Occasionally too the lower bedface shows pockmarks, caused by suction when the brick was lifted, especially if it was still slightly too wet.

It is the use of dredged-up river mud that gives the 'clinkers' their characteristically homogeneous texture. If they are snapped or chipped to enable the interior to be examined, it will be immediately apparent that they are remarkably fine, with few if any inclusions. Some, however, contain varying amounts of crushed shell, and where this is present it tends to give the bricks a somewhat lighter weight. The Building Materials Section of the Museum of London Specialist Services (MoLSS)

classifies the 'clinkers' according to one of two basic fabric types: fabric 3036 is virtually free of all inclusions, apart from the varying amounts of crushed shell sometimes present; fabric 3208 is basically similar but with numerous tiny calcium carbonate specks, visible only under magnification and probably the remnants of shells. The fabric 3208 bricks are consistently lighter in weight than the fabric 3036 bricks. The samples from Battle Bridge Lane divide equally between the two fabric types, but at other sites fabric 3036 is more common and is often the only fabric of the two that is present. It is not clear at present whether the two types represent raw materials from different sources or slightly varying materials from the same sources. The fine homogeneous fabric gives the bricks a good deal of strength whilst at the same time rendering them highly resistant to water penetration, frost damage, and fire.

'Organisms living in the clay,' writes Dr Hollestelle, 'gave it such a high lime content that the colour of the end-product turned out perfectly yellow.'<sup>15</sup> This buff yellow hue is one of the most characteristic features of the bricks, although when slightly overfired they take on a grey or light green colour; the latter is most noticeable internally but sometimes extends to the outer faces. Bricks which were near the top of the clamp during firing, and known as 'top-bricks' (*bovenstenen*), are slightly underfired and are a pinkish-red. Occasionally, a brick may show a transition from buff yellow to pink along its length. Bricks in fabric 3208 are somewhat lighter in colour than those in fabric 3036.

Also resulting from the use of river mud are the frequent slight deformities in the bricks. Dimensions often differ markedly between one face and its opposite, this being especially noticeable with opposite stretcher faces - that is, it is the thickness of the bricks which varies most conspicuously. Some from Battle Bridge Lane, for example, show a difference of 5 or 6 mm between the thickness measured on opposite stretcher faces. This was the result of the soft material slumping once the mould was removed and the brick was lying flat to dry or, at a slightly later stage, when the brick was turned onto one side (a stretcher face) for further drying. An example from Whippingham, Isle of Wight shows a distinct bulge which seems to be due to such slumping (Fig. 2).<sup>16</sup> The bricks sometimes show 'hatching' along their lengths - that is, they are slightly curved, the result of a stretcher face drying more rapidly than its opposite; in other cases they are distinctly bowed in cross-section.

An almost universal feature of the 'clinkers' is the presence of sunken margins on the upper bedface. These slight depressions sometimes occur on all four edges, although they may be restricted to three, two, or just one. In the London area they are a common occurrence on locally made red bricks of early date, but become much less common after the Great Fire of 1666, when new methods and modified raw materials were introduced; they are seldom if ever found in London after c.1700. On the 'clinkers', however, they persist throughout the eighteenth century. They are rarely exactly parallel to the brick edges, they vary in depth along the length or width of a brick, sometimes petering out altogether at one end, and they vary a good deal from brick to brick, even when it seems likely that the bricks came from the same yard.

There have been several suggestions as to the cause of the sunken margins, most of them either impracticable or failing to account for all the observed characteristics. Only one explanation is entirely satisfactory, that offered by Ian M. Betts, and to those who have witnessed practical demonstrations there can be no doubt that his is the correct explanation.<sup>17</sup> When the mould is removed from a handmade brick, small 'lips' are often pulled up by friction between the brick and the mould walls. When bricks are pallet-moulded, the pallets (small wooden boards) placed on the bricks also serve to push these 'lips' down. In earlier brickmaking practice, however, pallets were not usually employed, and with very moist raw material like that used for the 'clinkers' the method would not have been possible. Instead, they were made as 'place bricks'. They were carried individually *and still in the mould* to the drying area, known in English as the 'place' and in Dutch by the equivalent word: *places*, the bricks were turned out to lie flat for initial drying. The 'lips' pulled up during the demoulding were simply pressed

down using the bottom edge or edges of the mould, and since a little too much pressure was usually applied the sunken margins were formed as an incidental effect.

This task would have been performed by the 'bearer-off' (*afdrager* in Dutch), probably a woman or child. 'The ground,' explains Dr Hollestelle, 'was previously made flat and sprinkled with sand for the purpose.... The green [= unfired] bricks lay in the open air to *dry*. As soon as they had become a little stiff they were set on their small sides [i.e. on a stretcher face] in order to become even harder.'<sup>18</sup> This whole method - essential with soft materials - continued in the Netherlands for bricks of all sizes, and a drawing of 1885 by A. G. A. van Rappard, now in the Rijksmuseum at Amsterdam, shows a young girl returning from the *plaats* with an empty (larger size) brickmould.<sup>19</sup> The open-air drying area might have some form of covering or shelter; where this was not the case, the bricks were in danger of minor damage during rainfall; very occasionally, a 'clinker' is found with its upper bedface pockmarked by raindrops, as on an example found at the Royal Naval College, Greenwich.<sup>20</sup> Very heavy rainfall might even ruin a whole batch of bricks laid out thus to dry.

Once the bricks were sufficiently dry, they were fired, almost certainly in temporary clamps rather than in permanent kilns - the Dutch word *klamp* was used for both types. Clamp-firing was more common than kiln-firing in northern Europe in medieval and post-medieval times, and remained common in Belgium and the Netherlands much later than in some other areas.<sup>21</sup> Clamp-firing - in which the unfired bricks, intermingled with fuel, are stacked on a flat platform of fired bricks and the whole set on fire and left to burn itself out - had certain disadvantages compared with kiln-firing: the bricks took much longer to fire, there was greater wastage, and the clamp was highly susceptible to the vagaries of wind and rain: at worst, heavy rainfall could ruin an entire batch of bricks. These disadvantages, however, were outweighed by certain advantages: little was required in the way of permanent plant or, therefore, of repairs and clamps could be built of varying sizes, depending on demand.

Slight colour variations in the finished products, due to different degrees of heat reaching individual bricks, have already been mentioned. Sometimes too bricks would develop cracks during firing (Fig. 2). Others might distort further under too fierce a heat. The worst of the bricks, as with all clamp-fired products, would be fused lumps from where the bricks had melted together or black cinder-like masses. These, of course, were unfit for export and are not found in this country, although in the Netherlands itself they could be used as rubble or hardcore, just as were similar 'wasters' from English brickmaking.

#### **Export from the Netherlands**

The distinctive bricks defined by these several characteristics were, as previously noted, manufactured from the fifteenth century onwards in parts of the Netherlands. Some entered London at a quite early date. At the Rosary site in Tooley Street, Southwark a few examples have been excavated in contexts dated by pottery to the period 1480-1550. Their unusually early appearance there may be connected with the fact that large numbers of Netherlands (commonly designated 'Flemish') plain-glazed floor tiles were imported for use at the site.<sup>22</sup> In the sixteenth century John Stow glossed the term 'Flanders tile' as 'small brick', and he perhaps had the Dutch 'clinkers' in mind.<sup>23</sup> From the archaeological evidence, however, supplemented by that of a few standing buildings, it is clear that it was only from the seventeenth century that they were imported in quite large numbers. Bricks entered England from various Dutch ports, chiefly from Amsterdam, Dordrecht, Middelburg, Rotterdam, and Vlissingen (Flushing), and all but the first of these would have been ideal for exporting the 'clinkers' (Fig. 1). Bricks were, for example, brought into the Kent ports of Dover, Rochester, and Sandwich throughout the seventeenth century, whilst various East Anglian ports, notably Great Yarmouth, and the Lincolnshire port of Boston also handled them; Southampton occasionally imported bricks; and the Port of London was also involved in the trade.<sup>24</sup> These shipments presumably included the 'clinkers', and it is possible that they are the bricks sometimes referred to as 'brick stones' in the port books, for example at London in March 1669, when 20,000 'bricks' and 7000 'brickstones' were recorded; they are also mentioned in the port books of East Anglian ports.<sup>25</sup> It is known too that ceramic building materials from the Netherlands, including pantiles, were sometimes smuggled into the country in order to avoid payment of port dues, especially at the smaller landing places, and it is hard to imagine that 'clinkers' were not sometimes amongst such illicit cargoes.<sup>26</sup>

It is sometimes said that the 'clinkers' came over as ballast, and one recent study simply assumes that all bricks mentioned as being on shipboard must have been ballast.<sup>27</sup> A quantity of bricks, as part of a mixed cargo including lightweight commodities, if correctly stowed, would have helped stabilise a ship by lowering her centre of gravity; to that extent it may be said to have a ballasting effect. But - and the point is more than just semantic - that did not make it mere ballast. The latter term is properly applied to materials which 'had practically no value, so that at the port of destination they were simply thrown overboard', and the term 'saleable ballast', which has been used, is virtually an oxymoron.<sup>28</sup> By its very nature, therefore, ballast will typically go unrecorded; if quantities of bricks are entered in lading lists or noted in port books then ipso facto they are not ballast but proper cargoes, bringing in - and intended to bring in - profit on their sale at the port of arrival. The archaeological evidence is also relevant: most of the 'clinkers' survived their sea voyage intact, and they are most frequently recovered in that state from excavations, implying that they were properly stacked on shipboard, just like the local red bricks found in situ in a shipwreck at Blackfriars;<sup>29</sup> this in its turn implies that they were proper cargoes: bricks take time and effort to stack carefully in the awkward space of a ship's hold - far too much trouble to take over mere ballast! Very occasionally, examples are found which are so badly misshapen that it is hard to think of them as saleable products. Possibly they came over, mixed with other materials, as ballast. But this is not certain, and such bricks are, in any case, far from typical.

But why was it only belatedly - from the early to mid-seventeenth century - that the 'clinkers' were imported into London and elsewhere in significant quantities when they were available much earlier in the Netherlands? Interestingly, it is at the same time that pantiles also began to be exported in quite large numbers to Britain.<sup>30</sup> Both materials, unlike, say, tin-glazed ('Delft') wall tiles, were high bulk/low value commodities, so that transport over any distance added considerably to the cost 'at the yard'. They were therefore not wholly suited to export trade, even along well established sea-lanes, and were not primarily intended for it. The manufacture of the "clinkers' would initially have been for home markets, especially in the province of Holland itself, and it is those markets that would have determined levels of production. Towards the end of the sixteenth century something remarkable happened. Within the area with which we are here concerned (the province of Zuid Holland, more or less) the population of Gouda rose from 9000 in 1570 to 13,000 in 1600; that of Dordrecht from 10,000 to 15,000 in the same period; Rotterdam and Delft rose from 7000 to 12,000 and from 14,000 to 17,500 respectively; whilst Den Haag (The Hague) actually doubled in population (5000 to 10,000) over the same years.<sup>31</sup> This was largely the result of emigration from the southern Netherlands, especially after the recapture of Antwerp by the Spanish in 1585, the Flemish towns correspondingly suffering a disturbing, if temporary, population decline.<sup>32</sup> The émigrés settled mainly in the towns, leading to rapid urbanisation of the northern Netherlands, most spectacularly in the province of Holland.<sup>33</sup> Fig. 3 shows the numbers of towns in (i) the northern Netherlands in general and (ii) the province of Holland in particular with more than 10,000 inhabitants at fifty-year intervals between 1500 and 1750, and population growth in the second half of the sixteenth century is clear. The result was a building boom in just the period when many were going over from timber to brick houses, and in consequence 'production of brick became a major industry as one city after another embarked on costly expansion projects.'34

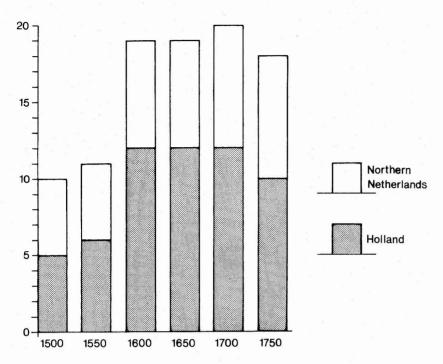


Figure 3. Towns in (i) the northern Netherlands and (ii) the province of Holland with more than 10,000 inhabitants at fifty year intervals, 1500-1750

But the situation did not last. By the mid-seventeenth century, population had stabilised. The brickmaking industry, geared to the building boom consequent upon the population increase and rapid urbanisation, suffered a serious setback. Even as early as 1633 the brickmakers of Leiden formed a cartel in order to counter, *inter alia*, problems of over-production, and c.1650 the brickand tilemakers of Woerden, near Utrecht, founded a guild with similar aims.<sup>35</sup> This situation corresponded with urban expansion in Britain. London itself, despite repeated seventeenth-century legislation requiring new buildings to be of brick (or stone for those who could afford it), was tardy in adopting the material. Early to mid-seventeenth-century developments in Covent Garden and elsewhere to the west of the City had made use of brick, but in the City itself on the eve of the Great Fire most buildings, 'despite some small progress towards brick construction, were high, closely packed, and timber-framed...'<sup>36</sup> areas such as Southwark were no different. There was obvious market potential here, and this was given a considerable fillip after the Fire, the Act of Rebuilding of London (18-19 Chas. II, c.8) requiring stone or brick only to be employed. Of course, for the most part it was local products that were used for the rebuilding, although the Dutch were already petitioning for licences to import building materials into London in 1666/7, despite the fact that this was during the Second Anglo-Dutch War of 1665-7!<sup>37</sup> The makers of the Dutch 'clinkers' (and of pantiles) seem to have been ready to exploit this foreign market potential at just the time when their home markets were declining. Profits from this overseas trade, though presumably diminished, must have been sufficient to make the venture worthwhile.

# **Uses of the Bricks**

On his visit to Amsterdam in 1641 John Evelyn was impressed by the brick-paved Keisersgracht and commented on 'the margent of that goodly Aquae-duct, or river [in fact, the gracht or canal], so curiously wharfed with Clincar'd ... and of which material the spacious streetes on either side are payed.'<sup>38</sup> They were also used for paying the kitchens and courtyards of houses, where they withstood the frequent scrubbing by the houseproud Dutch huisvrouw; a good example appears in Pieter de Hooch's painting Three Women and a Man in a Courtyard (c.1663-5) in the Rijksmuseum at Amsterdam.<sup>39</sup> In the City, in other parts of London, and elsewhere in southern and eastern England too the imported Dutch 'clinkers' were used principally for paving. Joseph Moxon wrote in 1700 that this 'sort of Bricks, is commonly used here in England, to Pave Yards or Stables withal; and they make a good payement, and are very Durable, and being laid edge ways looks [sic] handsomly, especially if laid Herring-bone fashion.<sup>40</sup> It was their hardness and resistance to water and frost that made them especially suitable for such uses. They do, however, require regular maintenance, for missing bricks can leave holes which are very dangerous: visitors to present-day Amsterdam, for example, may well be familiar with the experience of that delightful fictional Scarecrow, who, on a certain yellow brick road, 'stepped into the holes and fell at full length on the hard bricks'!<sup>41</sup> In stable yards they stood up well to the frequently needed washing-down: 'Clinkers are very fit for the Paving of Stables,' as an anonymous late seventeenth-century source put it;42 although in the nineteenth century they were 'by some objected to, as being too hot for the horses' feet.'43 They do in fact absorb the heat on very sunny days and then radiate it. The herringbone arrangement referred to and sometimes found in excavations, for example at a site in Battersea,<sup>44</sup> was not only attractive but also added to the strength of a pavement since the bricks interlocked.<sup>45</sup> In the Netherlands, paving with such bricks was sometimes made quite elaborate by combining the 'clinkers' with red bricks, as at Kromme Nieuwe Gracht 43, Utrecht.<sup>46</sup> but I am unaware of any such treatments in England. Generally, they were reserved for more utilitarian purposes, their status, like that of the contemporary pantiles, not being high - at any rate in London. Whether or not a herringbone pattern was adopted, the bricks were normally laid on edge in a bed of sand and without mortar. Sometimes bricks recovered from excavations will show distinct signs of wear - a polishing effect - on one stretcher face, the result of their being used for paving. Their laying in sand accounts for the general absence of mortar on excavated examples. Where they have been used for purposes other than paving, however, as in the churchyard wall at Whippingham, Isle of Wight, mortar may be found on them (Fig. 2).

For although paving was their principal context, they did have other uses too: 'They are also used,' wrote Moxon, 'in Soap-boilers Fats [= vats], and in making of Cisterns.'<sup>47</sup> Their density and their lack of porosity were of value in these applications. A further use was evidenced in excavations at Hermitage Wharf, Wapping, London E1: some had been used in a kiln structure and were in consequence badly burned and distorted.<sup>48</sup> In the Netherlands their fireproof quality was valued and they were used for chimneys and flues, and Lloyd drew attention to a chimney stack, seemingly built from them at Rye, Sussex.<sup>49</sup> In the Netherlands too they were used for vault construction, including in at least one instance - at St Peter's Church, Utrecht - a sixteenth-century replacement vault over a thirteenth-century brick-lined grave,<sup>50</sup> but I know of no similar uses in England. 'Clinkers' might also be used for the walls of houses or other buildings or around gardens or yards. At Whippingham, Isle of Wight they were used, or possibly reused, in the churchyard wall.<sup>51</sup> Such applications, however, are more common in rural areas of, say, Kent than in towns,<sup>52</sup> although at St Botolph's Church, Billingsgate in the City of London they had been used for refacing the south wall and the north-east angle of the undercroft.<sup>53</sup>

#### Conclusion

Other than in repetition of a few popular notions - they were called 'clinkers', they came over as ballast - these distinctive bricks have received little attention in English, although their use was at one time quite extensive in parts of southern and eastern England, and not least in the capital. Wherever they are met with, it is hoped that this contribution will have provided a basic introduction to the nature of the 'clinkers', to their uses, and to the part that they played in trade relationships between two European nations.

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