

HIORT PATENT CHIMNEY BRICKS FROM LAMBETH, LONDON

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SUMMARY

Post-excavation work by the Museum of London Archaeology Service (MoLAS) on material from Coronation Buildings, South Lambeth Road SE11 has brought to light a rare example of early to mid 19th-century ceramic building material. This is a brick of distinctive and unusual shape manufactured according to a patent for chimney-flues taken out by J. W. Hiort in 1825. Also found (in a different archaeological context) was a fragment, about one quarter, of a similar brick. Flue-bricks, by their very nature, are not normally visible in standing buildings; nor are they a common find in archaeological excavations. The examples from Coronation Buildings tell us something about their use and manufacture which is relevant to the social history of 19th-century London.

INTRODUCTION

The site at Coronation Buildings, South Lambeth Road SE11 (NGR: TQ 303776) was of interest mainly for its evidence of prehistoric activity and topography, sealed by probably medieval plough-soil. There were also some medieval and post-medieval features and post-medieval buildings. The complete Hiort brick was found in context [9] and the fragment in context [56]; both these contexts were stone foundation walls of 19th-century date which incorporated various materials. The site code for Coronation Buildings is COR89; the accession number for the complete brick, <362>; the fragment, <363>.

THE BRICKS

The complete brick (Fig 1) is part-octagonal in shape on its outer face and curved on its inner

face, so that four plan-forms make up an octagonal shape with a central circular flue. In elevation the brick tapers from one end to the other, the bedfaces being radial (Fig 2). The lower bedface (as in the mould) is stamped with the words 'HIORT' and 'PATENT' in raised letters within sunken rectangles; between the two is a stamped numeral '2'. The sunken rectangles would have provided a mortar-key – acting as frogs, in effect – as well as serving as an 'advertisement'. Mortar-keying was also provided by a vertical semi-circular groove, set closer to the inner than to the outer face, in each end. The impressed '2' is a pattern or setting mark, indicating to the bricklayer where the brick was to be laid, for Hiort's system required a number of bricks of different forms (see below). The stamped impressions were presumably formed by a metal die in the bottom of the mould. The curved face is glazed; it is black though purplish in places, indicating a manganese glaze.

The maximum length of the complete brick is 257mm, its width at the centre 69mm; the thicker end is 102mm; the thinner end 70mm thick. The mortar-grooves have a diameter of 10mm. The upper bedface, which is not quite straight, shows strike-marks where excess clay was scraped off using a wooden 'strike' during moulding (Fig 3). This was clearly done with a sweeping motion, more or less following the curve of the brick. This face has a small accidental splash of glaze and there is also a distinct curved 'scar' showing where a similar glazed brick was placed upon it during firing.

The fragment is the thinner end of a similar (number 2) brick. The fabric is orange-red in colour and is very fine, with no large inclusions.

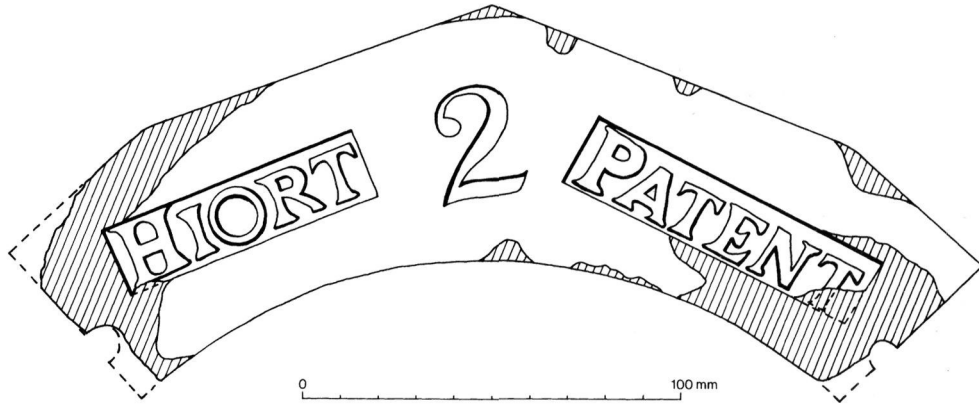


Fig 1. The lower bedface of the complete Hiort's patent brick from Coronation Buildings, Lambeth, showing the patentee's name and the numeral '2' (hatching indicates damage)

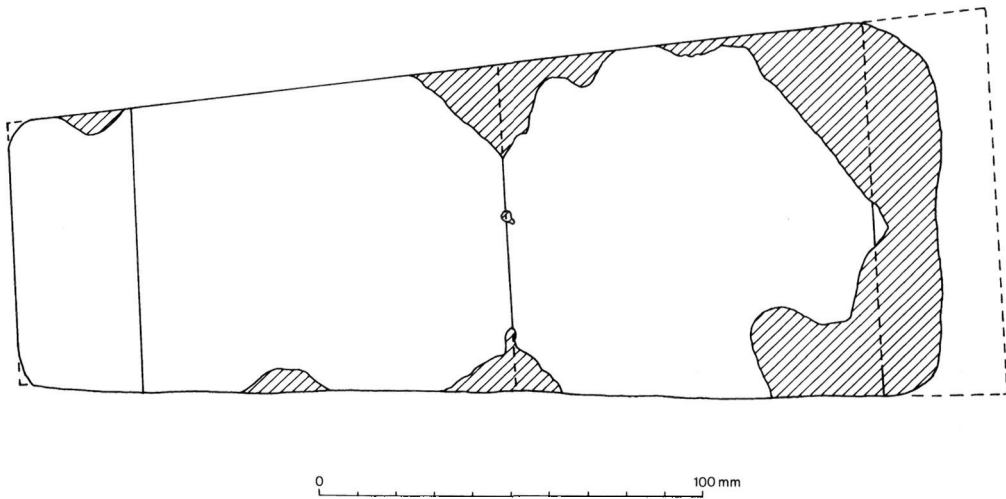


Fig 2. The outer face of the complete brick (hatching indicates damage)

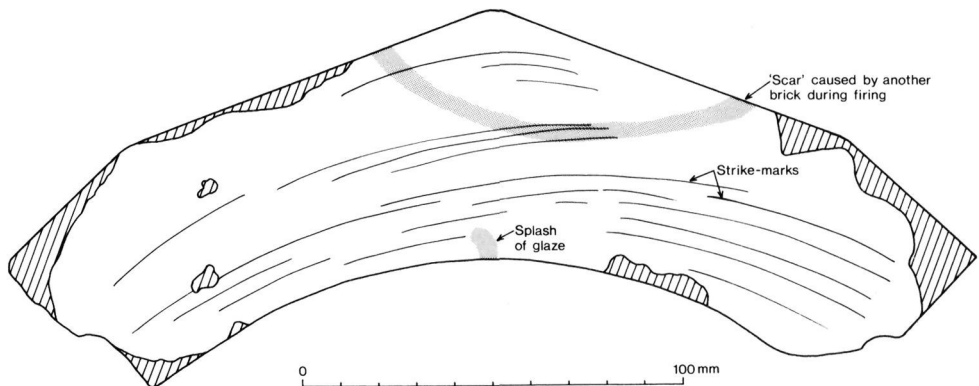


Fig 3. The upper bedface of the complete brick, showing strike-marks, the 'scar' caused by another brick during firing, and a small splash of glaze (hatching indicates damage)

There is some small quartz within the matrix and there are also some tiny black iron oxides. The surfaces have a fine sandy feel, but are fairly smooth, although there are a few 'crease-marks' where the clay was thrown into the mould.

The complete brick is entirely free of mortar, suggesting that it was never used; the fragment, on the other hand, has mortar on its bedfaces and one surviving end.

WILLIAM HIORT AND HIS PATENT

The patentee of these bricks, John William Hiort, was born in London on 16 April 1772, to a Swedish father and an English mother (Colvin 1978, 421–2). He was employed in the Office of Works and retired in 1832, when that department was merged with that of Woods and Forests. He spent a long retirement, partly in Bath, partly back in London. He died at Bedford Place, Kensington on 8 February 1861, aged 88, and is buried in Kensal Green Cemetery. He was responsible for a small number of buildings on a private basis, although his official work was largely concerned with the arrangement of public ceremonies, such as the funerals of William Pitt and of Lord Nelson and the coronation of George IV. His patent for special chimney bricks was taken out on 8 November 1825 (patent number 5284), accompanied by explanatory drawings, some of which have been published by Maurice Exwood (Exwood 1984, 10–11). In 1826 he promoted his new system in a *Practical Treatise on the Construction of Chimneys, etc.*

Four bricks together formed a circular flue 10 inches (254mm) in diameter, octagonal on the outside; this was embedded within an 18-inch (458-mm) wall, using a combination of standard bricks and special bricks of normal length and thickness (depth) but of only half-width. The mortar-keying enabled joints to be kept to a minimum size, while the glaze on the curved faces gave a smooth face to the interior of the flue. The taper on the bricks was provided so that by laying them alternately (thick end above thin end) a straight stretch of flue could be constructed, while by laying them in the same direction (thick end above thick end, thin end above thin end) a gentle curve could be achieved. By combining these methods of laying the bricks the flues could be made to snake up within the wall in whatever was the most convenient manner (Fig 4). This was particularly important where

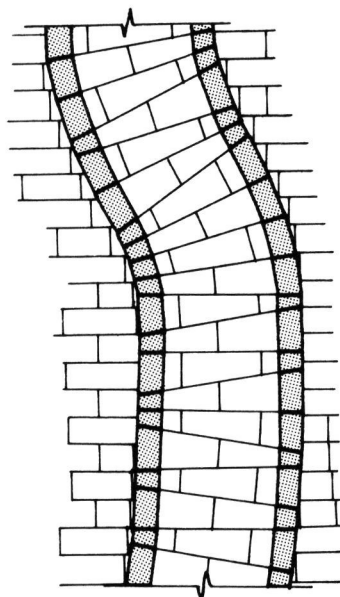


Fig 4. The arrangement of Hiort's bricks in a flue, based on Hiort's own drawing which accompanied his patent application, showing how the bricks could be used to form both straight and curved sections of flue

there were several fireplaces and several storeys, so that a number of flues had to rise in close proximity (just how complex flue arrangements could be in 19th-century London terraced houses is well shown in Muthesius 1982, 52, pl.17). In mansions and public offices flues were even more complex and included horizontal stretches along which 'climbing boys' had to crawl and which were not able to be cleaned using 'mechanical' means. It was the owners of the mansions who, in the House of Lords, were most frequently and vigorously opposed to abolition of the climbing boys (see below for more information on the climbing boys).

The half-width bricks and standard bricks surrounding the flues formed little cavities around the octagonal form and these, Hiort believed, improved the draught. The thin 'filler' bricks were also stamped 'HIORT PATENT'; one was found during the demolition of the Hope Maltings at Ware, Herts (measuring 228 by 70 by 54mm: Storey 1971, 26; Smith 1986, 14); and their presence in the end wall of a house near Weston Green, Thames Ditton, Surrey indicates the use of Hiort's Patent Bricks in the chimneys there (Exwood 1984, 10).

The flues thus formed, Hiort urged, had yet another advantage – and it is a warmly humane

one: the gentle curves of the flues and their smooth, glazed inner surfaces made them suitable for cleaning by mechanical means, thus obviating the need for sweep-boys. 'Mechanical' cleaning meant no more than the use of the once-familiar sweeps' brushes, with long rods in sections, either pushed up the chimney or lowered down it behind a weight. This was an innovation of the early 19th century, when there was some concern about the lot of the 'climbing boys'.

This form of exploitation of small boys (or, very occasionally, small girls) was peculiar to Britain and had begun in the early 18th century. Legislation of 1778 to regulate the practice was without powers of enforcement and was almost wholly ignored. A Society for Superseding Climbing Boys was formed in 1803 in London (Hammond 1917, 176–92, 184; Strange 1982). In 1817 the matter was considered by a parliamentary Select Committee (Wright 1964, 108). A sneering speech by the Earl of Lauderdale determined the outcome, and the bill in favour of reform was defeated by 37 votes to 20. A good thing too, opined Sydney Smith in the *Edinburgh Review*: the abolition of sweep-boys would be 'a great injury to property' and would increase the risk of fire; besides, he commented, 'humanity is a modern invention'. (Wright 1964, 10–11). This consideration, it should be said, had not prevented Smith (in 1810) from criticising bullying and other abuses at the public schools he had attended (Chandos 1985, 36–7); presumably it was only humanity to the 'lower orders' which was to be so summarily dismissed.

The chimney-boys continued to climb. William Blake had drawn attention to the sweep-boys '... your chimneys I sweep, & in soot I sleep' in *Songs of Innocence* (1789) and *Songs of Experience* (1794); Blake's London was one where '... the Chimney-sweeper's cry/Every black'ning Church appalls [*sic*] ...'; in both his poems Blake adroitly uses the small boys' thin, unformed voices to create a bitter pun on the word 'sweep' as the boys cry 'weep!' 'weep!'. Charles Kingsley's 1863 fairy tale of Tom the sweep-boy had an effect on heightening public awareness (Kingsley 1863). But it was not until Lord Shaftesbury's bill of 1875 passed through both Houses of Parliament that this shameful abuse was ended (Wright 1964, 111).

THE DISTRIBUTION OF THE BRICKS

For all his worthy intentions, however, Hiort's invention seems to have made little difference.

The bricks were manufactured by a company set up by Hiort himself: the London, Surrey and Kent Safety Brick Works, established at Stangate Old Wharf, Westminster Bridge, Lambeth, not so very far from where the Coronation Buildings bricks were found (Colvin 1978, 422; Exwood 1984, 10). The bricks were used in a few royal or governmental buildings in the years after their first manufacture. Doubtless this was helped by Hiort's employment in the Office of Works, although he himself was aware of possible questions of protocol in a government department using the private products of one of its officers: he took the trouble to seek Treasury sanction for his bricks to be used in John Nash's Buckingham Palace, completed by Edward Blore in 1837. Permission was readily granted (Crook & Port 1973, 107). Hiort's bricks were also used in Nash's Clarence House, St James's (1825–7), in Robert Smirke's General Post Office (1824–9, demolished 1913), and in Ambrose Poynter's St Katherine's Hospital, Regent's Park (1826) (Crook & Port 1973, 107, n.5, 325, 434).

But Hiort's products do not seem to have been taken up widely, and in 1847 Hiort came out of retirement and returned to London to further promote his ideas. This he did in his *Report to the Aeronomic Association* of 1852 (Colvin 1978, 422; Exwood 1984, 11). In a privately printed memoir of 1861, the year of his death, he had to admit that his bricks were no longer used (Exwood 1984, 11; Colvin 1978, 424). They were used, therefore, for a period of only three decades or so.

It is not difficult to understand why they failed to find general acceptance. From the early 19th century onwards there has been a plethora of ingenious new brick types, all purporting to improve upon the traditional brick (Butterworth and Foster 1956, 457–80 strongly advocate such an approach). Best known from 19th-century Britain are those of Caleb Hitch, patented in 1828 (Storey 1964, 231–2; Storey 1970, 319–24), and Henry Roberts, patented in 1849 (Curl 1983, 43, 102–4, 182; Roberts's Model Houses for the Working Classes, designed for the Great Exhibition of 1851 and built with his special bricks, are now re-erected in Kennington Park).

Whatever advantages these various innovations had, most lost by abandoning the obvious characteristic of the traditional brick – its simplicity and consequent versatility. Both Hitch's and Roberts's bricks, for example, required several 'specials' (specially designed bricks) just to turn a right-angled corner! Such bricks also

involved difficulties in manufacture and of handling, both at the brickyard and, by the bricklayers, on site. In this respect Hiort's bricks were no different. In the first place, they would have been expensive to manufacture, being made of material much finer than that normally encountered in 19th-century London bricks (including the familiar London Stocks) which usually contain numerous inclusions and/or voids. This better fabric was only achieved by very careful preparation, which was time-consuming and thus costly. They were well-moulded with sharp arrises which would also have increased costs. The application of glaze to the inner curves would have added yet more to the expense of manufacture. The 'scar' on the complete example from Coronation Buildings shows how the bricks were set in the kiln, and it is clear that a good deal of space was wasted. Moreover, the tapering shape would have necessitated setting the green (unfired) bricks thick end to thin end in the kiln (and, at an earlier stage, for drying): setting the kiln, in fine would have been a time-consuming task.

Secondly, handling and transport of the finished products at the yard as well as distribution to building sites would have been seriously hampered by the awkward, and varied, shapes of the bricks. In advocating new designs, Butterworth and Foster (1956, 461-2) urged that a principal requirement is 'a simple external shape that lends itself to easy stacking and packaging'. Clearly, Hiort's bricks failed in this respect.

Thirdly, they would have been laborious to sort and, above all, to lay in the building. Clearly, four bricks like the complete example from Coronation Buildings could not be used for a single course, because of the taper. Two such bricks could be used, one with the stamped face upwards, the other with the stamped face downwards, to make a half-octagon, but two bricks of a different form (presumably stamped '1') would be necessary to complete the octagon; again, they would have to be laid alternate ways up. If the perpend (vertical joints) of a course were placed in line with those of the courses above and below then no further bricks would be required to complete a flue. But the drawings accompanying Hiort's patent application are clear that this was not the case - the courses were properly bonded, with the perpend of one course placed above and below the centres of the bricks in the alternate courses. A further two

bricks (presumably stamped '3' and '4'), each different from the other and each different from those in the course below (or above), would therefore be required. Once more, they would have to be laid alternate ways up. Bricks of four different types, each placed in its correct position, were thus needed to build a flue. In addition, the half-width bricks and the standard bricks would need to be properly placed around the externally octagonal flues. It would not be essential to use the special shafts that Hiort advocated (for improved draught) above the flues, although if they *were* used then yet further special bricks would have been required (see illustration in Exwood 1984, 11). The amount of sorting of the several components and their correct laying would have added significantly to the costs of building a Hiort Patent Brick chimney.

Doubtless it is for this reason that Hiort's bricks are so seldom found in the course of archaeological work. Because of the distribution costs it is probable that they were used mostly in London itself. The extent of their wider use is not known, but it is not at all unlikely that the examples recorded from Weston Green, Surrey and from Ware, Herts represent, more or less, the outer limits of their use. Further work is needed to establish a firm distribution pattern, but it is not likely to be extensive. The Weston Green and Ware examples almost certainly indicate the use of water transport, using the Thames in the first case and the Thames (as far as Limehouse) and the Lee Navigation in the second. It is probable, indeed, that a more complete distribution pattern would continue to reflect the use of the Thames and its navigable tributaries.

POSTSCRIPT

Further work is required to establish a distribution pattern of this intriguing building material. As stated above, such bricks are typically hidden from view in surviving buildings but they sometimes come to light during repair work or archaeological excavation. Sometimes, too, as at Weston Green there may be an external clue to their presence. The writer would be glad to hear of any further examples.

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BIBLIOGRAPHY

- BUTTERWORTH & FOSTER (1956), B Butterworth & D Foster 'The Development of the Fired-Earth Brick: Part I. Leading Principles' *Trans British Ceramic Soc*, 55, 7
- CHANDOS (1985), J Chandos *Boys Together: English Public Schools 1800-1864*
- COLVIN (1978), H M Colvin *A Biographical Dictionary of British Architects 1600-1840*
- CROOK & PORT (1973), J M Crook & M H Port *The History of the King's Works* vol VI 1782-1851
- CURL (1983), J S Curl *The Life and Work of Henry Roberts, 1803-1876*
- EXWOOD (1984), M Exwood 'Hiort's Patent Brick Chimneys' *British Brick Soc Information*, 34
- HAMMOND (1917), J L & B Hammond *The Town Labourer 1760-1832*
- KINGSLEY (1863), C Kingsley *The Water Babies*
- MUTHESIUS (1982), S Muthesius *The English Terraced House*
- SMITH (1986), T P Smith 'Hiort's Patent Brick Chimneys' *British Brick Soc Information*, 38
- STOREY (1964), R A Storey 'Hitch's Patent Bricks' *Indust Archaeol* 1, 4
- STOREY (1970), R A Storey 'Hitch Patent Bricks: Some Further Details' *Indust Archaeol* 7, 3
- STOREY (1971), R A Storey 'Some Additions to the Industrial Archaeology of Hertfordshire' *Herts Past & Present*, 11
- STRANGE (1982), K H Strange *The Climbing Boys*
- WRIGHT (1964), *Home Fires Burning*