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EIGHTEENTH CENTURY SLAG CONSTRUCTION BLOCKS IN GLOUCESTERSHIRE - A SURVEY

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From 1996, members of the Gloucestershire Society for Industrial Archaeology, the Gloucester and District Archaeological Research Group, the Forest of Dean Local History Society and the Bristol and Gloucestershire Archaeological Society, together with other fieldworkers, have undertaken a systematic survey of the locations and use of 18th century Slag Blocks in areas of the present county of Gloucestershire where they occur. This article explains the background to the subject, outlines the methodology of the survey and provides a summary of the results.

Introduction

Distinctive black slag construction blocks can be seen in buildings and walls in many villages and towns bordering the Severn and Wye in Gloucestershire, and less frequently in the hinterland parishes further from the rivers (Figure 1). Mrs Joan Day, the author of the standard work *Bristol Brass: The History of the Industry* (1), at the start of the survey wrote:

> The Wye with its copper smelting works of Upper and Lower Redbrook, and the Avon with its several Bristol works provide the most likely origins for these blocks. It has long been thought that they may have been used as ballast for coastal and inland water transport. Possibly some came from the larger industry developing rather later at Swansea, although blocks from this source do not appear to conform so closely to the more regular sizes and patterns from Redbrook and Bristol.
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> The blocks were cast from molten material removed as waste from the melting processes of copper smelting. The sulphide ore from Cornwall used during the eighteenth century rarely contained more than 10% copper, requiring the remaining 90% to be eliminated as gases, or as slag during the multiple melting processes. This resulted in large amounts of waste that caused difficulty with disposal. The Bristol companies caused navigation problems by discarding it in the Avon. When forced to discontinue this practice they found the casting of slag blocks to be a convenient method of dispersing it as a useful building material.
>
> This material has been mistakenly described in the past by various writers as consisting of zinc smelting waste, of lead slag, or of glass slag. Analysis of the metallic content of a range of samples from different ores and also from different phases in the smelting processes would be very variable. Analysis carried out on one slag sample from Warmley, Bristol, showed it mainly consisted of the following: silicates - 65.71%; iron oxide - 24.11%; copper oxide - 0.97% and zinc oxide - 0.80%, with other metallic oxides. Other examples from elsewhere have contained between 2% and 4% copper.(2)

An earlier researcher, Miss Gwladys Davies, had samples of slag blocks analysed at (a) Bath University of Technology and at (b) Pilkington Brothers. The results showed respectively: (a) silicates - 57.5%; iron oxide - 16.2%, plus other constituents, and (b) silicates - 44.7%; iron oxide - 44.9%; aluminium oxide - 4%; calcium oxide - 3.l%; zinc oxide - l%; copper oxide - 0.9%; with other metallic oxides. She believed the blocks ‘were indisputably iron slag’.(3)

Obviously this is a conflicting view, but it should be noted that the main ore used in smelting copper in the 18th century was copper pyrites containing a large percentage of iron which needed to be eliminated into slag during the smelting process. More recently Cyril Hart reported that analysis of a slag block sample from Redbrook gave: silicates - *c* 70%; ferrous oxide - 17.7%; calcium oxide - 6%; tin - 3.25; lead - 0.9%; zinc - 0.9% and copper - 0.5%.(4) A recent density measurement of a sample of slag from Newnham-on-Severn yielded a figure of 2800 kg m^{-3} - that is a specific gravity of 2.8.(5)

We can be grateful to the late-18th century writer William Marshall for a clear description of the local use of copper slag as a building material. From his *Rural Economy of Glocestershire* (*sic*):

SLAG (copper dross) 5 or 6s a ton, on the Kays (*sic*). This, I understand, is the *scoria* thrown off by copper, in the process of smelting. Until of late years, it was cast away as useless, or was used as a material of roads only. Now it is thrown, while hot, into moulds, of different figures and dimensions, and thus becomes an admirable building material. It is proof against all seasons, in every situation; consequently, becomes an excellent material for foundations; and still more valuable for copings of fence walls; for which use it is sometimes cast of a semi-elliptical form. It is also used as quoins, in brick buildings; in which case, the blocks are run about nine inches square, and eighteen inches long. It is of a dark copper colour and has the appearance of a rich metal; but flies under the hammer as flint.(6)

The alternative use of slag, as a road material, was encountered during archaeological excavation of the Northgate Turnpike road at Wotton, Gloucester in 1968. As subsequently reported in the 1971 *GSIA Journal* (7), chemical analysis of 5 slag samples revealed ferrous contents ranging from 40-50%, with only one having a copper content - of 5%. The excavator (the present writer), following Miss Davies, concluded high ferrous content denoted iron slag; with hindsight, a view that was wrong.(8) The minutes of the Northgate Turnpike Trust show that slag was used on their road from 1768 until at least 1782. At the latter date a source is quoted in the minutes: 'the Copper Company at Bristol' and also the then current price: '3s.6d per ton'.(9) About this time Samuel Rudder in his *New History of Gloucestershire* records, at Newland, another potential source of slag: 'There is an iron furnace in this parish and two copper works at a place called Red-Brook, but they have their copper ore from Cornwall and other parts'.(10)

Copper Smelting Sites

Redbrook

The history of copper smelting at Redbrook was studied by Rhys Jenkins and published in the 1942 *BGAS Transactions* as 'The Copper Works at Redbrook and at Bristol'.(11) Both Joan Day (12) and Cyril Hart, in his *The Industrial History of Dean* (13), have published further research; the latter providing a useful location plan of the Upper and Lower Redbrook copperworks sites.(14) Stephen Hughes in *Copperopolis*, a major study of Swansea's industrial history and landscape, also reviews early developments at Redbrook - as well as at Bristol.(15) At Upper Redbrook (SO 536 102) at the north-west of the parish, copper was being smelted by at least 1690 using Cornish ore. However, evidence in the Swedish Record Office suggests that at the outset a short-lived local source of ore had been used (16), although the accuracy of this seems doubtful. In 1691 John Coster took a sixty-year lease of a 0.4ha site beside the Newland road just east of the Wye '… now converted into a copper works with appurtenances… in Upper Redbrook which are and for several years have been in the occupation of John Coster …' (17). The site, which straddles the county border with

Monmouthshire (Gwent), was later extended up the hill road for some 400m. John Coster was the associate of Sir Clement Clerke when the latter, in 1688 at Bristol, pioneered the revival of copper smelting in England.(18) After John's death in 1718, his son Thomas took control.(19) By 1725 there were 26 furnaces in operation (20), and at this period Upper Redbrook was the largest producer of copper in England. Copper from sites such as this was used granulated, together with zinc smelted from Mendip calamine ore, in the making of brass at Bristol. Amongst other uses, brass in wire form was employed in making pins, in particular at Gloucester. Smelting was carried on at Upper Redbrook into the 1730s when the Bristol Brass Company having taken on the lease in 1734 systematically destroyed the copperworks – either seeing them as a threat to the profitability of their smelting at Bristol (21), or more likely because they were outdated.(22) (The convention adopted by Rhys Jenkins and Joan Day of using the name Bristol Brass Company for the main company smelting copper in Bristol in the 18th century is followed here). Although the lease was subsequently reassigned it is unlikely that any further smelting took place.(23)

From 1692 the English Copper Company's Lower Redbrook copperworks (SO 537 097), 400m to the south beside the Wye and extending eastward up the Valley Brook, was the local rival of the Coster Company's site (24); but in the early decades it seems never to have been as successful. In 1716 it came under the control of Thomas Chambers who for many years had been a party to the English Copper Company's operations.(25) In 1725 there were 16 furnaces in use at Lower Redbrook.(26) Thomas Chambers died in 1726. Smelting continued and in the years 1733-37 the 3738 tonnes of Cornish copper ore purchased by the English Copper Company equalled 40% of the total purchased by the two companies smelting at Bristol in the same period.(27) Whether the Lower Redbrook copperworks remained viable is uncertain.(28) The site was leased in 1771 for making tinplate (29); a use that would continue for the next century and a half.(30) Rudder seems to have been writing history when he noted the existence of two copperworks at Redbrook in 1779.(31)

Bristol

Commercial copper smelting in Bristol was started by Abraham Elton and Gabriel Wayne in about 1696 at Conham (ST 629 719) beside the Avon 4km east of the centre of the city.(32) Later known as Elton and Co, in the mid 1730s its ore use was a fifth of that of the Bristol Brass Company nearby.(33) Sometime after 1744 the Conham works came under the control of the rival company and in about 1750 the site was upgraded by the rebuilding of its smelting furnaces.(34) When Reinhold Angerstein from Sweden visited here in 1754 there were seventeen furnaces employed at the new works.(35) Smelting continued here into the 1780s.(36)

The Bristol Brass Company's copperworks was established by 1710 at Crew's Hole (ST 627 729) by the Avon 1km west of Conham.(37) Twenty-four furnaces were in use by 1724 producing about 150 tonnes of copper per year.(38) The minutes of Bristol's Common Council for 18th August 1749 record that the Bristol Brass Company's practice of depositing 'cinders' on the banks of the Avon was 'a very great nuisance and likely to choak up the said river if not removed'. Joan Day has suggested that the problem of the disposal of slag may have contributed to the decision to cast it into regular blocks for use as a construction material.(39) Slag appears to have been tapped directly into moulds (40), alternatively it may have been re-smelted to cast it, as would have been the case with recycling of 'old' slag. Reinhold Angerstein saw forty-nine furnaces in 1754.(41) Around 1780 another company leased the site from the Bristol Brass Company and some smelting continued to 1796 or later.(42)

William Campion and Company began operations at Warmley (ST 670 728), 8km east of Bristol in 1748. William Campion evolved the technique of smelting copper, smelting calamine ore to produce zinc, producing brass and manufacturing wares all on the same site.(43) Reinhold Angerstein noted that there were 15 copper furnaces at Warmley . He was particularly struck by the 'fire engine' (a Newcomen beam-engine installed in 1749) that was used to return tail-water to the works' supply pond (44). A drawing by Reinhold Angerstein at the time (Figure 2) (45) shows clearly that three buildings on the site, including the engine house, were based on large regularly coursed blocks. The company expanded its smelting operation to nearby Kingswood (ST 652 741) in 1761 (46), but William Campion had been too ambitious. Financially overstretched, in March 1769 he was forced to offer for sale his works at Warmley, described as 'the most complete in the Kingdom' and his smelting furnaces at Kingswood.(47) Warmley was taken over by the Bristol Brass Company which continued production. By 1781 the latter had moved all production to Warmley to take advantage of closer coal supplies. 1787 saw the winding up of the Bristol Brass Company and the establishment of a new one under similar ownership However, this reorganisation heralded the demise of copper smelting at Warmley and the transfer of operations to South Wales.(48)

Swansea

From 1717 when the first of a series of six 18th copper smelting sites was established beside the Tawe**,** Swansea gradually became the centre of British copper production. By the second half of the century its output rivalled that of Bristol, primarily because of the availability of cheap coal and easy sea access for imported Cornish copper ore (49), but additionally because of the technological advances Swansea smelting interests had made.(50) Bristol entrepreneurs were amongst those who took advantage of the favourable economic situation in South Wales by establishing or transferring production.(51) Unlike at Bristol, copper smelting and its allied industries flourished at the end of the 18th century, and they would continue at Swansea into the 20th.(52)

The Survey

The original ambitious intention was to record the slag blocks in all 'pre-1974' Gloucestershire parishes beside the Severn and Wye and in hinterland parishes one or two beyond the riverside ones, depending on the topography – these being areas where blocks are known to occur. Unfortunately it was not possible to find people to do the survey in South Gloucestershire, so ultimately only the area of the present-day county has been investigated (Figure 3). Parishes were assigned to fieldworkers on the basis of familiarity and accessibility. Recording west of the Severn was undertaken by the Forest of Dean Local History Society and initially reported (53) and then published by them.(54) Particularly in the north of this area, work was either shared with or done by the Gloucester and District Archaeological Research Group, whose members also undertook recording in Vale parishes. With the exception of parts of Cinderford, Oxenhall, Newent, Cheltenham and Rodborough, all peripheral to the main slag block distribution, the area shown in Figure 3 has been fully investigated, but in some cases without success. For practical reasons the whole of Upper Redbrook was treated as though in Newland, Gloucestershire

Survey recording was on standardised record cards to which photographs could be attached. In cases where there were identification problems follow-up visits were made by one of the co-ordinators, including the writer. Data from the record cards, from documentary sources, information from correspondents and the results of further observation have been entered into a computer database. The program used to enter, store and print the results of the survey is

Lotus Approach, however, the database is accessible via similar programs. Figure 4 shows a typical 'entry form' computer database record. As of August 2004 there are 184 records in the database.

Each database record consists of a series of fields, some of which may need explanation :-

- Parish: Civil parish or other administrative area.
- Location: Linked address fields identifying the building or structure in which slag blocks are used. A location should not be confused with a site where there could be a number of locations. ('Site' does not feature as a separate field, however, it mostly equates to location; if it does not, it forms the latter parts of the location address).
- Listed: A site or individual location that appears on the government's official list of properties of architectural or historical importance.
- Key Site: A site or individual location that, because of its state of preservation or because of the nature of the blocks used, is an important exemplifier
- Use: The way in which slag blocks, often of different types and sizes, are used at a location.
- Type: Form (plus size if necessary) of blocks.
- Length, Width and Height: Block dimensions. The recorded height of a rectangular block is from its base (smooth resulting from the bottom of the casting mould) to its top (rough, uneven and less dense exposed surface after casting); when regularly coursed in construction the top is invariably laid inwards so that the smooth base is shown.
- Sample Possible: Whether or not a small slag sample can be taken with agreement for analysis, or has been taken.

Survey Results

Distribution and Transportation

Figure 5 shows in tabular form the basic data for each group of surviving slag blocks - by parish, national grid reference, location and a simple classification of types and their use. In each case the data has been taken directly from the relevant database record. A composite distribution map of all types of blocks, stemming from this figure appears as Figure 6. The use of **N** against the • symbol denotes the number of locations in a sub-parish area where slag blocks were found, irrespective of whether a location has just one loose block or large-scale use of many block types.

It is clear from the map that the Severn was the artery by which slag blocks were transported to the towns and villages along it. With the exception of the blocks at Redbrook in Newland parish, a copper smelting site, generally all survivals were found within 6km of the Severn. Except at Redbrook none were beside the Wye. Apart from at Redbrook, at three further locations in the Forest of Dean and a casual reuse at Rodborough, blocks were only encountered in lower lying areas well below the 125m contour arbitrarily shown on the map.

Concentrations around and spreading from Severnside quays and ferry landings highlight the role of these in the handling of blocks. Nowhere is this more apparent than at Newnham-on-Severn (22 locations) or at Berkeley / Ham and Stone (14) - with importation to these latter parishes probably through Berkeley Pill; similarly at Frampton-on-Severn (18), Minsterworth (9) and further upstream at Maisemore (7) and Ashleworth.(4) The Arlingham blocks, if not landed directly, must have been ferried over from Newnham-on-Severn, as perhaps could those at Elmore, from Minsterworth.

In addition the map shows the routes of early canals and the Warwickshire Avon. The blocks used at Tewkesbury were likely to have been unloaded at one or other of the town's Avon quays. The Coombe Hill canal towards Cheltenham was probably completed too late, in 1797, to carry blocks to Leigh. The instances of casual reuse and abandonment of blocks at Oxenhall are directly associated with the Herefordshire and Gloucestershire Canal, which reached there around 1796, but again it is doubtful if by this date blocks were still being cast; possibly the canal merely served to transport them later at a time of reuse. However, it does seem reasonable that the Stroudwater Canal, opened in 1779, was used for the carriage of many of the blocks that exist in Eastington, although against this is the fact that direct and level roads linked this parish westwards to Frampton-on-Severn, to Fretherne-with-Saul and to Arlingham, all of which had their own river access.

Types and Use

Typical rectangular blocks were the ones encountered most frequently, at 90% of locations. With only minor variations their widths are 225mm, showing an intention to achieve around a 9 inch vertical dimension for blocks used in coursed construction. Their lengths are 440mm plus or minus usually no more than 10mm and their heights centre around 180mm. The final height of a block is dependent on the amount of slag poured into the mould. By design or fortune there are also peaks in height distribution at 160mm and 200mm. These average dimensions are all slightly less than the Bristol ones published by Joan Day (55): 9 ½ inch (241mm), 18 ½ inch (470mm) and 8 inch (203mm). There is a suggestion that Redbrook blocks have a smaller average width than those found elsewhere. Rectangular blocks are mostly employed as foundation and lower building courses in construction, as well as some for wall copings - used rough top uppermost. However, they also appear as quoins, string courses and decoratively, as at Cornerhouse Farm, Corse (Figure 7). Lengths of slag block boundary walls have been noted, and similarly whole building walls including a chimneystack as at Dean Forest Farm, Newnham-on-Severn. One of the most interesting uses for these blocks is in the construction of cellars, for which the waterproof property of slag is well suited. Three examples are known, including at Pump Court, Minsterworth where they are whitewashed; no doubt more such cellars exist. It is likely that undetected slag construction blocks form the aboveground internal walls of many properties in the area where these blocks are used.

Figure 8 shows the distribution of other block types. Triangular ones are used as wall copings (Figure 9) - one exception to this being a decorative insert at Corner House Farm, Corse. Triangular blocks seem mainly to have been cast vertically, thereby giving a rough top (wide end). Their height is variable from block to block, averaging about 355mm. Similarly, consequently, their width (at the wide end) can vary, within a 100mm range centred on about 375mm. As well as being found at the site of Lower Redbrook copperworks, examples of these blocks were noted on both sides of the Severn, though much more frequently on the east side, particularly around Berkeley. To the south of Berkeley, at Ham and Stone, a particularly interesting triangular block with a moulding mark was found amongst infill in front of a

trackway gate west of Whitecliffe Park (Figure 10). Reversed R and S are clearly shown in relief, these letters originally having been depressed in a vertically tapering mould set unspaced side-by-side (co-joined) with a standard triangular one prior to casting. It seems likely that the block was used, or intended, as a property or field boundary (mere) stone. This is the only known local example of a mould mark, but Stephen Hughes quoted Roman numerals on rectangular blocks used as wall copings at one site in South Wales.(56) Double-length triangular blocks, from co-joined regular moulds were recorded at Redbrook including on the Lower Redbrook copperworks site, but nowhere else.

Half round wall coping blocks (Figure 11) are less common, being found at eleven locations, all to the west of the Severn, including at the Lower Redbrook copperworks and nearby Highbury Farm, Newland where they formed caps on a crenellated facade. Their average dimensions are 220mm high, 435mm wide and 205mm long. Such blocks were also used to make a column at Hill House, Newnham-on-Severn. Larger half round blocks were employed to construct the columns supporting the first floor of the warehouse at Newnham quay. These blocks are 305mm high (though used flat), 615mm wide and 200mm long. Large half-round blocks, though apparently shallower, also topped part of the Highbury Farm facade.

Highbury Farm was the only location to yield angle-ended quoins suitable, as used there, for bay windows (Figure 12). The blocks were 230mm wide, 230mm high and 470mm long to the line of change beyond which the block face continued diagonally for 255mm .

At three locations examples of channel blocks were found. They were around 440mm long, 200mm or 230mm wide and of differing heights between 152mm and 225mm They had either a 50mm or a 75mm radius channel running along the cast base (Figure 13). They would have been used rough top downwards; alternatively it may have been possible to use such blocks, one above another with channels facing each other, in land drainage. None of these blocks were *in-situ*. They did not occur at Redbrook but nor have they been noted as products of Bristol (or Swansea).

Paving slabs typically 610mm square and 140mm high were found on the Lower Redbrook copperworks site together with a longer narrower version 750mm by 300mm. The latter are often co-joined to give a square cross-section rectangular block. Stephen Hughes mentions the use of paving slabs but there is no reason to suppose they came from this site.(57) Another Lower Redbrook copperworks product, or at least encountered only there, was a rectangular block with a 30mm deep sharp-edged depression running across its base at right angles to the long side (Figure 14). Upturned, these blocks would have been suitable as roadside or paving gutters. At the site some blocks seem to be variants of others, accidentally or otherwise, as a result of co-joined moulds. It was noted that the surfaces of the blocks being recovered for recycling from here often seemed duller and more uneven than those normally encountered.

Narrower than average rectangular blocks, 180mm wide, 430mm long and 180mm high, were used, whole and part, in the former Bush public house at Upper Redbrook and thinner still, usually fragmented, blocks or slabs formed the bank retaining wall behind. The reduced width blocks seem to have been produced earlier than typical ones as the latter appear in the upper extended / rebuilt part of the building. Similarly, thin ones appear earlier than rectangular ones since the retaining wall was buttressed in places using the rectangular type.

Slag Block Sources.
Perhaps the most important question that remains unanswered is: in a particular area, where did the various slag blocks found during the survey actually come from? It is unlikely that the blocks at Redbrook would have been produced elsewhere, and this applies to those in Newland in general. The Upper Redbrook site ceased copper smelting in the early 1730, but whether smelting continued beyond the middle of the 18th century at Lower Redbrook is problematic. Hart reported that at the latter site there was, until demolished in 1943, a house built partly of copper slag blocks with the date 1771 over the doorway.(58) Remembering Rudder's 1779 observation about copperworks at Redbrook, is it possible that re-smelting of 'old' copper slag for blocks, rather than smelting of ore for copper, was taking place - possibly at both upper and lower sites?

The more common types of block produced at Lower Redbrook - rectangular, triangular and half round - are all found in the Severnside parishes and so they could be from the site, but it is more likely that the majority came from Conham, Crew's Hole, or Warmley / Kingswood. There are three dated Severnside uses of rectangular blocks: at Barn House, Newnham-on-Severn, which deeds date to 1765 , (one of the locations with a slag block cellar); at the Congregational Chapel, Frampton-on-Severn which was consecrated in 1776; and at Slowwepool Barn, Arlingham which has a keystone above the entrance with 1780 on it. All the Bristol sites seem to have been in operation between these dates - the first confirmed Bristol use of slag blocks was at Clifton in the late 1740s.(59) Unfortunately there are no confirmatory local examples of types particular to Bristol sites, such as the double-length rectangular blocks found at Lower Conham Vale, Conham (60), or the characteristic type of rectangular block with one slightly inset quarter-round corner, from base to top, noted in gateposts at Kingswood (61) and used at Warmley sometime between 1748 and 1769 as rounded quoins for protecting corners. Stephen Hughes noted that Warmley / Kingswood quarter-round ended blocks were not seen at Swansea.(62) But nor are Swansea products such as vertically faceted sharply triangular coping blocks (63) or shaped brick size construction blocks (64) found in Gloucestershire.

Further Work
From its start the Gloucestershire Slag Block Survey was intended as a fieldwork exercise. Because of this no attempt has been made to research the history of the many properties that have yielded blocks, nor has original documentary information been sought on the supply or transportation of the blocks. Results of this survey usefully could be the starting point for further work on these aspects.

There is no doubt that despite the enthusiasm of all who contributed to the survey, inevitably slag block survivals will have been missed. Any new or additional information received during the six months following publication of this article will be added to the computer database. It is intended that after that the original record cards, the computer database, slag samples already taken and any further documentation will be offered to Gloucestershire County Councils Archaeology Service for archiving. Copies of the computer database will be made available to the Gloucestershire Record Office and to the appropriate conservation, heritage or archaeology officers of the four districts covered by the survey.

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Figure 1. Rectangular copper slag blocks used as copings on a wall beside Organ's Alley, Gloucester

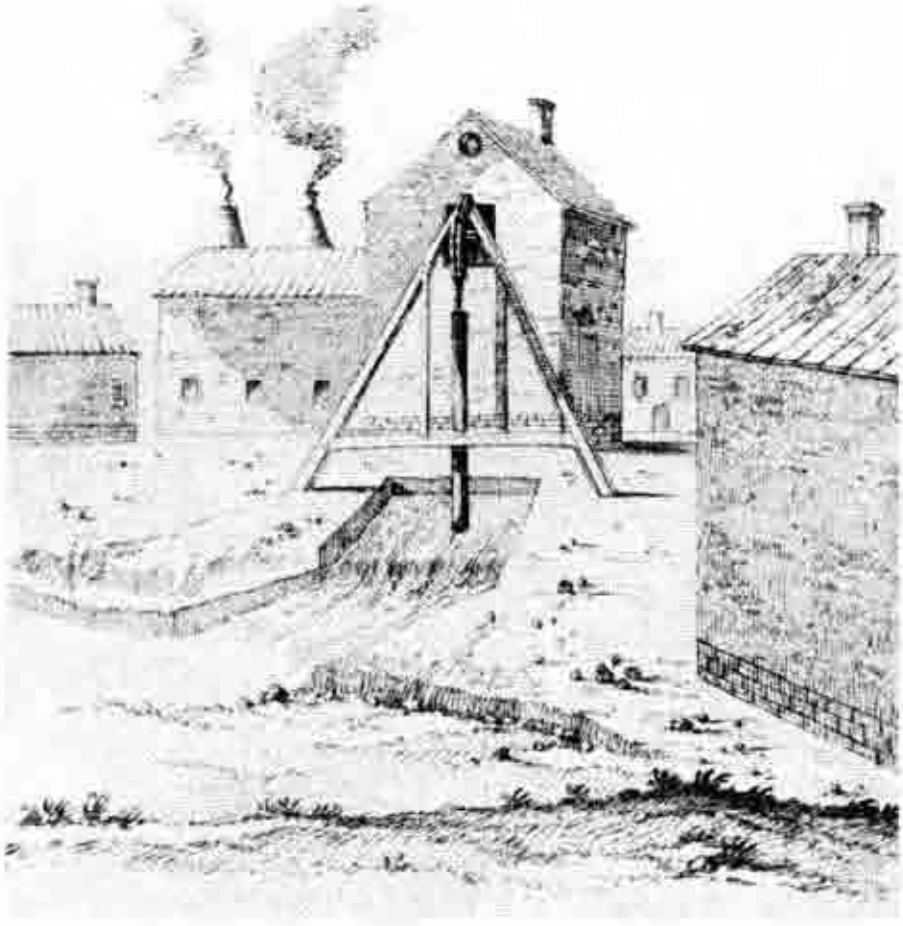

Figure 2. Reinhold Angerstein's 1754 drawing of part of the copperworks at Warmley, showing the use of slag blocks

[after Rhys Jenkins, Trans BGAS 63, with acknowledgement to the Bristol and Gloucestershire Archaeological Society]

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Figure 3. RIVERSIDE AND HINTERLAND PARISHES NFS

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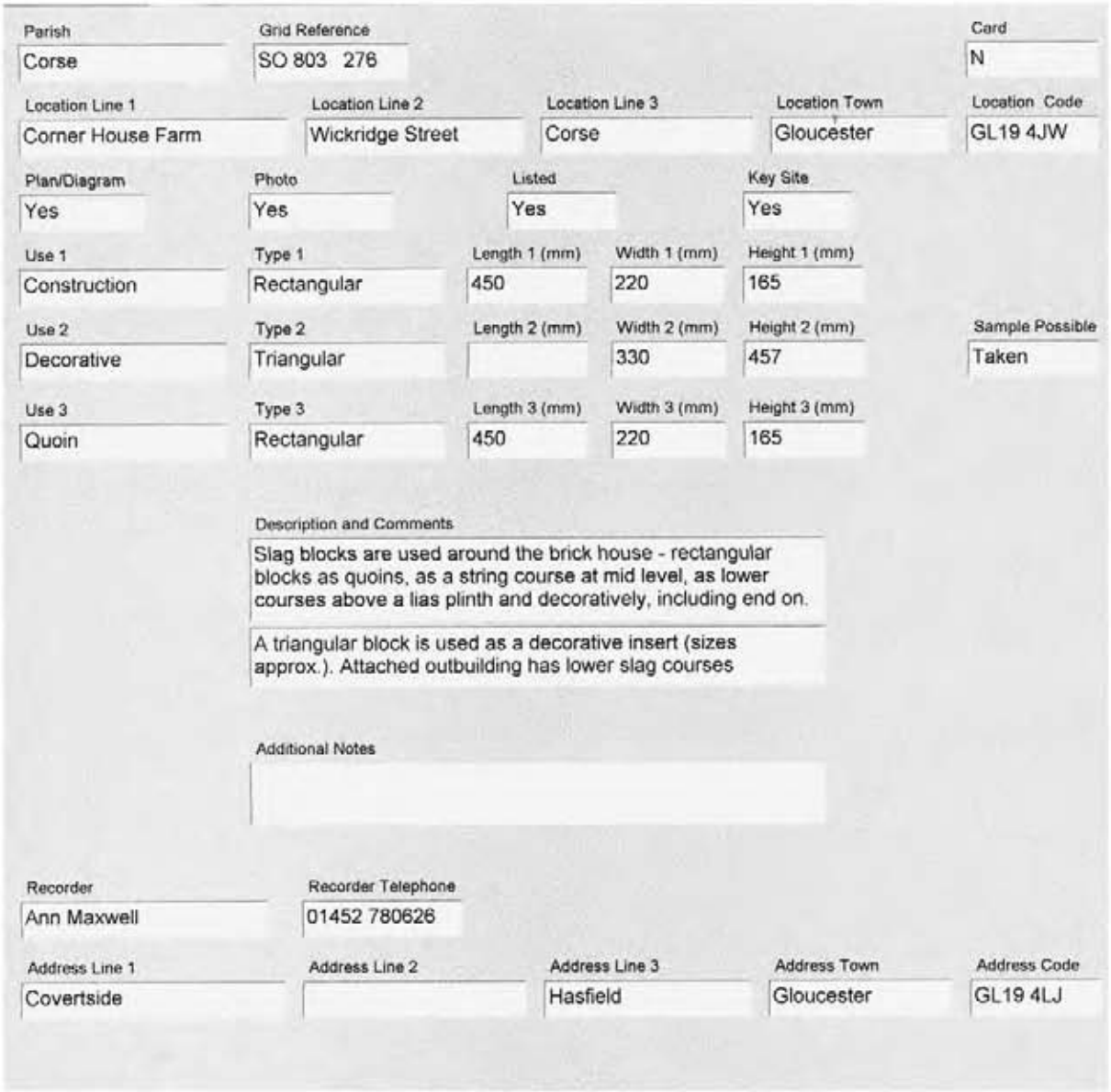

Parish: Corse	Grid Reference: SO 803 276			Card: N
Location Line 1: Corner House Farm	Location Line 2: Wickridge Street	Location Line 3: Corse	Location Town: Gloucester	Location Code: GL19 4JW
Plan/Diagram: Yes	Photo: Yes	Listed: Yes	Key Site: Yes	
Use 1: Construction	Type 1: Rectangular	Length 1 (mm): 450	Width 1 (mm): 220	Height 1 (mm): 165
Use 2: Decorative	Type 2: Triangular	Length 2 (mm):	Width 2 (mm): 330	Height 2 (mm): 457
Use 3: Quoin	Type 3: Rectangular	Length 3 (mm): 450	Width 3 (mm): 220	Height 3 (mm): 165

Sample Possible: Taken

Description and Comments:

Slag blocks are used around the brick house - rectangular blocks as quoins, as a string course at mid level, as lower courses above a lias plinth and decoratively, including end on.

A triangular block is used as a decorative insert (sizes approx.). Attached outbuilding has lower slag courses

Additional Notes:

Recorder: Ann Maxwell	Recorder Telephone: 01452 780626			
Address Line 1: Covertside	Address Line 2:	Address Line 3: Hasfield	Address Town: Gloucester	Address Code: GL19 4LJ

Figure 4 Database 'Entry Form' of the record for Corner House Farm, Corse,

Gloucestershire Slag Block Survey Location List

Figure 5 (1 of 5)

Parish	Grid Reference	Location		Type 1	Use 1	Type 2	Use 2	Type 3	Use 3
Alkington	ST 716 981	Roadside wall	Blanchworth Farm	Triangular	Wall coping				
Arlingham	SO 7084 1055	East of church	Arlingham church	Triangular	Loose				
Arlingham	SO 7096 1089	Farm house	Clapsgate Farm	Rectangular	Lower course				
Arlingham	SO 7101 1076	East of church		Triangular	Loose				
Arlingham	SO 7110 1125	Black nest	Friday Street	Rectangular	Construction				
Arlingham	SO 7123 1149	Barn	Slowwepool Farm	Rectangular	Quoin	Rectangular	Lower course		
Arlingham	SO 7123 1149	Small barn	Slowwepool Farm	Rectangular	Quoin				
Arlingham	SO 7140 1139	Slowwe House		Rectangular	Quoin	Rectangular	Lower course		
Arlingham	SO 7185 1091	Farm wall	Lower Miltonend Farm	Channel	Wall coping				
Ashleworth	SO 810 251	Roadside wall	Bilston House	Rectangular	Quoin	Rectangular	Lower course		
Ashleworth	SO 810 251	Boundary wall	Bilston House	Rectangular	Wall coping	Rectangular	Construction		
Ashleworth	SO 818 251	Building	Opposite Boat Inn	Rectangular	Lower course				
Ashleworth	SO 818 251	Building	Near Boat Inn	Rectangular	Construction				
Awre	SO 661 063	Wall, Opposite Pollard Lane	Viney Hill	Triangular	Wall coping				
Awre	SO 679 055	Wall	Gatcombe	Rectangular	Wall coping				
Awre	SO 685 083	Bledisloe Farm	Chicknalls Lane	Rectangular	Lower course				
Awre	SO 702 088	Northington Barn	Northington	Rectangular	Construction				
Berkeley	ST 6825 9920	Stamford House	27 Salter Street	Rectangular	Lower course				
Berkeley	ST 6835 9900	Estate wall	High Street	Triangular	Wall coping	Rectangular	Quoin		
Berkeley	ST 6835 9910	42 High Street		Rectangular	Lower course	Rectangular	Quoin		
Berkeley	ST 6840 9905	Wall to 'Castle Garden'	South of church	Triangular	Wall coping				
Berkeley	ST 6850 9920	Berkeley Arms	Canonbury Street	Rectangular	Lower course				
Berkeley	ST 6860 9920	30 Canonbury Street		Rectangular	Lower course	Rectangular	Quoin		
Berkeley	ST 6865 9920	Old School House	Canonbury Street	Rectangular	Lower course				
Berkeley	ST 6845 9915	Sasakawa Centre	The Chantry (Museum)	Rectangular	Lower course				
Chaceley	SO 857 307	Garden Wall	Hazel View Cottage	Rectangular	Wall coping				
Chaceley	SO 857 307	Butterfly Cottage		Rectangular	Construction	Rectangular	Quoin		
Churcham	SO 769 183	Church		Rectangular	Construction	Rectangular	Construction		
Cinderford	SO 6440 1510	Site of New Bowson Colliery	Cinderford Linear Park	Half round	Loose				
Corse	SO 803 276	Corner House Farm	Wickridge Street	Rectangular	Construction	Triangular	Decorative	Rectangular	Quoin
Deerhurst	SO 8710 2975	New House	Church Lane	Rectangular	Construction				
Eastington	SO 7660 0595	Barn	Claypits Farm	Rectangular	Quoin	Rectangular	Lower course		
Eastington	SO 7660 0595	Cattle shed	Claypits Farm	Rectangular	Quoin	Rectangular	Lower course		
Eastington	SO 771 055	Barn	Alkerton Court	Rectangular	Lower course				
Eastington	SO 7813 0534	Wall beyond Millend Mill	Millend	Rectangular	Construction				
Eastington	SO 7820 0495	Hill (cattery)	Cress Green	Rectangular	Quoin				
Eastington	SO 7825 0480	No 2, The Jigsaw	Cress Green	Rectangular	Lower course				
Eastington	SO 783 069	Cressington Cottages	Westend	Rectangular	Lower course				
Eastington	SO 784 068	Mulgrove	Westend	Rectangular	Lower course				
Eastington	SO 7907 0623	Nastend House	Nastend	Triangular	Wall coping	Rectangular	Lower course		

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Gloucestershire Slag Block Survey Location List

Figure 5 (2 of 5)

Parish	Grid Reference	Location		Type 1	Use 1	Type 2	Use 2	Type 3	Use 3
Elmore	SO 7695 1670	House	Elmore Back	Rectangular	Lower course	Rectangular	Lower course		
Elmore	SO 7725 1685	Bankside building	Elmore Back	Rectangular	Construction				
Frampton on Severn	SO 7440 0690	Churchside Cottage		Rectangular	Lower course				
Frampton on Severn	SO 746 072	Buckholt House		Rectangular	Lower course				
Frampton on Severn	SO 746 072	Wall, south of Narles House		Rectangular	Wall coping				
Frampton on Severn	SO 7465 0755	Walford House		Rectangular	Lower course				
Frampton on Severn	SO 7465 0775	Wall, Heart of Oak	Whittles Lane	Rectangular	Lower course				
Frampton on Severn	SO 7470 0775	Congregational chapel	Congreg. chapel lane	Rectangular	Lower course				
Frampton on Severn	SO 7475 0770	Wall	Congreg. chapel lane	Rectangular	Wall coping				
Frampton on Severn	SO 748 076	The Firs	Frampton Green	Rectangular	Lower course	Rectangular	Quoin		
Frampton on Severn	SO 748 076	Boundary walls	The Firs	Rectangular	Wall coping	Triangular	Wall coping		
Frampton on Severn	SO 748 076	Outbuilding	The Firs (south)	Rectangular	Lower course				
Frampton on Severn	SO 7480 0745	Wall, E of Rosamunde House	Townfield Farm lane	Rectangular	Lower course				
Frampton on Severn	SO 7485 0780	Boundary wall	The Old Coffee House	Rectangular	Lower course	Rectangular	Quoin		
Frampton on Severn	SO 751 071	Barn	Townfield Farm	Rectangular	Lower course	Rectangular	Construction		
Frampton on Severn	SO 751 081	Bell Inn	Frampton Green	Rectangular	Construction				
Frampton on Severn	SO 751 081	Outbuilding, Bell Inn	Frampton Green	Rectangular	Construction				
Frampton on Severn	SO 752 071	Farmhouse	Townfield Farm	Rectangular	Lower course				
Frampton on Severn	SO 752 071	House	Townfield Farm	Rectangular	Lower course				
Frampton on Severn	SO 7693 0727	Fromebridge Mill		Rectangular	Construction	Rectangular	Quoin		
Fretherne with Saul	SO 373 094	Drive, Fretherne Cottage	85 Fretherne Lane	Triangular	Loose				
Fretherne with Saul	SO 7460 1040	Mill House	Lower Framilode	Rectangular	Construction	Rectangular	Lower course		
Fretherne with Saul	SO 7460 1040	Garden, Mill House	Lower Framilode	Rectangular	Loose	Channel	Loose		
Fretherne with Saul	SO 7460 1040	Rear yard, Mill House	Lower Framilode	Rectangular	Construction	Rectangular	Loose		
Fretherne with Saul	SO 7480 0895	Thatched Cottage	Main street	Rectangular	Construction	Triangular	Loose		
Gloucester	SO 829 185	Church, Blackfriars	Blackfriars Lane	Rectangular	Construction				
Gloucester	SO 829 185	South range, Blackfriars	Blackfriars Lane	Rectangular	Construction				
Gloucester	SO 836 183	Organ's Alley		Rectangular	Wall Coping				
Ham and Stone	ST 660 973	Below Whitecliffe Park		Triangular	Loose				
Ham and Stone	ST 6730 9480	Garden walls	Chestnut Cottage	Triangular	Wall coping				
Ham and Stone	ST 6835 9545	Churchyard wall	Stone Churchyard	Triangular	Wall coping				
Ham and Stone	ST 6895 9535	Boundary wall	Court Moat	Triangular	Wall coping				
Ham and Stone	ST 6820 9865	Main stable block	Berkeley Castle stables	Rectangular	Lower course	Rectangular	Quoin	Triangular	Wall coping
Ham and Stone	ST 6820 9865	Entrance block	Berkeley Castle stables	Rectangular	Construction				
Hardwicke	SO 775 131	Barn	Madam's End Farm	Rectangular	Lower course				
Hasfield	SO 825 276	Garden wall	Amberley House	Rectangular	Wall coping				
Hempsted	SO 8145 1695	Roadside wall	Church Farm	Rectangular	Wall coping				
Hempsted	SO 817 166	Building	Home Farm	Rectangular	Lower course	Rectangular	Quoin		
Leigh	SO 261 869	Outbuilding	Tod Cottage	Rectangular	Lower course				
Leigh	SO 261 869	Roadside wall	Tod Cottage	Rectangular	Wall coping				

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Gloucestershire Slag Block Survey Location List

Figure 5 (3 of 5)

Parish	Grid Reference	Location		Type 1	Use 1	Type 2	Use 2	Type 3	Use 3
Longford	SO 839 209	108-10 Tewkesbury Road		Rectangular	Lower course				
Longney	SO 760 138	Barn	Downend	Rectangular	Construction				
Maisemore	SO 8105 2136	Wall, Bell House Farm	Old Road	Rectangular	Wall coping				
Maisemore	SO 8105 2136	Bell Cottage	Old Road	Rectangular	Construction	Rectangular	Loose		
Maisemore	SO 8136 2155	Garden wall	Maisemore Old Court	Rectangular	Wall coping	Rectangular	Construction		
Maisemore	SO 8141 2168	Wall adjoining barn	Maisemore Court Farm	Rectangular	Wall coping				
Maisemore	SO 8145 2125	Garden wall	The Ship House	Rectangular	Construction	Rectangular	Construction		
Maisemore	SO 8145 2166	Commercial park	Maisemore Court	Rectangular	Loose				
Maisemore	SO 8146 2169	Wall, farm shed	Maisemore Court Farm	Rectangular	Wall coping				
Minsterworth	SO 765 156	Float House	The Flats	Rectangular	Lower course				
Minsterworth	SO 767 168	Old fishermens' hut	Bank of River Severn	Rectangular	Lower course				
Minsterworth	SO 773 172	Main House	Pump Court	Rectangular	Construction	Rectangular	Lower course		
Minsterworth	SO 773 172	Wall beside cider house	Pump Court	Rectangular	Construction				
Minsterworth	SO 773 172	Cottage	Pump Court	Rectangular	Quoin				
Minsterworth	SO 773 172	Bakehouse	Pump Court	Rectangular	Quoin	Rectangular	Lower course		
Minsterworth	SO 785 170	Farmhouse	Lower Moorcroft Farm	Rectangular	Lower course				
Minsterworth	SO 785 170	Wall	Lower Moorcroft Farm	Rectangular	Lower course				
Minsterworth	SO 788 174	Hampton Farm	Watery Lane	Rectangular	Lower course	Rectangular	Quoin		
Moreton Valence	SO 7565 1050	Old Pig Sty	Lea Court Farm	Rectangular	Construction				
Moreton Valence	SO 7565 1050	Privy	Lea Court Farm	Rectangular	Construction				
Moreton Valence	SO 7565 1050	Seat feature	Lea Court Farm	Rectangular	Loose				
Newent	SO 7559 2469	House	Malswick Mill	Rectangular	Construction				
Newent	SO 7559 2469	Mill building	Malswick Mill	Rectangular	Construction				
Newland	SO 536 102	Retaining wall, ex Bush PH	Lower Redbrook	Rectangular	Construction	Rectangular (thin)	Construction		
Newland	SO 536 102	Wall, tinplate works cottages	Lower Redbrook	Rectangular	Construction	Half round	Wall coping		
Newland	SO 536 102	Former Bush public house	Lower Redbrook	Rectangular	Construction	Rectangular (thin)	Construction	Rectangular	Construction
Newland	SO 5360 1000	Building, Wye Valley House	Lower Redbrook	Rectangular	Construction	Rectangular	Quions		
Newland	SO 5370 0970	House, west of work site	Lower Redbrook	Rectangular	Construction				
Newland	SO 5370 0975	Warehouse, bank of river	Lower Redbrook	Rectangular	Quoin				
Newland	SO 5370 0995	St Saviour's churchyard	Lower Redbrook	Slab (narrow)	Construction	Triangular (double)	Coping	Triangular	Wall coping
Newland	SO 5370 0995	Wall, Hillside	Lower Redbrook	Rectangular	Construction				
Newland	SO 5375 0972	Path wall, tinplate works	Lower Redbrook	Rectangular	Construction				
Newland	SO 5375 0975	Tinplate works site (1)	Lower Redbrook	Rectangular	Loose	Slab	Loose	Slab (narrow)	Loose
Newland	SO 5375 0975	Tinplate works site (2)	Lower Redbrook	Triangular	Loose	Triangular (double)	Loose	Half round	Loose
Newland	SO 5375 0975	Tinplate works site (3)	Lower Redbrook	Depressed	Loose	Rectangular (sq x)	Loose		
Newland	SO 538 097	Site wall, tinplate works	Lower Redbrook	Rectangular	Construction	Slab	Construction		
Newland	SO 5384 0973	Retaining wall, tinplate works	Lower Redbrook	Rectangular (sq x)	Construction	Half round	Wall coping		
Newland	SO 5385 0930	Farm House, Highbury Farm	Redbrook	Rectangular	Construction	Half round	Construction	Rectangular	Construction
Newland	SO 5385 0930	Outbuilding, Highbury Farm	Redbrook	Rectangular	Construction				
Newland	SO 5385 0930	Barn wall, Highbury Farm	Redbrook	Rectangular	Construction				

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Gloucestershire Slag Block Survey Location List

Figure 5 (4 of 5)

Parish	Grid Reference	Location		Type 1	Use 1	Type 2	Use 2	Type 3	Use 3
Newland	SO 5385 0930	Stub wall, Highbury Farm	Redbrook	Half-round	Construction				
Newland	SO 539 108	Walls, Newland Road	Upper Redbrook	Rectangular	Construction	Rectangular (thin)	Construction		
Newland	SO 553 097	Spout Farm	High Street	Rectangular	Quoin				
Newland	SO 5741 0779	Boundary wall	Clearwell Castle	Rectangular	Construction				
Newnham on Severn	SO 6905 1170	Wall	Dean Road	Rectangular	Construction				
Newnham on Severn	SO 691 117	Cottage next to 'Old Stables'	High Street	Rectangular	Lower course				
Newnham on Severn	SO 691 117	Block pile, The Old Stables	High Street	Rectangular	Loose				
Newnham on Severn	SO 6913 1163	The Old Forge	Off Church Road	Rectangular	Quoin				
Newnham on Severn	SO 692 117	Wall	Severn Street	Rectangular	Construction				
Newnham on Severn	SO 692 119	Coach house outbuilding	'Old House'	Rectangular	Construction				
Newnham on Severn	SO 692 119	High Street		Rectangular	Construction				
Newnham on Severn	SO 692 119	North boundary wall	'Old House'	Rectangular	Construction				
Newnham on Severn	SO 692 119	Rear yard wall	'Old House'	Rectangular	Construction				
Newnham on Severn	SO 692 121	Roadside wall	Unlawater Lane	Rectangular	Wall coping				
Newnham on Severn	SO 692 122	Barn House	Unlawater Lane	Rectangular	Construction	Rectangular	Lower course		
Newnham on Severn	SO 692 122	Outbuilding, Barn House	Unlawater Lane	Rectangular	Construction				
Newnham on Severn	SO 692 122	Barn Cottage	Unlawater Lane	Rectangular	Quoin	Half round	Loose		
Newnham on Severn	SO 693 119	Old Warfe warehouse	Newnham Quay	Rectangular	Construction	Half round (large)	Construction		
Newnham on Severn	SO 693 119	2 Church Road		Rectangular	Lower Course	Rectangular	Construction		
Newnham on Severn	SO 6930 1225	House, Dean Forest Farm	Unlawater Lane	Rectangular	Quoins	Rectangular	Lower course	Rectangular	Construction
Newnham on Severn	SO 6930 1225	Wall, Dean Forest Farm	Unlawater Lane	Rectangular	Quoin	Rectangular	Construction		
Newnham on Severn	SO 6930 1225	Yard, Dean Forest Farm	Unlawater Lane	Rectangular	Construction	Half round	Wall coping		
Newnham on Severn	SO 6930 1225	Building, Dean Forest Farm	Unlawater Lane	Rectangular	Construction				
Newnham on Severn	SO 6935 1225	Outbuilding, Hill House	Unlawater Lane	Half round	Construction				
Newnham on Severn	SO 6935 1225	Roadside wall, Hill House	Unlawater Lane	Rectangular	Construction	Rectangular	Lower course	Half round	Wall coping
Newnham on Severn	SO 694 119	Drill Hall	Church Road	Rectangular	Construction				
Oxenhall	SO 709 277	Canal towpath	Tunnel entrance	Rectangular	Loose				
Oxenhall	SO 7125 2670	Canalside retaining wall	Lock Cottage	Rectangular	Wall coping				
Rodborough	SO 845 044	East wall of passage	Hawarden Cottage	Rectangular	Construction				
Sandhurst	SO 8305 2290	Farmhouse	Moat Farm	Rectangular	Lower course				
Slimbridge	SO 7338 0388	Kingston		Rectangular	Lower course				
Slimbridge	SO 7370 0391	Boundary wall, The Hurns	Long Aston Lane	Rectangular	Lower course	Rectangular	Quion		
Slimbridge	SO 7395 0355	Boundary wall	Village Hall	Rectangular	Lower course				
Slimbridge	SO 7395 0355	Church House		Rectangular	Lower course				
Slimbridge	SO 7431 0445	Hope House	Longaston Lane	Rectangular	Lower course				
Slimbridge	SO 7431 0453	Bramley's	Ryalls Lane	Rectangular	Lower course				
Slimbridge	SO 7495 0333	Bramley Cottage	Dursley Road	Rectangular	Lower course				
Slimbridge	SO 7496 0332	The Cottage	Dursley Road	Rectangular	Lower course				
Slimbridge	SO 7498 0334	Narles Barn	Dursley Road	Rectangular	Lower course				
Stonehouse	SO 7946 0470	Cattle yard wall	Beard's Mill	Rectangular	Construction				

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Gloucestershire Slag Block Survey Location List

Figure 5 (5 of 5)

Parish	Grid Reference	Location		Type 1	Use 1	Type 2	Use 2	Type 3	Use 3
Stonehouse	SO 7950 0483	Cottage	French Gardens	Rectangular	Lower course				
Tewkesbury	SO 8915 3275	Quay wall	East of Mill Avon	Rectangular	Construction				
Tewkesbury	SO 8925 3245	Old Girls' High School wall	Gander Lane	Rectangular	Quoins	Rectangular	Wall coping		
Tiddenham	ST 574 978	Boundary wall	Stroat Farm	Half round	Wall coping				
Tiddenham	ST 574 978	Barn	Stroat Farm	Rectangular	Quoin	Rectangular	Lower course	Slab	Construction
Tiddenham	ST 574 978	Farmyard outbuilding	Stroat Farm	Rectangular	Wall coping	Rectangular	Quoin	Rectangular	Lower course
Tiddenham	ST 574 978	Derelict wall	Stroat Farm	Rectangular	Construction				
Tirley	SO 837 285	Outbuilding wall	Princes Plume Cottage	Rectangular	Construction				
Tirley	SO 839 285	Church Cottage		Rectangular	Lower course	Rectangular	Decorative	Rectangular	Quoin
Tirley	SO 840 285	Churchyard wall		Rectangular	Construction				
Tirley	SO 843 276	Jasmine Cottage	The Haw	Rectangular	Lower course	Rectangular	Decorative		
West Dean	SO 614 083	Boundary wall, Edale House	Parkend	Triangular	Wall coping				
Westbury on Severn	SO 698 128	Shed, Oakfield Cottage	Broadoak	Rectangular	Lower course				
Westbury on Severn	SO 698 128	Boundary wall, White Hart	Broadoak	Rectangular	Construction				
Westbury on Severn	SO 699 130	Stable block	Broadoak House	Rectangular	Lower Course	Rectangular	Wall coping	Channel	Loose
Westbury on Severn	SO 7145 1540	Stone barn	Longcroft Farm	Rectangular	Quoin	Rectangular	Construction		
Westbury on Severn	SO 7145 1540	Barn	Longcroft Farm	Rectangular	Lower course				
Westbury on Severn	SO 7145 1540	Outbuilding	Longcroft Farm	Rectangular	Quion				
Westbury on Severn	SO 7145 1540	Stone building	Longcroft Farm	Rectangular	Quion				
Westbury on Severn	SO 7200 1520	Cottage	Brimstones	Rectangular	Construction				
Westbury on Severn	SO 7275 1615	Stables	Grange Court	Rectangular	Lower course				
Westbury on Severn	SO 7460 1155	Dove House	Rodley Court Road	Rectangular	Construction				
Westbury on Severn	SO 7465 1150	Barn	Dove House	Rectangular	Quoin				
Woolaston	ST 605 991	Cone Pill	Plusterwine Lane	Rectangular	Deposit				

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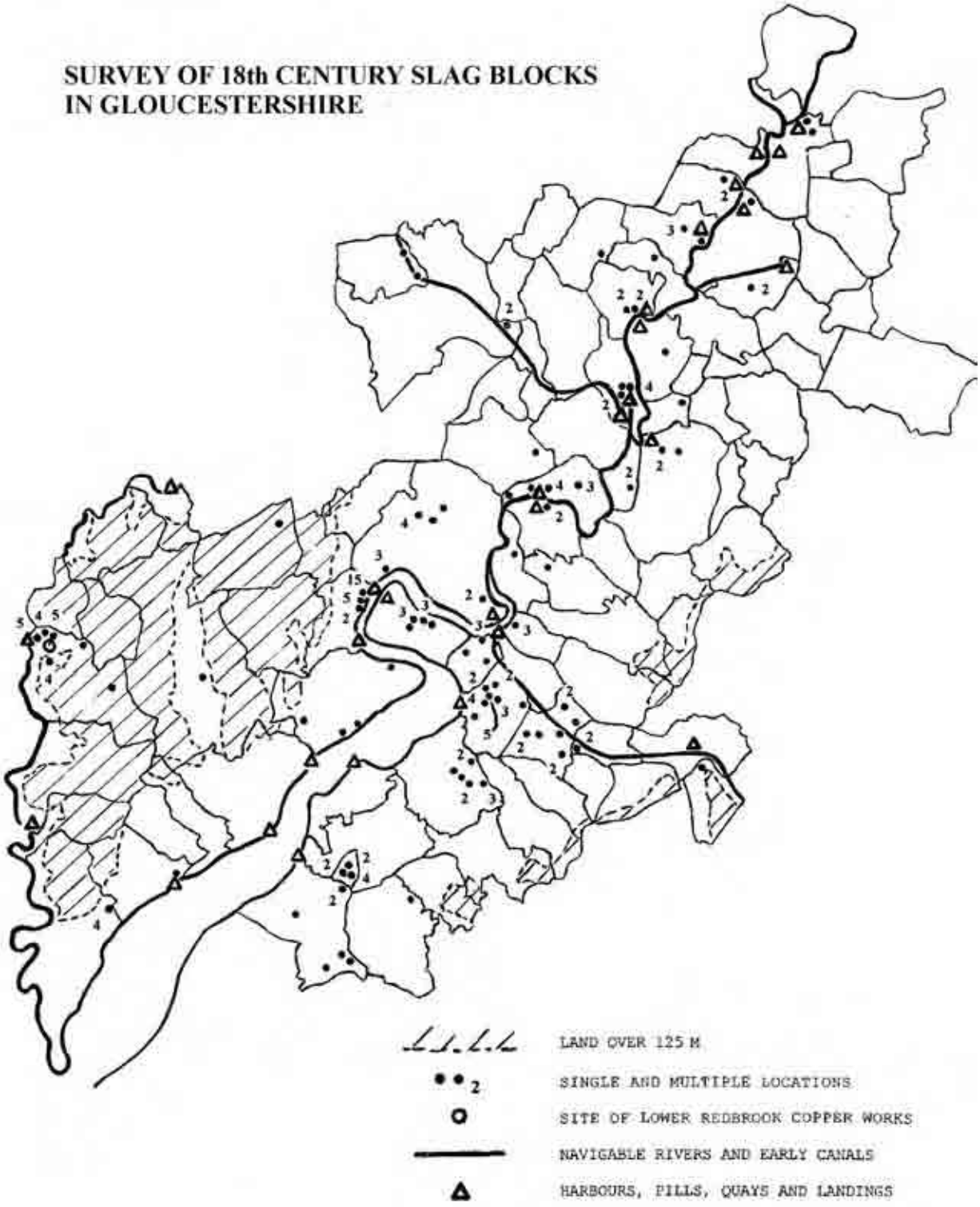

Figure 6. LOCATIONS OF IDENTIFIED BLOCKS NFS

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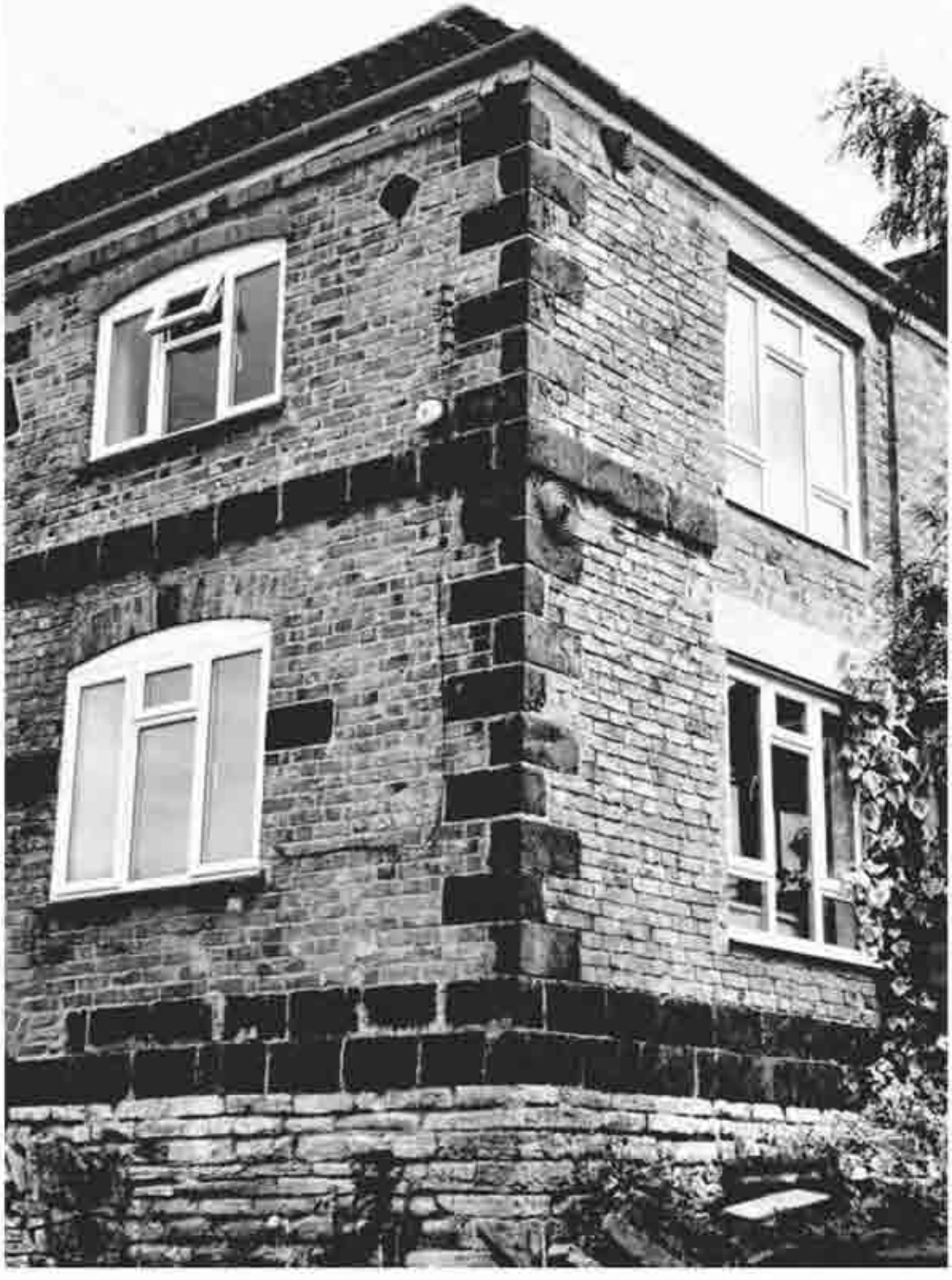

Figure 7. Use made of slag blocks at Corner House Farm, Corse

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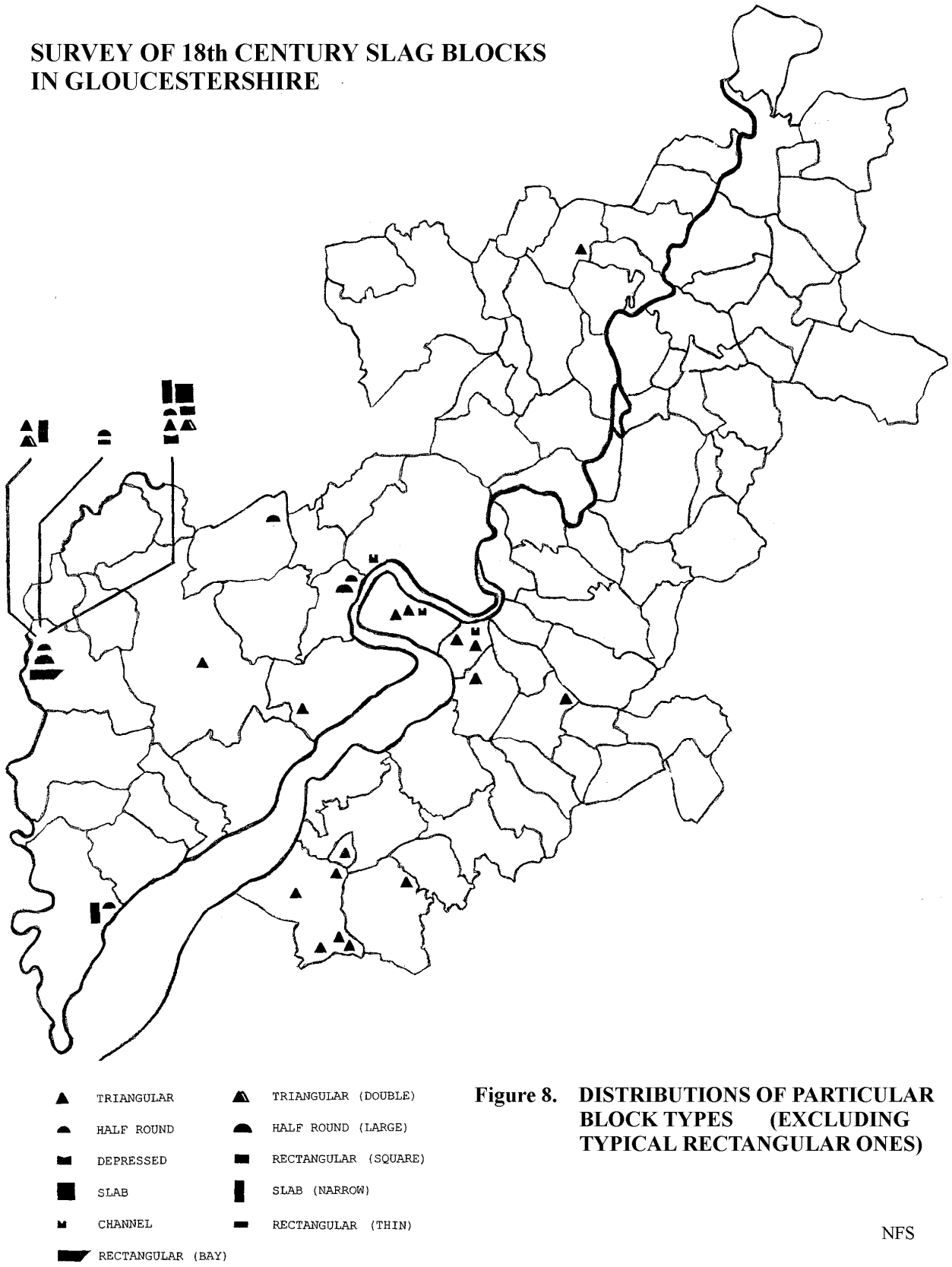

Figure 8. DISTRIBUTIONS OF PARTICULAR BLOCK TYPES (EXCLUDING TYPICAL RECTANGULAR ONES)

NFS

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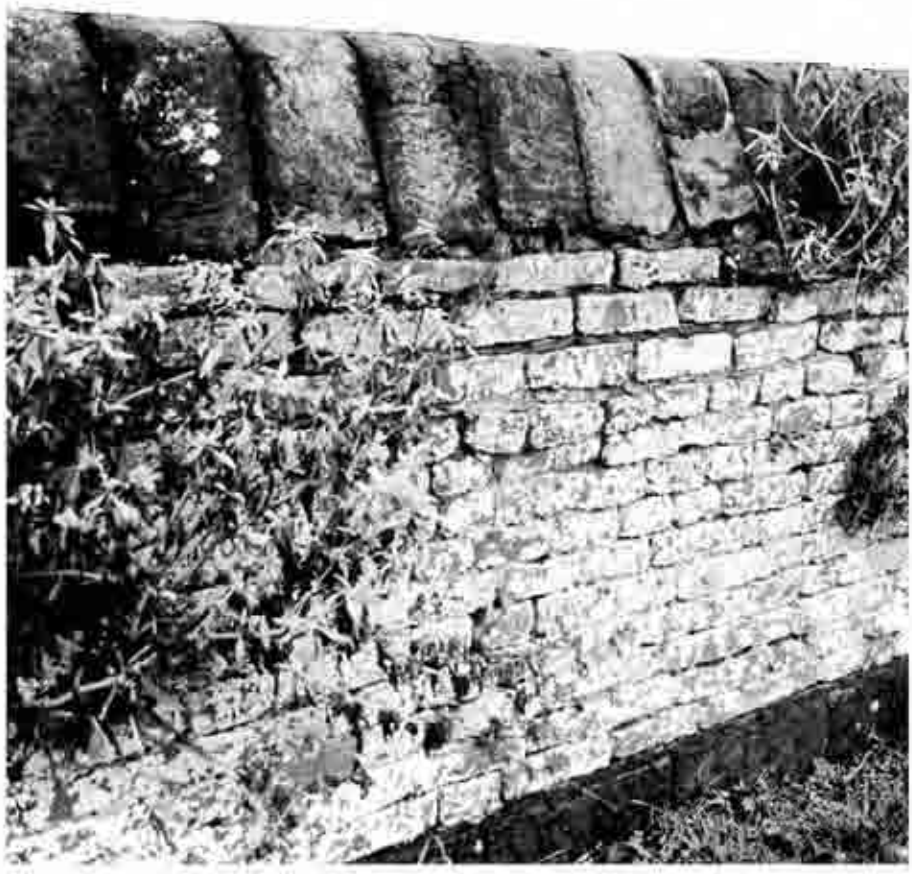

Figure 9. Triangular copper slag blocks used as wall copings at Nastend House, Nastend, Eastington.

Figure 10. Non-standard triangular copper slag block with moulded initials, (highlighted with chalk), recovered from Ham and Stone.

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Figure 11. Half-round copper slag blocks being reused at Lower Redbrook

Figure 12. Angle-ended, bay type rectangular copper slag blocks at Highbury Farm, Redbrook, Newland

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Figure 13. Copper slag channel block at Mill House, Lower Framilode, Fretherne-with-Saul

Figure 14. Depressed type rectangular slag block at Lower Redbrook copperworks site