

Parkside revisited: a second look at the first Cheam kiln

Clive Orton

The discovery and excavation by C. J. Marshall of a medieval pottery kiln at Parkside, Cheam, in 1923 and its publication¹ were important steps in the study of medieval ceramics. The kiln was oval in plan, 6ft 8in × 5ft 3in (2.0m × 1.6m) internally. Its surviving parts cut into the chalk subsoil, with two opposed flues and a central pedestal, i.e. it is an example of what became known as Musty type 2c². As published, it possessed a unique feature: a 'guard' springing from the edge of the pedestal and linking it to the kiln wall (Figs. 1, 2). Because of its value as the first recognised medieval kiln to be properly published in Britain,³ it was removed to the Science Museum, where it was displayed with the above-chalk parts imaginatively reconstructed (Fig. 3). The display was later dismantled and some parts returned to the care of the London Borough of Sutton, where they remain. An isometric drawing

published in 1956⁴ seems to be based entirely on the published drawings.

For some years samples of the pottery from this and the second (High Street⁵) kiln have been displayed in Whitehall, Cheam, a restored timber-framed house dated to c 1500⁶. A decision to renovate and improve this display led to an invitation to the author to prepare drawings for a new reconstruction of the kiln, to be fitted into a space 58in × 43in (1.47m × 1.09m). To fit the space available a reduced-scale model is necessary; a scale of 1:3 was chosen as the largest at which all elements of the kiln could be reasonably accommodated.

In reconstructing a kiln excavated over 60 years ago one can use evidence that has accumulated from the excavation of analogous kilns elsewhere in Britain. The process of reconstruction is thus one of stripping away all previous reconstructions, until the extent of the surviving remains is reached, and then replacing the missing parts in the light of all available evidence. In addition to the original report, two of Marshall's site photographs were located in Sutton Central Library (Figs. 4, 5). The former has been published⁷, but the latter appears to be unpublished until now.

Removing the additions

(i) the Science Museum's reconstruction

The parts added by the Science Museum are (i) a clay pedestal, standing on and central to the excavated pedestal, and supporting (ii) a perforated clay slab or 'floor', covering the whole extent of the kiln and resting on the chalk surrounds, and (iii) a

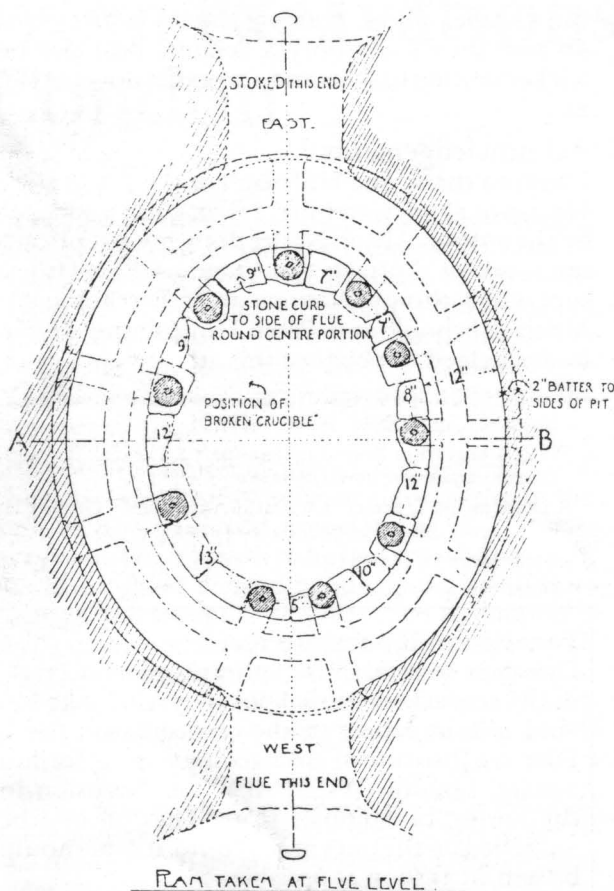


Fig. 1: Marshall's plan of the 1923 kiln at Cheam.

1. C J Marshall 'A Mediaeval Pottery kiln discovered at Cheam' *Surrey Archaeol Collect* 35 (1924) 79-95.
2. J W G Musty 'Medieval pottery kilns' in V I Evison, H Hodges and J G Hurst (eds) *Medieval Pottery from Excavations* (1974) 41-65.
3. Seven medieval kilns had been excavated in Hastings in the 1850s (T Ross 'Medieval pottery at Hastings' *Sussex Archaeol Collect* 12 (1860) 268-9) but only pottery and not the kilns were illustrated.
4. E M Jope 'Ceramics: medieval' in C Singer, E J Holmyard, A R Hall and T I Williams *A History of Technology. Vol II The Mediterranean Civilizations and the Middle Ages c 700 B.C. to 1500 A.D.* (1956) 297.
5. C R Orton 'A late medieval/transitional pottery kiln from Cheam, Surrey' *Surrey Archaeol Collect* 73 (1982) 49-92.
6. C Bradley *Whitehall Cheam, a history and guide* (1980) 3.
7. C J Marshall *A History of Sutton and Cheam* (1936).

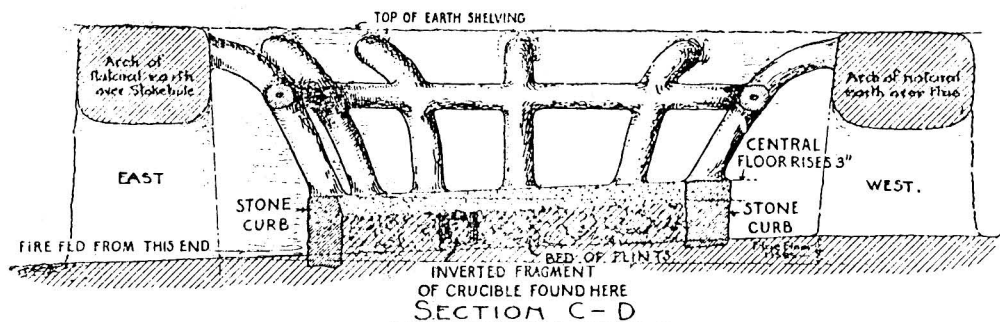


Fig. 2: Marshall's section of the 1923 kiln at Cheam.

roughly hemispherical dome covering the pots stacked on (ii). Of these, (ii) seems to be based on Marshall's indications of a 'floor' at this level on his published section (Fig. 2), which in turn seems to be based on a clay layer sealing the remains of an earlier kiln found in one of the stoke-holes⁸. However, this layer sealed what were clearly wasters, so cannot have been part of an original kiln structure. The difficulties of constructing, firing and positioning such a slab⁹ seem to have been overlooked. Also, as a support for the pottery to be fired, it would have made the 'guards' superfluous. The

need to support such a large flat surface was however recognised, hence the extra pedestal (i). No trace of any material that could have come from (i) or (ii) was reported by Marshall. Evidence from similar kilns (e.g. Brill¹⁰) suggest that pots were fired standing directly on the pedestal, and no type 2c kiln having a large empty space between the pedestal and a 'firing chamber' above has been demonstrated. This arrangement is known in type 1 (single-flue) kilns, mostly Roman ones¹¹, in which a small central pedestal or radial wall supports a floor, often composed of fire-bars rather than a

8. *Op cit* fn 1, 80.

9. Being at least 7ft * 5ft 6in (2.1m * 1.7m) and say 3/4in (20mm) thick, it would have weighed c 1200lbs (540kg).

10. E M Jope 'Medieval pottery kilns at Brill, Buckinghamshire:

preliminary report on excavations in 1953' *Rec Bucks* 16 (1954) 39-41.

11. V G Swan *The pottery kilns of Roman Britain* Royal Commission on Historical Monuments Supp Ser 5 (1984).



Fig. 3: The Science Museum's reconstruction of the kiln. (Photo: Science Museum)



Fig. 4: the kiln as excavated, from the east. (Photo: Sutton Central Library)

one-piece structure. The question of the shape of the upper part of the kiln will be argued later. For the time being, we note that there is no reason why it has to be dome-shaped. To sum up, there is no direct evidence or cogent analogy for the Science Museum reconstruction.

(ii) the 'guards'

The clay 'guards' appear to be a definite part of the structure in Marshall's drawings (Figs. 1, 2), but the photographs (Fig. 4, 5) tell a different story. Of the ten upright parts shown in the drawings and the photographs, only one is complete enough to reach the wall of the kiln; the rest are upright stubs. The only horizontal component appears to be balanced on two stubs without any permanent means of connection. In the photographs the stubs do not appear to be attached to the pedestal (shadows can be seen beneath some of them), while the drawings show that the stubs broken at the height of the horizontal component would be top-heavy and unstable. Common-sense suggests that they would not have survived the back-filling of the kiln, but would have toppled into the space between the pedestal and the kiln wall. It is therefore suggested that the vertical components were found in this space, were posed on the edge of the pedestal for photography, and reconstructed as part of a coherent

structure in the drawings. Did the horizontal part exist? The only evidence for it, apart from the balanced fragment, is a scar in the side of the most complete vertical part (see Fig. 4). However, when seen from the other side (Fig. 5) this part shows no second scar, only a crack. It is therefore argued that the 'guard' did not exist in the form drawn by Marshall; clearly the parts cannot be argued away but must be reconstructed in some other form — this will be done below.

(iii) firing methods

Marshall's drawings¹² label the east flue "fire fed from this end" and the west one "rake away and flue", putting the kiln in the category of "horizontal" or "through-draft" kilns, as opposed to the category of "vertical" or "up-draught" kilns. This caused difficulty when more kilns were discovered and the distinction between the types was clarified: for example, Jope¹³ called the Cheam kiln a "combined vertical-horizontal type". Marshall's argument has two flaws: (i) the measured rise across the bottom of the kiln (4in in 6ft 8in — 100mm in 2m — or 1 in 20) is insufficient to create a through draught unless there is a chimney, of which there is no evidence, (ii) a through draught below a firing chamber would not provide sufficient heating for the pots — this could only be achieved by baffles to divert

12. *Op cit* fn 1, fig. 4, 79.

13. *Op cit* fn 4.



Fig. 5: the kiln as excavated, from the west. (Photo: Sutton Central Library)

the flue gases and heat through the stack of pots. These arguments have been illustrated in the discussion of the Cheam II kiln¹⁴.

I conclude that the kiln was fired from both ends in the usual twin-flue manner; the gases and heat passed upwards through the pots stacked on the pedestal and whatever arrangement surrounded it, and out through the top of the kiln.

Putting the pieces together (i) reconstructing the 'guard'

We are left with an orthodox type 2c kiln — oval chamber, large central pedestal, twin flues with arches. Our first task in reconstruction is to accommodate the remains of the 'guard'. Most of the pieces are simple clay cylinders. Assuming their lengths to be as shown on Marshall's sections from the pedestal to his horizontal component, they would fit well horizontally as fire bars between the pedestal and the kiln wall. Attachment, particularly at the outer end, causes some problems. Marshall notes¹⁵ that the kiln wall was "lined with clay", but does not say how thick this lining was, nor whether it was removed before the drawings were made. If it had been of a reasonable thickness, the bars could have been luted into it. Indeed, the splaying effect of this luting on the ends of the

bars could have been the inspiration for the horizontal component of the 'guard'. This leaves the larger, curved, piece. It could have been attached to the pedestal opposite a flue arch; there would have been no kiln wall opposite it, so it could have been curved to attach to the wall of the arch. The scar visible on Fig. 4 could relate to a prop needed to support the extra length of this piece. The number of bars is not known; the ten shown on the plan are not enough to prevent pots slipping down between them, but some may have been removed when the kiln went out of use.

Alternatively, the curved piece could have been located in the position in which it was photographed, i.e. rising from the pedestal and turning to meet the kiln wall. Its purpose might then have been to support the lining and prevent it falling from the wall, although it is not known whether such support would be needed. If this were its purpose, then there may have been two such pieces, opposite each other.

Examination of the surviving pieces is not as helpful as one might expect. They have been built-up with plaster and painted black, making it difficult to see any detail. The colour and texture of the broken edges suggests that they are of a red-firing

14. *Op cit* fn 5, 76.

15. *Op cit* fn 1, 82.

potting clay and have been fired to about the same temperature as earthenware of the period. I have therefore reconstructed most of these pieces as firebars, but leave open the question of whether the curved pieces were elongated firebars or supports for the lining.

(ii) stacking the kiln

The pedestal and firebars give a firm base on which to stack the kiln. The majority of Cheam vessels (75%¹⁶) are small 'drinking' jugs, about 9in (225mm) tall and 4in (100mm) in diameter. About 10% are larger 'pouring' jugs, about 10in (250mm) tall and 7in (175mm) in diameter; there are very few larger vessels. There is very little evidence from the pots themselves as to how they were stacked — firing scars, pools of glaze, for example — partly because so little of each vessel was glazed. It seems most likely that they were stacked in layers of vessels of roughly equal height, possibly 'levelled-up' with small sherds. Marshall¹⁷ hints that tiles may have been used to separate the layers, but there is no

evidence of this practice. The number of layers is of great interest, but unknowable with any certainty. It would take two layers just to reach the top of the cut in the chalk subsoil, so this must be an absolute minimum. At the other extreme, stacks of say six such tall thin vessels pose problems of stability (although this assertion needs checking by experiment). The reconstruction has been given a 'middling' number of four, accepting that a margin of error must be attached to this figure.

The pattern of stacking is open to doubt. Two questions must be asked: (i) did each vessel stand on one vessel or three of the layer beneath it? (ii) were vessels stacked all base-up, all rim-up, or alternate layers base-up and rim-up? In favourable circumstances a close examination of firing scars could be expected to answer these questions, but at Cheam there is very little such evidence, if any, and we have to fall back on *a priori* arguments. In the interests of stability, one-on-three stacking is preferred, probably base-up.

16. *Op cit* fn 5, 85.

17. *Op cit* fn 1, 82.

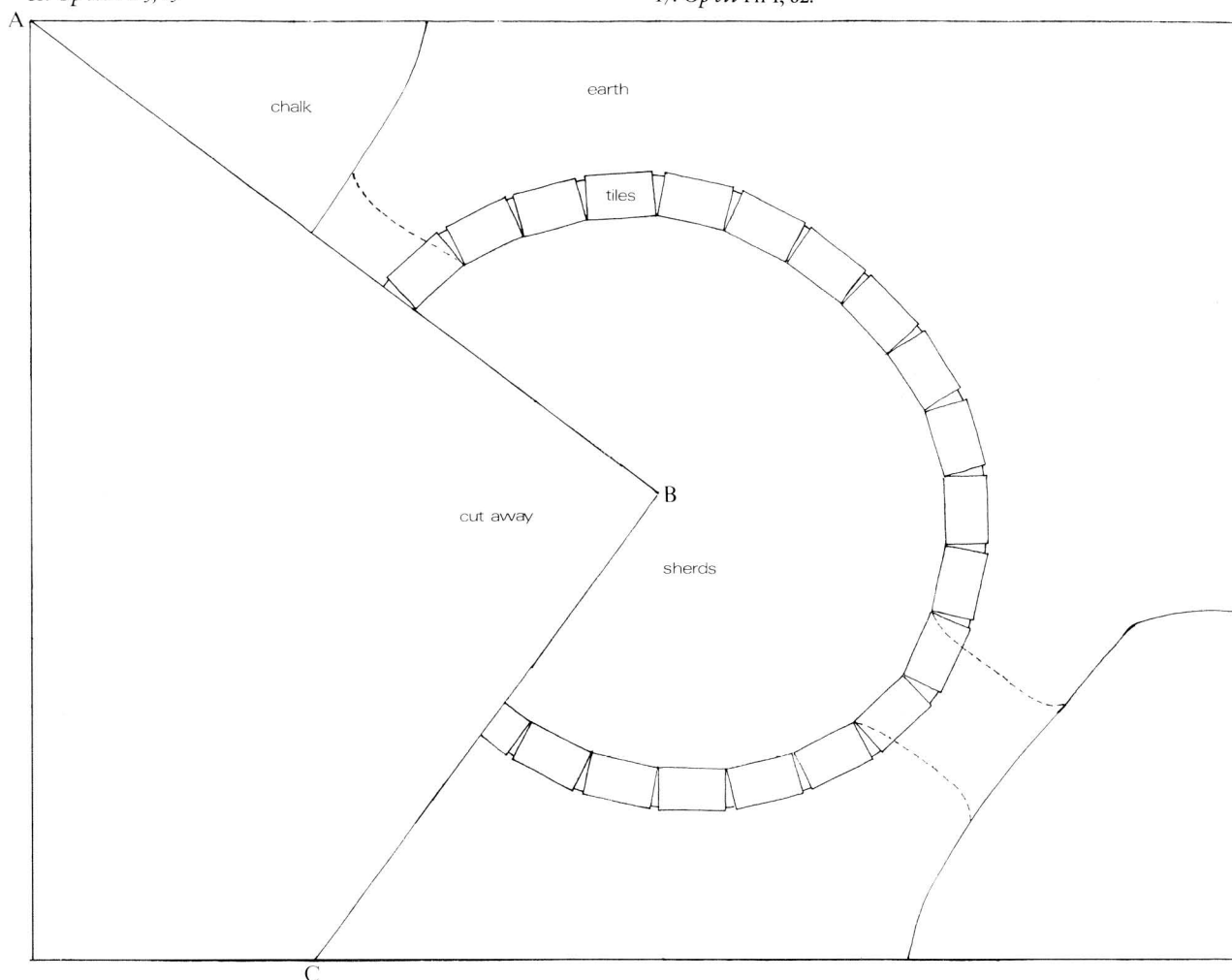


Fig. 6: plan of suggested reconstruction of the kiln.

