

# THE LUMB BROOK POTTERY KILNS, HAZELWOOD: AN INTERIM REPORT

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## INTRODUCTION

The definitive report on the Romano-British kilns and lead-roasting hearth discovered at Lumb brook, Hazelwood, in 1972/1973 has yet to be written, though the site is extremely interesting, and deserves to be widely known. The following brief interim report has, therefore, been prepared by MB from the excavation notes kindly made available by WAW.

## THE SITE

Half a mile (0.8 kilometre) to the north-east of Hazelwood, near Lumb Grange, lies a secluded dell known as 'Depth o' Lumb' (SK 32944576) (Fig. 1). In the autumn of 1971, WAW, while field-walking with family and friends, examined the steep banks of the Lumb here, and found a number of sherds of Romano-British Derbyshire ware embedded in a section of the northern bank. Returning to the spot at a later date with a group of friends, he discovered many more

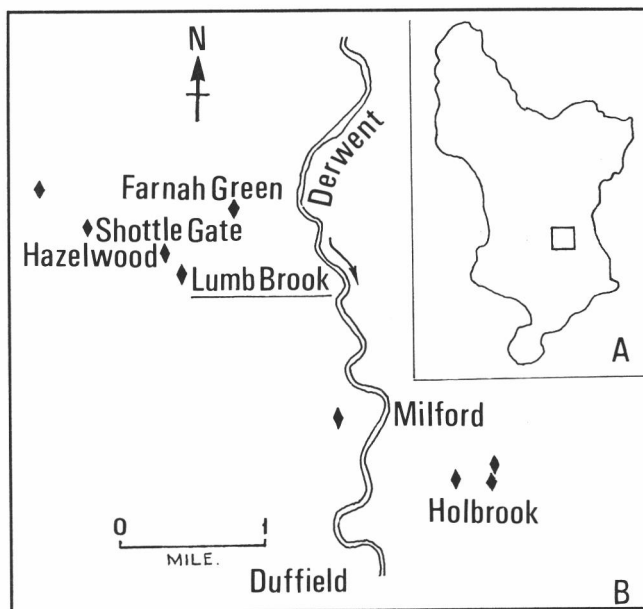


Fig. 1 Lumb brook kilns: A: location within Derbyshire; B: Kiln sites in the Hazelwood-Holbrook area.

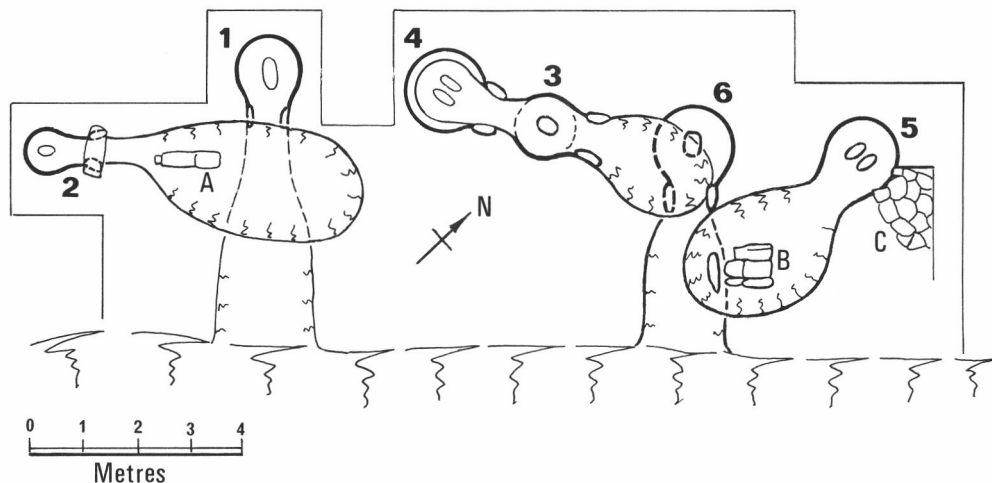


Fig. 2 Lumb brook kilns: site plan.

sherds, and concluded that a kiln must lie nearby. Aware that the three Derbyshire kilns excavated by Samuel Kay (1962) lay only a quarter of a mile (0.4 kilometre) to the north-west, he decided to promote further investigation. The Erewash Archaeological Research Committee was formed, with Peter Baker as secretary and WAW as director.



Plate 1 Lumb brook kilns: Kiln 1

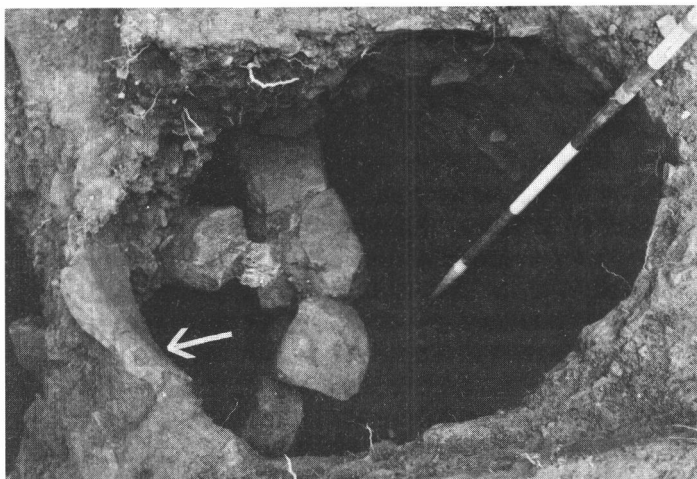


Plate 2 Lumb brook kilns: Kiln 2 (displaced kiln lip arrowed)

### THE EXCAVATIONS

In April, 1972, test trenches were dug on the top of the bank. There was no prior magnetometric survey but, by a stroke of remarkable good fortune, a kiln was located in one of the cuttings. Eventually six kilns, all of the updraught type, were found in a line along the top of the bank, within an area measuring 18.0 x 6.0 metres (Fig. 2).

#### The Kilns

Kilns 1 and 2 were excavated in the period April-November, 1972, Kilns 3-6 in the period March-December, 1973.

##### *Kiln 1* (Pl. 1)

The first kiln was located half a metre below the surface. The oven wall on the north-western side had survived to a height of 1.52 metres above the furnace floor, which was 1.30 metres in diameter. At its highest surviving point the oven wall itself was 1.51 metres in diameter. The kiln was lined with clay daub, which contained many pebbles and small stones. Scoring on the surface of this daub could have been made by a crude plastering tool, or even fingers. The filling of the kiln consisted of burnt material, pieces of kiln lining and small pieces of gritstone. The south-eastern side of the oven, above the flue, had completely collapsed. No firebars survived; only the gritstone pedestal, 76 x 20 x 13 cms, remained *in situ*, embedded in the baked clay of the furnace floor. The lintel stone of the flue had disappeared, probably robbed in Roman times. Two smallish gritstone slabs, possibly packing stones, remained standing on edge on either side of the entrance, which was 82.0 cms wide. In the furnace chamber were found Derbyshire ware sherds and pieces of gritstone. As with most Derbyshire ware kilns (Kay, 1962; 1965, pl. xiv), the flue was short in length. The stoke-hole ran in a south-east direction, opening out on the steep bank of Lumb brook.

##### *Kiln 2* (Pl. 2)

The second kiln to be excavated proved to be the smallest of the group, but the most complete. It was found 4.0 metres to the south-west of Kiln 1, set at right angles to it, but not as deep (Fig. 2). As with Kiln 1, the remains of the kiln wall were found at a depth of 0.5 metre below the

surface. The kiln furniture remained for the most part *in situ*. The lintel had, however, broken in half, and the resulting lack of support had caused the oven wall above it to subside and collapse outwards over the flue, taking with it a portion of the moulded oven lip. The lip was similar to that found inside Kiln 1 at the Derby Racecourse Playing Field site (Brassington, 1971: fig. 2); its dimensions indicated that the mouth diameter was only slightly less than that of the oven. The oven wall survived to a height of 1.18 metres above the furnace floor, and it was evident that considerable re-lining had taken place. The furnace floor was 75.0 cms in diameter. At its centre was a gritstone pedestal which supported three remaining gritstone firebars; each of these had been grouted to the oven wall with "a handful" of clay. The lintel of the flue had measured 89.0 x 38.0 x 20.0 cms; it was supported by two massive gritstone slabs set 68.0 cms apart, which tapered towards the furnace chamber. The flue, which had been cut through natural clay, was longer than those normally constructed for Derbyshire ware kilns. The stokehole of Kiln 2 overlay that of Kiln 1, proving conclusively that the former was of later date. Derbyshire ware sherds were found on the furnace floor; apart from this the kiln filling contained no pottery.

Lying on the ash of the stokehole was one of a pair of gritstone 'balusters' found on the site (Fig. 2:A); these will be discussed later in this report.

#### *Kiln 3* (Pl. 3)

Little remained of this kiln as it had been cut through in the construction of a later and larger kiln (Fig. 2). The lintel and jamb stones of the flue had been removed, leaving only their impressions in the clay. (A large gritstone slab which lay on the floor of the furnace chamber may have been one of the missing jamb stones.) The furnace chamber lay 1.70 metres from the surface and was 1.02 metres in diameter; at its centre there had originally been a single gritstone pedestal, but only an indentation remained to show where it had once stood. The back of the furnace chamber, opposite the flue, had been cut away when the flue of the later kiln was built. However, its sides survived, to a height of 46.0 cms above the furnace floor.

#### *Kiln 4* (Pl. 4)

This kiln superseded Kiln 3. Access to it was gained by cutting straight through the discarded kiln, which allowed the utilisation of the same stokehole (Fig. 2). The oven and furnace chamber were cut out of the natural clay and, like the Hazelwood kilns, completely unlined. The oven was straight-sided; it survived to a height of 88.0 cms above the furnace floor, and measured 1.5 metres in diameter. However, the diameter of the furnace was reduced to 1.02 metres by a ledge, which ran round the circumference of the furnace chamber and terminated at the jamb stones of the flue. This ledge was 38.0 cms high and formerly supported gritstone firebars, fragments of which were found lying upon it. At the centre of the furnace chamber were two depressions indicating the position occupied by the missing pedestal stones which had stood on edge parallel to the flue. The flue lintel stone was also missing but the jamb stones remained *in situ*, 71.0 cms apart. The maximum depth of the furnace floor below the surface was 1.70 metres. The kiln filling contained few Derbyshire ware sherds. It is, indeed, likely that coarse ware, rather than Derbyshire ware, was produced in the kiln, since the furnace floor was thickly covered with coarse ware sherds which included wide-mouth bowls and narrow-neck jars. It seems likely that this deposit, which was mixed with friable pieces of gritstone, thought to be the remains of firebars, was the result of a mis-firing. The area adjacent to Kiln 4 produced a great quantity of ordinary coarse ware sherds, which suggests that the kiln was in production for a long period of time. Such an hypothesis is further supported by the thickness of the charcoal deposit (20.0 cms) in the stokehole.

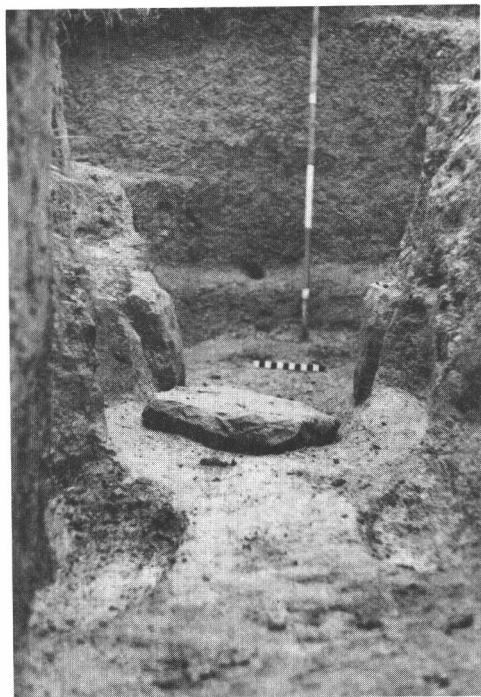


Plate 3 Lumb brook kilns: Kiln 3

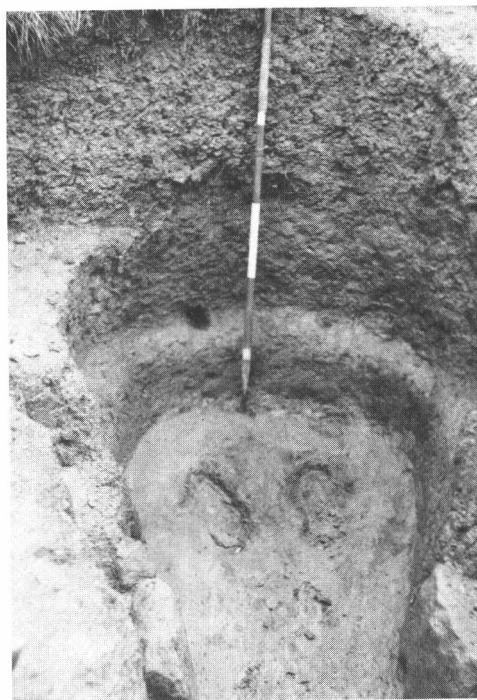


Plate 4 Lumb brook kilns: Kiln 4

*Kiln 5* (Pl. 5)

This kiln had been greatly disturbed by the roots of an adjacent hawthorn. The furnace chamber floor lay 1.9 metres below the surface and was 1.27 metres in diameter (Fig. 2). At its centre were two depressions indicating the position of the pedestal stones; these still contained fragments of gritstone. The flue faced south; nothing remained of the lintels and jambs except two small pieces of gritstone on either side of the entrance. The in-fill of the kiln was extremely hard, consisting of burnt material and kiln daub; it was devoid of pot sherds. Sherds were found only on the surface of the floor; all were of Derbyshire ware. An ironstone paved area, measuring 1.27 x 0.92 metres (Fig. 2:C), lay to the east of the kiln. This paving had obviously been laid after the kiln had been dismantled, for it partly overlay the kiln wall; it may plausibly be associated with the lead-roasting hearth (see below).

*Kiln 6* (Pl. 6)

The furnace floor of this kiln lay 2.40 metres from the surface. It was the deepest and probably the earliest kiln of the group, being overlain by the débris of Kilns 3-5. The in-fill consisted of a hard-packed, burnt material. The flue faced south-east. The south-western side of the oven, including that part over the flue, had collapsed into the kiln. Three virtually complete Derbyshire ware jars and many pot sherds of this ware were found in the furnace chamber. As no other coarse wares were present, it may be assumed that the kiln produced only Derbyshire ware. If such an assumption is correct, the kiln exhibits some unusual features, and it may represent an intermediate type between the Derby Racecourse kilns and the true Derbyshire ware kilns. The kiln wall, which survived to a height of 1.17 metres and a diameter of 1.47 metres above the furnace floor, rested on a circular foundation of gritstones, which had an internal diameter of 90.0



Plate 5 Lumb brook kilns: Kiln 5, with lead-roasting hearth and paving (photo. H. M. Parker)

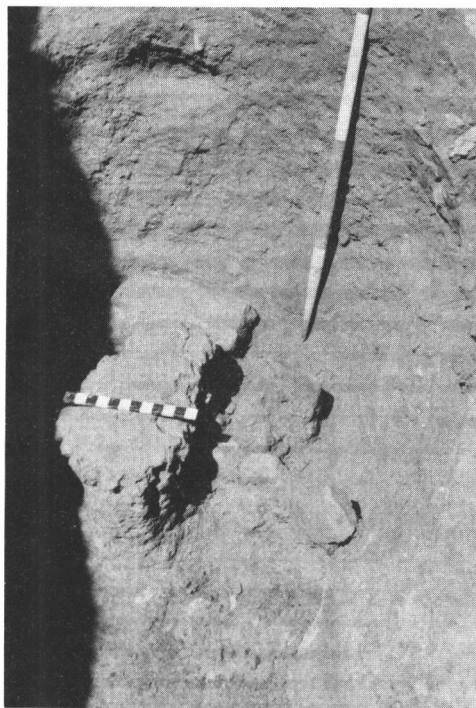


Plate 6 Lumb brook kilns: Kiln 6

cms. Puddled clay had been used to line the kiln; an area of oven wall had been patched utilising Derbyshire ware sherds as a filler. The central pedestal, some 40.0 cms high and 25.0 cms in diameter, was not of stone, but of baked clay containing small stones. A portion of moulded firebar was still attached to the pedestal, protruding radially from the periphery towards the kiln wall. Although it was not clear how this firebar had been supported, the excavators were of the opinion that at the oven wall all such bars had rested originally on small gritstone blocks — a method of support used at Hazelwood. Large gritstone jambs, one on either side of the flue entrance, survived *in situ*, but the lintel had been removed. The stokehole ran straight out onto the bankside. A long period of production is indicated by the depth of charcoal, which in many places was 20.0 cms deep.

#### **The lead-roasting hearth** (Figs 2:B, 3; Pls 5, 7)

Sometime after Kilns 3-6 had fallen into disuse, a lead-roasting hearth was constructed in the hollow formed by the stokehole which had served these kilns. The hearth was discovered on the edge of the escarpment, one metre below the present ground surface. It consisted of gritstone curb stones forming three sides of a rectangular trench, which was some 26.0 cms wide and 20.0 cms deep. The floor of this trench was composed of two flat slabs. The first of these, at the mouth of the trench, was the hearth base-stone, which was covered in lead slag. Behind it was a second slab, set at an angle of 20° to the horizontal. The main axis of the hearth was aligned NE/SW, with the furnace mouth at the north-east side. Intense heat had caused all the curb stones to crack. The north-western side consisted of a broken ornamental gritstone baluster, the second found on the site (see below).

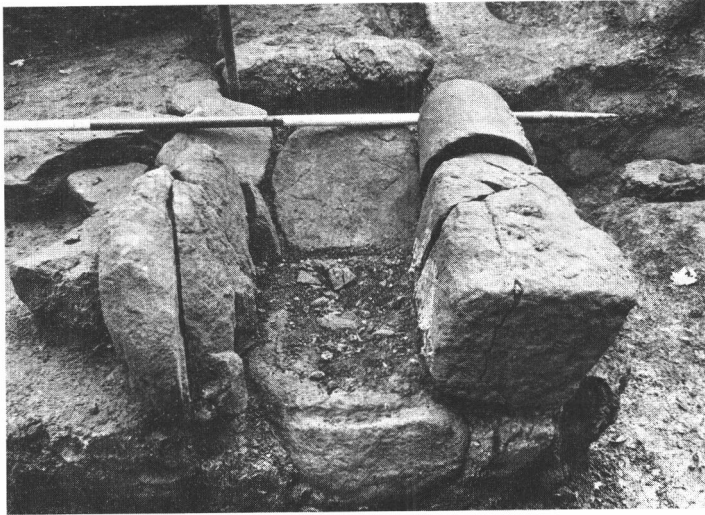


Plate 7 Lumb brook kilns: Lead-roasting hearth (photo. H. M. Parker)

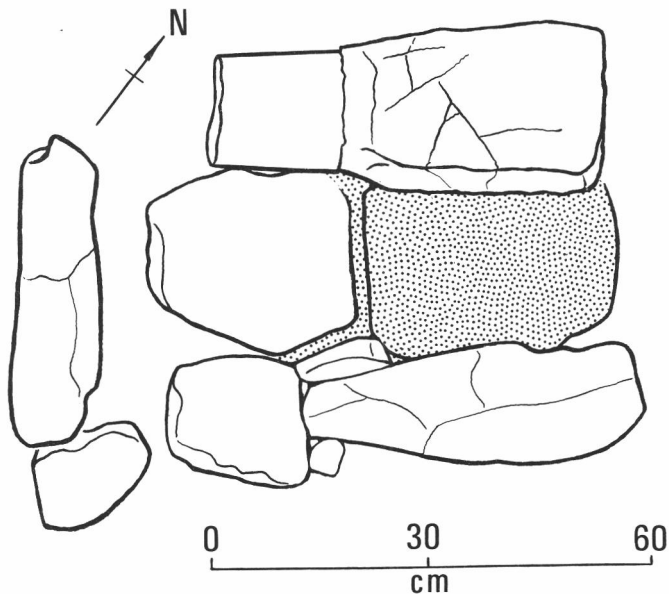


Fig. 3 Lumb brook kilns: lead-roasting hearth.

The hearth does not seem to have been in use for any length of time. Though only a small amount of slag was found in the stokehole area, it may be safely assumed that the bulk of the dross was thrown down the steep bank towards the brook. The bank was not subjected to close examination, but surface indications did not suggest any build-up of slag over a long period.

The hearth is now on display at the Peak District Mining Museum, Matlock.

## THE FINDS

**1. Pottery**

Only a representative selection of the pottery found is given here.

*Derbyshire ware* (Fig. 4)

The Derbyshire ware produced at Lumb brook is similar to that of Hazelwood, both in type and shape. Also as at Hazelwood, the medium sized jar predominated, the lid-seating rim outnumbering the roll-rim types in a ratio of 4:3. Only a small number of large jars were made. The smallest jars all had lid-seating rims.

Wide-mouth jars:

1-24 The colour of these sherds ranges from pale-buff and reddish-brown to grey-brown and grey; all have the usual pimply surface (Gillam, 1939). With the exception of nos. 2, 11, 17 and 18, which came from Kilns 3 and 4, all the sherds illustrated were found in Kilns 5 and 6. No. 1, a reddish-brown jar, was one of the three found in the furnace chamber of Kiln 6 (cf. Kay, 1962: pl. IIb).

25 Portion of a lid (few produced).

*Coarse ware* (Figs 4, 5)

Unless otherwise indicated, all of the following come from the furnace floor and stokehole of Kiln 4.

Wide-mouth bowls:

26 Hard grey ware (cf. Kay, 1962: fig. 12, no. 1 — Hazelwood).

27 Dark grey fabric; sandy texture.

28 Small bowl; reddish-grey in colour, with a brown core.

29 Smooth pale buff-coloured fabric.

30 Smooth discoloured orange fabric.

31 Smooth grey fabric.

32 Grey fabric.

33 Grey coloured bowl, Derbyshire ware type fabric.

Cheese-wring:

34 (Composite) Cheese-wring, whorl on underside; information from several wasters.

Flanged bowl:

35 (Waster) Flanged bowl, discoloured orange fabric, white painted decoration on rim (Kay, 1962: fig. 13, nos. 13-18 — Hazelwood).

Narrow-necked jars:

37 Orange-brown colour, with a grey core; Derbyshire ware type fabric. Found in Kiln 2.

38 (Reconstructed waster) Hard discoloured greyish-orange fabric; indented rim; short neck separated from the body by an indented cordon. Below the burnished shoulder are two grooves; round the girth is a wavy line, below which is a series of loops; the lower zone is burnished (Brassington, 1980: fig. 23, no. 581 — Holbrook II).

39 Discoloured hard orange-brown fabric.

40 Lead-grey coloured fabric.

41 Grey coloured fabric (Brassington, 1967: fig. 6, no. 16).

42 Smooth light-grey fabric.

43 Hard lead-grey fabric.

44 Hard burnished dark-grey fabric.

45 Examples of combing and rouletting.



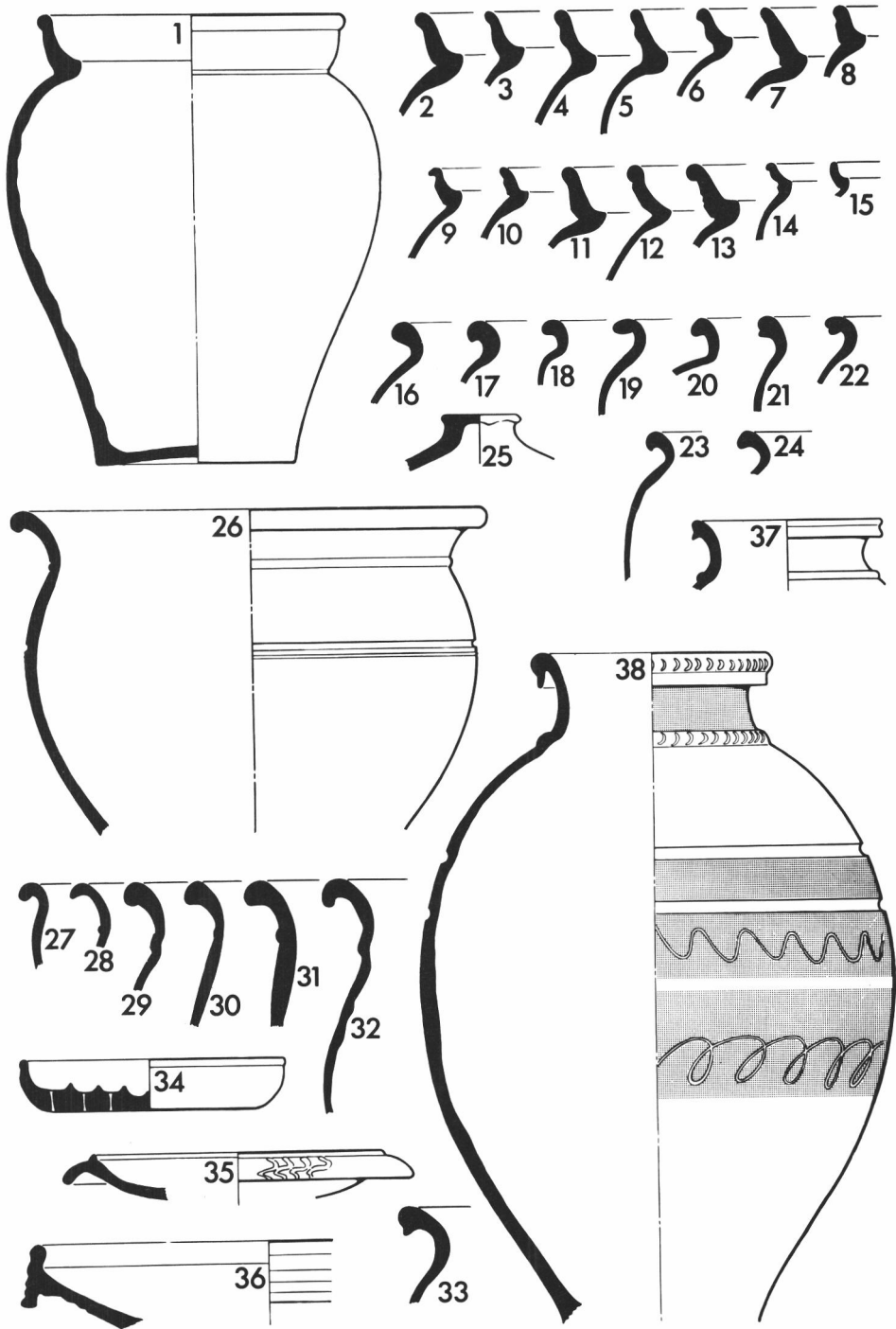


Fig. 4 Lumb brook kilns: representative pottery finds, nos 1-38. Scale 1:4.

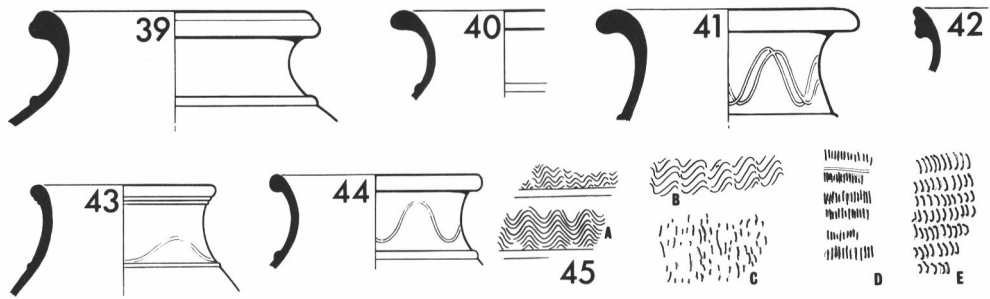


Fig. 5 Lumb brook kilns: representative pottery finds, nos 39-45. Scale 1:4.

## 2. Masonry (Fig. 6)

Two gritstone balusters were found, one lying on the ash of the stokehole of Kiln 2 and the other (broken) forming one side of the lead-roasting hearth. The overall height of the larger and better preserved is some 1.14 metres. Its roughly hewn base, 33.0 cms square in section and 44.5 cms high, merges abruptly with a finely cut shaft, 27.0 cms in diameter and slightly convex in profile. The shaft terminates in a crudely shaped boss, which must originally, like the base, have been hidden from view.

## 3. Miscellaneous

*Illustrated* (Fig. 4)

Mortarium:

36 27.5 cms in diameter; red-brown and black grits; not a kiln product: found on the bankside of the brook. AD 240-320 (according to K. F. Hartley).

*Not illustrated*

In the débris of Kiln 4 was found an abraded base of a samian bowl, Form 18/31R. Other finds comprised: a fragment of a millstone, some 60 cms in diameter; a badly corroded bronze 'dolphin' type brooch, of second century date; and a fragment of roofing tile which was found under the hearth. A token and a few medieval sherds were found in the overlying topsoil.

## DISCUSSION

From its depth below the surface, and also from the fact that it was overlain by the débris of Kilns 3-5, it would appear that Kiln 6 was the first to be constructed. Despite the fact that the pedestal and firebars were of baked clay and not the usual stone, the pottery produced was Derbyshire ware, similar to that made in the nearby Hazelwood kilns. The potters may be assumed to have migrated from the *vicus* of Little Chester in the mid-second century. Occupation does not seem to have been continuous, to judge from the varying depths of the kilns. When the kiln area became muddy after two or three seasons' occupation, it was abandoned and a new site chosen. Probably sites were occupied in rotation. After a lapse of time, Lumb brook was re-occupied and Kiln 1, a standard Derbyshire ware kiln, was built. This was followed after an interval by Kiln 5, another typical Derbyshire ware type. Enough survived of Kiln 3 to indicate that it too was also of a standard Derbyshire ware construction, built at some indeterminable date after Kiln 5. However, the coarse ware kiln, Kiln 4, was at the same level as Kiln 3, which had been largely dug away to facilitate the construction of the later kiln. The interval of time between the abandonment of

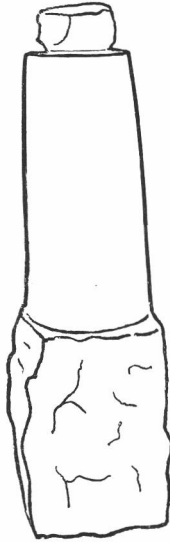


Fig. 6 Lumb brook kilns:  
'baluster' from Kiln 2.

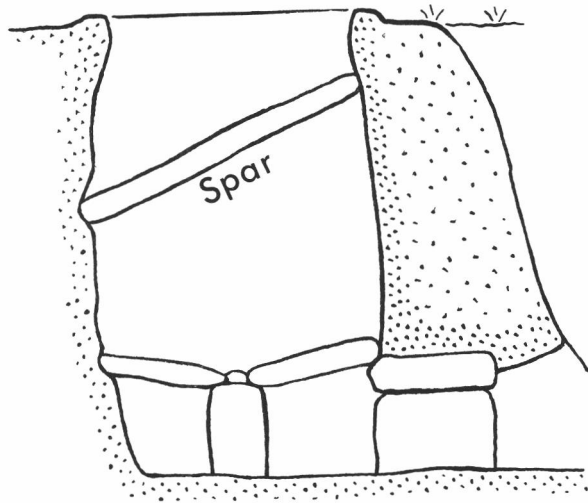


Fig. 7 Lumb brook kilns: reconstruction of 'spar  
abutment'.

Kiln 3 and the construction of Kiln 4 may not have been long. The painted flange bowl waster (no. 35) from Kiln 4 has an interesting affinity to the flange bowls from the Little Chester kilns (Brassington, 1971: fig. 7; 1980: fig. 15) and, like the dolphin brooch, suggests a second century date.

Samuel Kay noted depressions in the walls of the Holbrook I kiln; similar depressions were present in Kilns 1, 2 and 6 at Lumb brook (Plates 1, 2, 6). These cannot be convincingly explained as footholes. Kay suggested that they may have served as abutments for wooden spars placed across the oven to support the incurving wall before firing took place. His 'spar abutment' hypothesis may appear to be confirmed by a particularly substantial depression found in the oven wall of Kiln 4. At the junction of the firebar ledge and the oven wall (Pl. 4) a hole, some 8.0 cms in diameter and 13.0 cms deep, had been made, set at an angle to the horizontal. It was full of charcoal, and so seems likely to have contained a wooden spar, which had burnt away when the kiln was fired. However, it should be noted that Kiln 4 is straight sided and cut out of the natural clay: there would have been no need to support an incurving wall. Therefore a more plausible explanation for the use of such spars may be that they offered support for a person leaning into the oven to load the kiln. The spar would be grasped with one hand and the pots placed in position with the other (Fig. 7).

The latest kiln, Kiln 2, and the roasting-hearth may have been more or less contemporary: a complete baluster had been thrown into the stokehole of Kiln 2 when it was free of débris; its broken twin was used as a side wall of the roasting hearth. The original design which incorporated these balusters was surely ornamental: certainly they had nothing to do with the kilns or industry. Their presence suggests the existence of some substantial building nearby, but their exact function and significance remains a mystery.

The Lumb brook hearth, located as it is in a stokehole, is sheltered from the wind, a fact that suggests that it (unlike early medieval hearths) must have been blown by bellows. The hearth

was, however, too small to smelt lead in any significant quantity; and, indeed, the excavators found no trace of crucibles or channels that would have been required to duct smelted lead away. On the other hand, the chamber was filled with lead slag. On the evidence available, it would seem that only the first stage of the lead-smelting process — the roasting of the ore — was carried out here. The resulting lead oxide would then have been taken away and smelted elsewhere. It is certain that large furnaces, each with a capacity of at least 200 lbs of metal, would have been required to cast the size of surviving lead pigs with Roman inscriptions (Whittick, 1961). Such large smelters would undoubtedly have been placed on a suitably central site in the lead-field. Furthermore, Pliny the Elder wrote (*Natural History*, 34.17.164): “In Britain lead is found in such abundance so near the surface of the earth that a law has been passed placing a limit on the amount produced.” To see that this law was obeyed it must surely have been the case that a centralised smelting area would be required; otherwise the imperial treasury officials would have no control over the amount of lead produced. The majority of the inscribed pigs of lead from Derbyshire carry the abbreviation *LVT* (sometimes *LVTVD*, and in one case *LVTVDARES*). This is definite proof that these ingots were cast at *Lutudarum*. To feed the large smelters, ore would be brought by the native miners from small diggings in the lead-field. The treasury officials were interested in the silver content of the ore. Unfortunately, this is low in Derbyshire lead, and it seems that it was because of this deficiency that, during the first century, the mining-rights were leased to merchants. However, in the second century Hadrian may not have found this arrangement satisfactory, for there exists a pig inscribed *IMP.CAES.HADRIANI.-AVG.MET.LVT.*, which may imply that direct imperial control was re-imposed. Lead ore in pebble form has been found in the Antonine fort at Brough-on-Noe, indicating that it was a collection point for a smelter. At the beginning of the third century, during the reign of Septimius Severus, the hearth at Lumb brook could have been preparing lead ore for the smelters at *Lutudarum*.

It is obvious from the design of the Lumb brook hearth that there never was a chimney or any associated structure that could have created a draught: therefore a bellows must have been used. One assumes that the large smelters at *Lutudarum* were also ‘blown’, but it should be noted that the large Derbyshire ware kilns managed on occasions to reach a temperature high enough to vitrify the pottery load.

It is unfortunate that there is so little dateable evidence for the Lumb brook site. We can only assume that the first kiln was constructed in the mid-second century and that intermittent occupation continued into the third century. It must not be forgotten, however, that the mortarium-rim (no. 35) found on the bankside indicates activity on or near the site in the period AD 240-320.

#### ACKNOWLEDGEMENTS

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