

A ROMANO-BRITISH QUERN-MANUFACTURING SITE AT BLACKBROOK, DERBYSHIRE

By ALAN PALFREYMAN

and

SUSAN EBBINS

INTRODUCTION

In January 2006 the writers were invited by Mr and Mrs Clark of Starbuck House, Longwalls Lane, Blackbrook to inspect their collection of quernstones. These had been recovered from rubble in fallen sections of their drystone walls, which Mr Clark had spent many years restoring. They were all found within 100m of the house. Starbuck House is situated on the east side of Longwalls Lane approximately 5km north of the A517 Belper to Ashbourne road (SK 332483) and 12.5km from Derby (Fig. 1).

The writers examined around 30 quernstones and fragments, ascribing them to the Romano-British period and deducing that they had been made on site or very close to it. Only one other possible Romano-British quern-making site has been noted in the Millstone Grit area of Derbyshire, at Stanton Moor (Hart, 1985), so further study was essential. A search of the Starbuck House grounds was carried out, including inspections of all the walls and the geology, to check for other dating evidence and the suitability of the area to this type of activity. In a similar manner, the estate on the opposite side of the lane at Holly House was also walked, with the approval of the owners, Mr and Mrs Fransham. Here two more quernstones were discovered, built into the wall adjacent to the house (Pl. 1). Mr Bowler of Holly Seats Farm to the north-west also gave permission to walk on his land, but no further quernstones were recognised.

THE ENVIRONS

Topography

The land is on the western fringe of mainbed Ashover Grit deposits and associated Millstone Grit series clays. These are inclined beds which outcrop roughly on a North-South alignment, to form ridges of gritstone with intervening shallow valleys carved out of the clays. The thin soils on the ridges are only suitable for rough grazing but the claylands offer better soil for cultivation or pasture. Overall the terrain slopes down to give a south facing aspect. Significantly relevant to this study is a fault line which crosses the land immediately north of the house, running in a WNW/ESE direction as far as Shottle, producing a transverse low ridge of Millstone Grit at the head of the shallow valleys.

Quarries

Starbuck House sits at the base of a south-facing steep bank formed by the fault line cutting across the emergent inclined beds of Ashover Grit (Pl. 2). One of these outcrops lies to the immediate east of Starbuck House and another 250m to the west behind

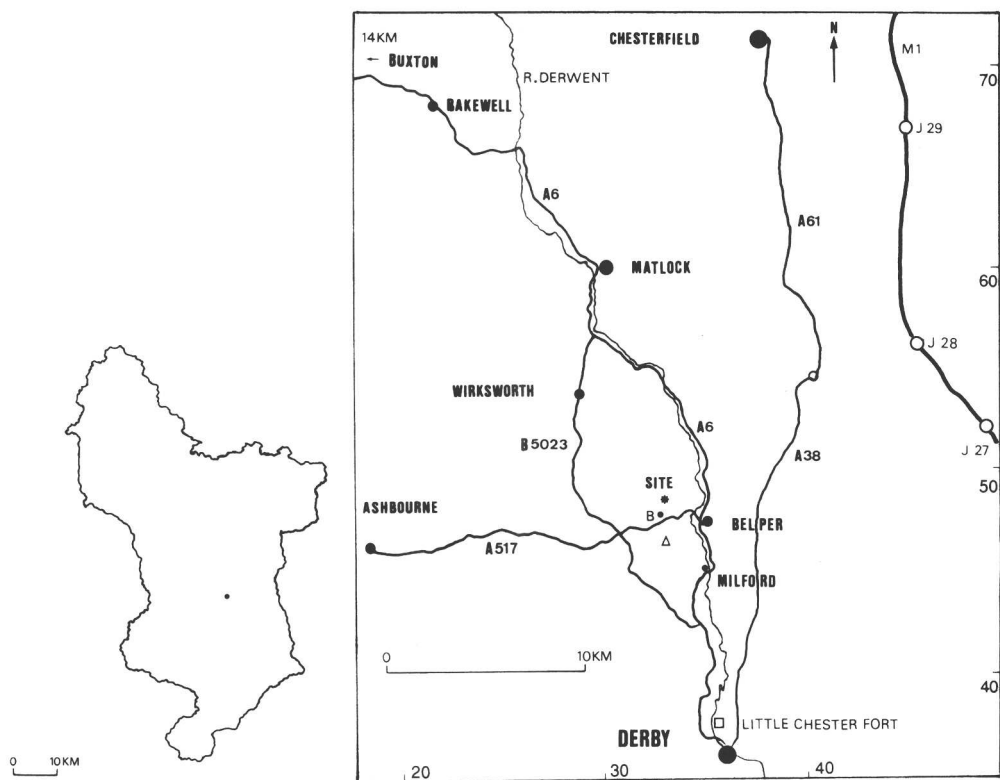


Fig. 1: Site Location Maps; 'B' is Blackbrook village and the triangle marks the Hazelwood pottery kiln area.

Holly House. These form low escarpments with fallen rock debris at their bases. Two small abandoned quarries still exist in the Starbuck House grounds which are 13m x 7m and 10m x 3m, remaining as oval-shaped pits, now no more than 1.5m deep. Behind Holly House is a much larger example, 5m in depth at the face, with a flat platform made to the front, beyond which the scarp falls steeply away again. Another to the south of Holly House is worked into a lower bank, again with a flattened area at the front. Around 1km north up Longwalls Lane similar abandoned pits can be seen in Streets Wood, but to our knowledge no querns have been found there. More commercial quarries existed just south of the A517 which were in use until the 19th century. It is traditionally a stone-quarrying area.

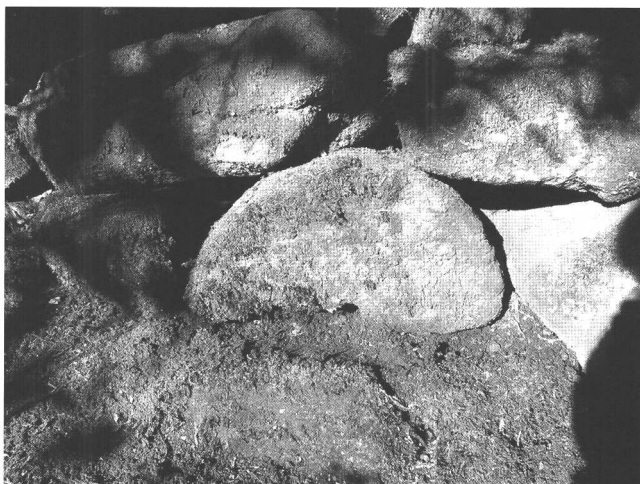
Examination of the gritstone in all of the quarries showed that continued weathering of the upper levels has produced a laminated 'slabbing' effect which would have made it ideal quernstone material. The use of the term 'quarry' for the site is applied loosely. In the Roman period the availability of fallen stone from the escarpments may have made quarrying unnecessary.

Longwalls Lane and its dating

Longwalls Lane formed part of the medieval trading route known as the Portway, thus named in the Saxon period and subsequently used as a packhorse route from



(a)



(b)

Plate 1: Quernstones still remaining in the wall near Holly House. A: a Romano-British flat quern. B: a Hunsbury type beehive quern.

Wirksworth to Derby. It may be prehistoric in origin. The route taken by 'The Street' (Derby-Buxton) Roman road was uncertain south of Rakestones Farm, Kirk Ireton (SK 276488), but recent work on this section by Adrian Farnsworth and Paula Whiritty is now in preparation for publication. Longwalls lane may have linked with this road. If the lane was continued south across the modern A517, it would eventually reach the Little Chester fort (*Derventio*) via the west bank of the Derwent, crossing opposite the fort just north of Derby. Alternatively by taking the route down the Chevin side (Celtic *cefn*, 'ridge') to Milford, and crossing the river near there, it would arrive at the fort via the east bank (Smithard 1913, 133–4, 136).



Plate 2: Looking west, Longwalls Lane runs across the photo to the front of Starbuck House, with the line of the scarp to the rear.

A wood on the east side of the lane 1km north of the site is called 'Street's wood', and a larger one further north 'Street's Rough'. In 1873 the Rev. J. Charles Cox found several fragments of Roman samian ware pottery between stones on the surface of the lane which he interpreted as the original paving. This was "up a steep ascent through Street Close" (Thompson Watkin 1886, 214, footnote), which is clearly Longwalls Lane. 'Street Close' was also placed at Longwalls lane as part of the Roman network by A. and E. Dodd (2000, 27).

Wheeled traffic and natural erosion has destroyed most of the metalled surface of the lane, but some remains can still be seen in section along its side. A Roman coin, rescued by Mr Clark's son from this bank just north of the house and 'a few inches below the turf', was identified by S. Ebbins as a pre-reform antoninianus of Diocletian, *c.* 290AD. A well in the rear courtyard of Starbuck House, filled in some years ago, was around 12m deep and unlined, the shaft sides of clayey shale still bearing tool marks. The writers were shown a Derbyshire ware rim sherd from nearby.

A considerable amount of stone walling took place locally during the parliamentary enclosures of the late 18th century. Field boundary-walking by the writers revealed that significant stretches of pre-enclosure walling are also evident and the querns had been used in both types (Pl. 3). The earlier walls could be 16th century, when the wool trade flourished and an increase in sheep and enclosing of pasture occurred (Raistrick 1966, 7, 9). Some with massive basal stones may be medieval or earlier. Whenever a new wall was built, it would stimulate a clearing of surface-strewn rocks. It is likely that some



(a)



(b)

Plate 3: Quernstones were recovered from both types of wall. A: Enclosure and B: Pre-enclosure.

time between the medieval and Enclosure periods, a stock of abandoned Romano-British quernstones was discovered and broken up for walling. Up to the present day their shape has proved useful for the coping or 'capstones' on top of walls, some being re-used several times in repairs.

THE QUERNSTONES

Typology and characteristics

Although not a large group, an attempt at typology should be made. The twenty-three samples listed are in various stages of completion, ranging from rough blanks to the finished article (Appendix I). Fourteen are illustrated in Fig. 3. Small patches of mortar

still adhere to some which have been used as capstones. On some the re-dressing and weathering over many centuries make it difficult to ascertain whether they were discarded in manufacture due to flaws in the stone or if they were just unfinished. These obviously do not display all of the diagnostic details. On the whole they fit Curwen's 'Flat-topped early Romano-British Group 2a' (1937, 144: figs 15–18), but there are some differences to the measurements he gives for that group.

Measurements

The diameters of the stones range from 300 to 500mm. Nine are over 375mm (the general 15 inch criterion given by Curwen) but only no. 20 is 500mm. Regarding the depth, and ignoring no. 18 which has been cut down, they range from 65 to 150mm. Only no. 4 at 65mm fits Curwen's 2.5 inch thickness criterion. The other 21 stones exceed it. On stone no. 1 a measurement of 100mm was taken at the unfinished edge, and 90mm at the worked edge where it had been dressed, giving only a 1cm loss of depth in dressing. It could not be assumed, therefore, that they were thicker because they were unfinished. The grinding surfaces do seem to comply with Curwen's slope of less than 15 degrees, except for no. 23, on which the angle is 20 degrees. The under surfaces of the lower stones are left, as he describes, rough but flat.

Holes and slots

Hopper holes and spindle holes (or parts of) are found on ten of the more finished samples, (nos 1, 4, 5, 7, 8, 10, 11, 12, 16, and 17). The hopper holes may be oval or circular as none are complete. No. 4 is square or rectangular. No. 1 has been started but is off centre and on no. 7 has been partially worked only. The only example of an indent in the hopper hole is on no. 16. This was to give a clear run for the grain past the rynd, which sat on the top of the spindle. In lower stone no. 8, a spindle hole has been worked from above and below, but a platform left in between. On no. 10 a lower hole is offset from the upper spindle hole. These underside holes may have been used for stabilising the quern or they were just mistakes, but they would not affect their use.

There are two handle slots on the upper stones; no. 4, where the slot extends 80mm in towards the centre, and no. 16 which is 90mm. This feature belongs chiefly to the Iron Age and 1st century AD and disappeared by the mid 2nd century (Curwen 1937, 142, 143; Peacock, 1987, 71). The low number is misleading. Of the fourteen upper stones, four are fragments less than 45% and less likely to show a slot. Eight are unfinished and slots may have been intended. A good photograph of a quern from Silchester with its original handle in the same type of slot is in Shaffrey (2003, 153).

Grooving

Three of the upper stones, nos 3, 4 and 17, are decorated on the top surface with a simple radial grooving, extending to the outer edge. Conversely no. 7 has an area of faint grooving which is part of a known pattern that was more functional. This type is used on the grinding surfaces of nos 6, 9, 13, 15. It is arranged in segments within which the grooves are parallel but those in each segment in the circle are on a different alignment to its neighbour (Fig. 2). The upper and lower stones had the same treatment so that when the upper rotated, a very efficient scissor-action was accomplished in the

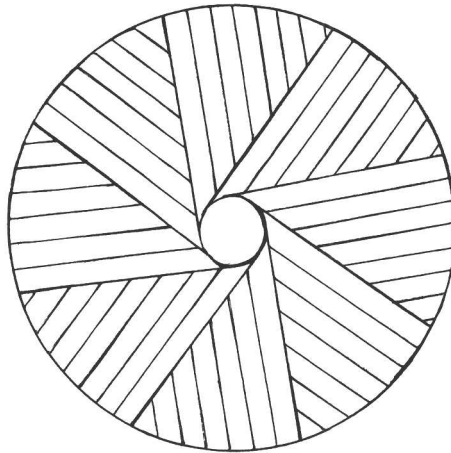


Fig. 2: Diagram showing the segmental grooving pattern used on some of the querns.

grinding. This is a characteristic of the imported ‘lava querns’ found on many Roman sites in Britain, e.g. eight from Little Chester, Derby (Sparey-Green *et al.* 2002, 271). Brought in by the Roman army, they are thought to come from the Mayen quarries of the Eifel hills in Germany, although another source in the Auvergne area of France has been discussed (Crawford *et al.* 1955, 76; Peacock 1980, 49). They are often also grooved on the top. Some have wide vertical fluting down the outer rim, giving a slightly wavy-edged effect, as on Blackbrook quern nos 4, 6, 8, 9, 14, 17 and 18. It appears that the stonemasons at Blackbrook copied the grooving on the lava querns.

Local comparisons

Little Chester

In Sparey-Green’s examples (2002, 277: figs 72, 73) from the south-eastern area of Little Chester fort, nos 10 and 11 compare well with the Blackbrook querns. No. 10 was found in the primary fill of the late Roman well, constructed of gritstone blocks, along with a dog skeleton. This suggests that the well had been abandoned at the time of deposit and that no. 10 was probably a re-used piece fallen from the structure itself, or a piece of rubble thrown in from nearby. No. 11, from a late 3rd century context, was in the robbed-out foundations of the defensive wall and so also re-used. Given their long grinding use (Bennett and Elton 1898, 159, 170), and then their tendency to be put in rubble stocks and re-used continually over a long period, there is no reason to place them later than the 2nd century. It is important to note that in this group, most of the stones are larger than Curwen’s standard, as are the Blackbrook querns.

Nos. 5 and 6 from the Pickford’s garage site, Little Chester (Langley and Drage 2000, 267: fig. 33) have similar decoration, handle slots and size, although we do not

have the 'dovetail' aperture at Blackbrook. These are from topsoil over a Hadrianic-Antonine context. At Derby museum the writers examined the querns which were not illustrated. Nos 9, 13, 15 and 23 from the Nursery garden site match the Blackbrook querns on size, decoration and tooling to grinding surfaces (Langley and Drage 2000, 268–269). They were recovered from topsoil over foundations of the Antonine structure.

Many of the lower stones from that excavation are fully perforated instead of just having a spindle socket in the top. No. 12 is the only example of this at Blackbrook but only three lower stones are actually finished. This allowed the spindle to pass right through the stone to a device below, which could raise the upper stone, thus allowing different grades of meal to be produced. Curwen (1937, 144–145; fig. 39; 1941, 23, 25–26; fig. 27) gave an unusually early example as pre-70AD from Glastonbury. Moritz (1958, 108: table 1: fig. 11) has it beginning in the later part of the 2nd century, whilst more recently Buckley (2001, 156) shows three examples from Wanborough, which he dates from the late 1st to 2nd century. Some of the Langley and Drage contexts are uncertain but most querns derive from Antonine structures.

From Derby Racecourse Roman Industrial settlement (Dool 1985, 217–218) nos 66–69 are comparable and 66 has the 'lipped' detail around the hopper hole, similar to Blackbrook no. 4. Three lower stones have the full perforation and the dateable contexts are Antonine or later. Another lipped quern with a handle slot came from a garden in Little Chester (Ward 1889, 89: plate VI).

Other Derbyshire sites

Further north from Staden, near Buxton (Makepeace 1983, 80, 82–83; 1995, 115–116: figs 10, 11) the querns again compare well; in the first group nos 2, 5 and 7, the last two showing radial grooving on top as on some Blackbrook querns. In the second group, fig. 10 no. 6 and fig. 11 nos 1, 2 and 3 have similar size and decoration. Notably, fig. 10 nos 2 and 4 have fully perforated spindle holes. Occupation here dates from the Iron Age to the 2nd century AD.

More Group 2a examples are from Chesterfield (Ellis 1989, 92–93); fig. 18 shows the same plain-pecking as used on some Blackbrook querns but the depth is less. These are dated 1st to 2nd century. Another from 'a Romano-British farm site near Hopton' where both stones have survived, is the same diameter but has a thinner upper stone (Watts 1983, 5). Despite being worn, the radial grooving on the top and vertical grooving down the outer rim are still evident. The hopper hole is rectangular and the handle slot is the same as Blackbrook nos 4 and 16. To the south-east at Ockbrook (Palfreyman 2001, 146: fig. 17), the only Group 2a quernstone was no. 1, which was associated with wall stone from the 1st century building but again it is thinner than at Blackbrook.

DISCUSSION

Trading the querns

The Strutt's Park and Little Chester forts would surely be a target in trading the Blackbrook querns as a *contubernium* (8 men unit) carried a hand quern with them at

all times. We have seen that the examples from the excavations there are somewhat heftier than the Curwen standard for Group 2a, as are those at Blackbrook, yet in all other respects they conform. Certainly some of the Blackbrook querns would be more suitable for male use than for females in a domestic situation. Were the Blackbrook masons reproducing their version of the lava querns, which the army were used to? The latter would need replacing eventually and it would be easier to access those made from local material rather than rely on imports. Peacock (1980, 50) has suggested that as there is little evidence of lava querns in the 3rd and 4th centuries, their imports tailed off at the end of the 2nd century. In this area they may have done so a few decades earlier. The extra-mural settlement at *Derventio* would also create a demand and no doubt had its own market.

The site is close to the Roman road network and there must have been some passing trade from travellers and local people. It should be noted that the Derbyshire ware pottery kilns were located just 2km south of this site, which would also attract people to the area. There were more kilns at Shottle and Holbrook. We know very little about how the querns were marketed. Bennett and Elton (1898, 134) refer to Virgil's comments (1st century BC) on a peasant's visit to market with his ass laden with produce, and returning with a "sharply or distinctly-cut" hand mill. This probably means the grinding surface had been grooved ready for use. Diocletian's Price Edict of AD 301 lists a hand mill as 250 *denarii*, but whether this means roughed out, plain-picked, or decorated and dressed with grooved grinding surfaces, is not known. Curwen (1937, 145) thought that "a grooved quern cost more than the average peasant could afford" and they would therefore be commoner in towns and villas. Perhaps we should also be looking for a nearby villa. It is possible that a middle-man was used, who would buy the 'rough-outs' at the quarry for a basic price, transport to market in this state to sell for a profit, or dress them as in Virgil's passage and charge an even higher price. Millstone Grit querns have been found to travel long distances and many farmsteads in the Derbyshire area could easily have acquired one from Blackbrook.

Local Traditions and the Stanton Moor quern site

The greater depths and widths of the Blackbrook querns need not be a problem; Curwen suggested the types as a rough classification only and concluded that local styles and developments had not been sufficiently taken into account. A Hunsbury-type beehive quern, which has not been drawn, has been left *in situ* in Mr Fransham's wall. We may have a native tradition continuing from the late Iron Age, being influenced by the arrival of the Roman army and conforming to regional developments, but retaining the 'British' character as their craft progressed in the 2nd century. There are no criteria present to suggest a date any later than 2nd century AD.

The other possible Romano-British quern-making site is on Stanton Moor (Hart 1985, 84–85, 95, 109). The 18 quern rough-outs from this site, apart from 2 smaller ones, are all 500mm diameter and 150–180mm depth and are therefore even larger than those at Blackbrook (only Blackbrook no. 20 is 500x150mm). Even without any diagnostic features, these are likely to be Roman rather than later. Perhaps different stone-workers allowed more surplus for dressing, or maybe this was a North Derbyshire custom.

CONCLUSIONS

We can put an early post-conquest to 2nd century date on the manufacture of querns on this site with possible late Iron Age antecedents. Details such as decorative grooving to exterior surfaces, segmental grooving to grinding surfaces, handle slots, and general shape and size confirm this. Gradual changes from beehive querns to the flatter and wider forms to evolve in the 3rd and 4th centuries were being carried out in Derbyshire. The scale of the output at Blackbrook and its distribution area for the querns remain conjecture. It is likely that it was satisfying a local demand to farmsteads and possibly to a small community associated with the Derbyshire ware kilns. This area may have produced other objects such as the two stone balusters found by A Webster at the Lumb Grange pottery kilns, Hazelwood (Brassington and Webster 1988, 30: fig. 6). These were made for villas, but if discarded due to faults, the potters may have acquired them. We know little of the administration of the quern industry; there may have been a land ownership and commercial link with the pottery kilns. Perhaps itinerant stone workers came north (as did the potters) learning the skills from the local inhabitants. Furthermore Blackbrook may also have supplied the army and a wider market, using Little Chester as a distribution centre.

The production site has not been precisely pinpointed, but it was probably at the base of the bank to the rear of Starbuck House, which has now been landscaped. At present there is meagre evidence of Roman pottery and no structures to suggest occupation on the site where the querns were found. Field-walking is not an option as the rest of the grounds are under pasture. Of the eight stones which could be considered finished, five show actual signs of grinding which may denote use on site. However it could be argued that this was part of the final shaping process before sale rather than domestic use.

Another option is that the stone was obtained at the rear of Holly House, on the other side of the lane, where another natural steep scarp exists. These are two areas where it could have been acquired without too much effort. Certainly the querns seem to be confined to this part of the lane. In theory, they could have been roughed out at random locations where suitable stone was strewn along the base of the scarp but the fact that they were all found around Starbuck House would suggest a collection centre and finishing workshop here, close to the Roman road. It would be a convenient link to *Derventio* and the Trent Valley or even Buxton and the northern forts.

The early effort to compete with the lava querns may have ensured a long and widespread use of Millstone Grit from sites such as Blackbrook. Lava fractures easily and clearly the Derbyshire querns would have been far more durable. However Millstone Grit is much heavier, so perhaps these querns were more useful to the army when resident in the forts, and the lighter lava was transported whilst on the move during the push north. Whether their sturdier size at Blackbrook was in response to army demands or a residual characteristic of the beehive tradition remains debatable, but domestic use of the larger ones is questionable. Comparable Group 2a querns appear on the other sites discussed, yet others on the same sites show slight differences in size, shape, and details on the surfaces, hopper and spindle holes. Clearly there are peculiar traits even within Derbyshire.

Looking at the slightly larger picture, M. E. Wright has provided detailed updates on Romano-British querns in relation to lava querns, water-borne trade, stone sampling

and the wide variety of quern features in the north Midlands and Yorkshire, e.g. from Dragonby, Lincolnshire (1996, 369–372) and Catterick, Yorkshire (2002, 269–271, 278–280). Gritstone versions of the lava querns of similar size to Blackbrook have also been noted there, but generalising on the dating of certain characteristics in different areas is something of a minefield, which is why Curwen's groupings have still not been much refined. Regarding river transport, apart from short stretches, the Derwent would never have been navigable in this area, and certainly not for such large loads as the Trent and Humber were. Small, scattered workshops along the road networks and near to trading centres would therefore be more likely than one large one. Derbyshire does not, at present, have a quarry on the scale of that at Wharncliffe, near Sheffield, where over 1000 querns in varying stages of manufacture were discovered in the 1950s (Butcher 1957 and SMR 00539). The Stanton Moor site is thickly covered with heather etc. and those discoveries were after a period of moorland fire; we cannot rule out the possibility of more evidence hidden by vegetation on the Derbyshire moors. M. E. Wright comments that further work is needed on the rock analysis to determine how Blackbrook fits into more extensive studies.

It seems that on a local level, the speed and nature of quern development depended on many factors, e.g. extant pre-conquest trade/exchange mechanisms and how these were influenced by the arrival of the Roman army and its roads, and whether they had access to these roads and thus to new markets. The nature of the stone, which here is notoriously variable, would also have influenced quern manufacture. Specific likes and dislikes of local customers and what they could pay would also determine the end result. It is therefore no surprise that quern features in different areas are so diverse. More evidence is needed for comparison to establish distribution patterns and local traditions. Often useful measurements, drawings or descriptions are omitted from excavation reports. Hopefully this article will encourage more detailed publication of querns and perhaps more scrutiny of stone walling. Other quern-making sites in Derbyshire may still await discovery.

APPENDIX I: DESCRIPTIONS OF QUERNSTONE SAMPLES

The stones listed below are the better preserved examples. For consistency, the depth measurements have been taken at the outer edge, as they all vary in shape towards the centre. They are all made of Millstone Grit. The numbers correspond with those in Fig. 3 and the text. Nos 2, 5, 6, 7, 12, 13, 14, 15 and 19 are not illustrated. Photographs of all the querns are in the archive.

- 1 An almost whole upper stone. A small portion has been sliced off the edge, probably when used as a wall capstone. Recently it has been used as a decorative feature laid flat on top of a small column in the owner's grounds. The centre is slightly raised and the top surface is partly pecked. On the lower surface an area along the edge has been dressed but the rest was never finished. Also a hole has been started but this is off-centre. Diameter 340mm. Depth 100mm, depth at worked edge 90mm.
- 2 An almost whole upper stone, except for some small fragments chipped off the edge. The upper surface has been roughly worked and the underside has been pecked flat, but there is no hopper hole. An example of a 'rough-out'. Diameter 360mm. Depth 85mm. Not illustrated.

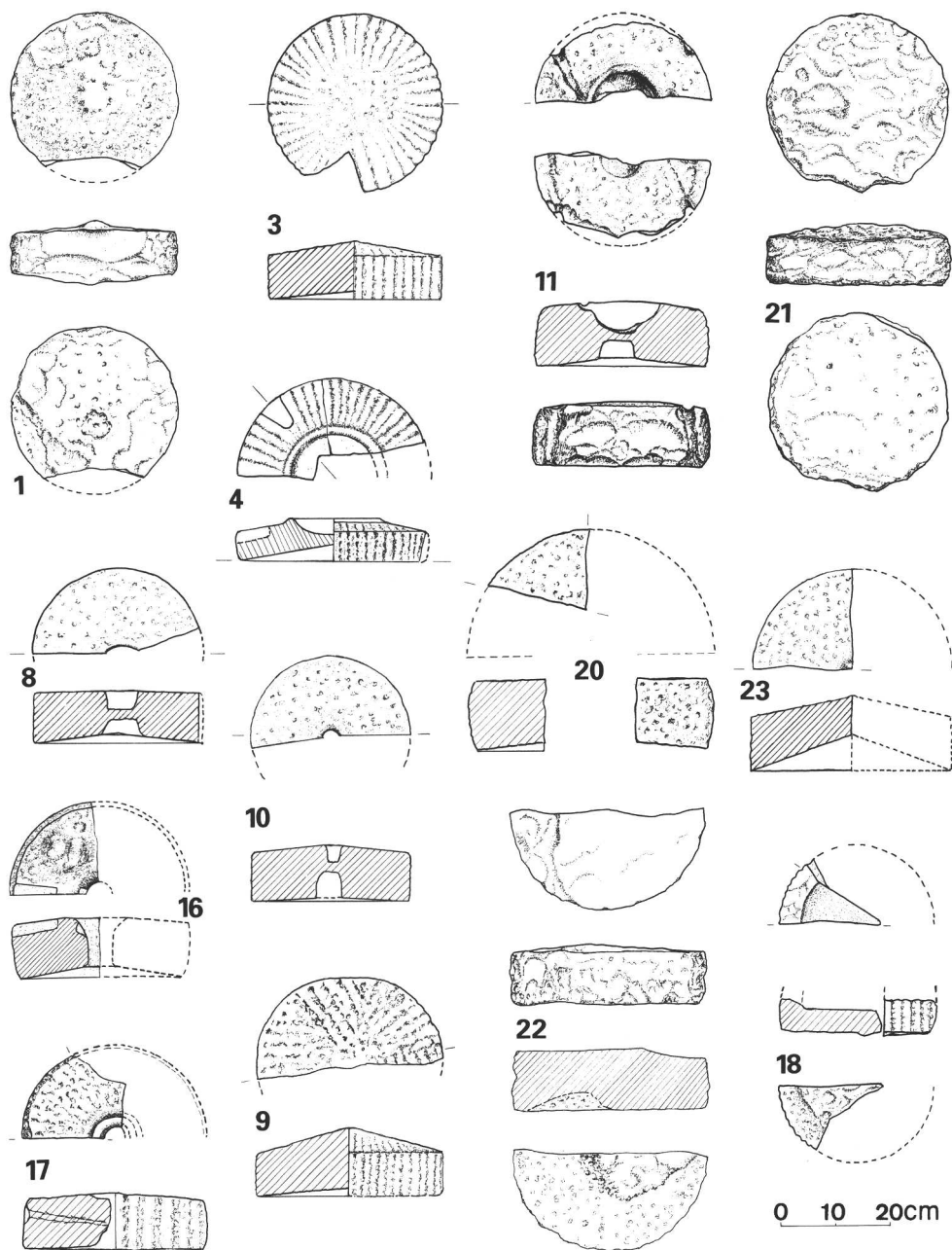


Fig. 3: Drawings of some of the Blackbrook quernstone samples. The numbering is consistent with the text and Appendix I.

- 3 An upper stone with a small segment removed. Tooling has been carried out to the top surface to form a decoration of grooving radiating out to the outer edge, but left plain in the middle. No hopper hole. The lower surface shows pecking and is slightly concave. An unfinished stone. Diameter 360mm. Depth 90mm.
- 4 Approximately 50% of an upper stone in two matching pieces. The broken edges seem to have been purposely cut, probably for re-use in a wall. There is radial grooving on the upper surface, as on 3. It also has a 'lip' and a concave area around the hopper hole, which appears to be square rather than round. On the upper surface a handle slot is sunk into the stone, extending 70–80mm towards the centre. It has pecked vertical grooving down the outer rim. The underside is flat with traces of concentric striations. This has probably seen some grinding use. 1st/early 2nd century. Diameter 400mm. Depth 65mm.
- 5 Approximately 50% of an upper stone which has been re-trimmed on the top at a later date. The hopper hole is approximately 70mm diameter. The lower surface is flat but very weathered, obscuring any signs of use. A straight cut along the outer edge signifies re-use, probably in a wall. Diameter 350mm. Depth 105mm. Not illustrated.
- 6 Just over 50% of a lower stone. A zone of segmental grooving covers half its grinding surface. It has traces of vertical fluting down the outside of the rim, giving a wavy-edged effect. No discernible spindle hole. The underside has been trimmed only around the outer rim area and the rest roughly levelled. Another partially-worked stone. Diameter 340mm. Depth 80mm. Not illustrated.
- 7 Approximately 50% of an upper stone. It has been cut straight across, probably for later re-use. There are faint traces of grooving on one area of the upper surface. The hopper hole is 60–70mm diameter but is not completely worked through. The lower surface has partial tooling. This is made of coarser gritstone than most and is unfinished, possibly discarded due to a fault. Diameter 350mm. Depth 100mm. Not illustrated.
- 8 Approximately 45% of a lower stone. There are concentric striations on the upper grinding surface and pecking on the lower surface. It has wide vertical fluting down the outside rim. The spindle hole is 70–80mm wide and is worked from top and bottom, leaving a 'bridge' in the middle. Possibly used. Diameter 350mm. Depth 105mm.
- 9 Approximately 55% of a lower stone. There are traces of segmental grooving on different alignments on the upper grinding surface. It has vertical grooving down the outside rim. No discernible spindle hole. The lower surface is pecked and is slightly concave. Partially-worked. Diameter 385mm. Depth 92mm.
- 10 Approximately 50% of a lower stone. The upper grinding surface shows peck-marks and traces of concentric striations. The spindle hole is approx. 60mm diameter. A separate, slightly offset hole has been worked from the underside and is wider at its base. The lower surface has been roughly trimmed and is slightly concave. Possibly used. Diameter 330mm. Depth 105mm.
- 11 Approximately 45% of an upper stone. It has the unusual feature of 2 worn grooves on both upper and lower surfaces, leading to 2 clear depressions at the outer edges. The hopper hole is 100–120mm in diameter at the top. A 70mm hole

is started from the underside, but not worked through. It is rough-pecked underneath but very uneven. The stone is considerably thicker than most and the sides have a sloping profile. It is possibly an abandoned attempt which has been used for some other purpose. Diameter 360mm. Depth 125mm.

- 12 Approximately 45% of a lower stone. It has a straight cut along the outer edge and the upper surface has been trimmed off horizontally but despite this concentric striations can still be seen. The spindle hole is small, 30–50mm diameter, tapering towards the bottom and fully perforating the stone. The underside is roughly flat. Re-used as a capstone. Diameter 350mm. Depth 90mm. Not illustrated.
- 13 Approximately 55% of a lower stone. It is raised in the centre but has no spindle hole. There are traces of segmental grooving on the upper grinding surface. The underside has been roughly flattened and has slight bevelling around its edge, possibly for re-use in a wall. Unfinished. Diameter 400mm. Depth 125mm. Not illustrated.
- 14 An approximately 20% segment of a lower? stone. The upper surface has a smooth, flat finish, with traces of wear, but no visible central hole on this small portion. There are traces of fluting down the outer rim and rough pecking on the lower surface. Possibly used. Diameter 380mm. Depth 85mm. Not illustrated.
- 15 An approximately 20% segment of an upper stone. The upper surface is pecked but with no discernible hopper hole. The lower grinding surface has faint shallow tooling of very narrow parallel bands on various alignments; a slightly different grooving pattern to the others. Also other striations. Possibly been in use despite no hopper hole showing on this small fragment. Diameter 400mm. Depth 75mm. Not illustrated.
- 16 An approximately 25% segment of an upper stone. The upper surface is uneven but there is a sunken handle slot extending 90mm in from the pecked outer rim. The hopper hole is 50–60mm diameter and appears to have a small worked indent in it. The lower surface is very flat with traces of concentric striations. There is a curvature to the outer surface; it has all the features of a 1st century quern. Diameter 370mm. Depth 110mm.
- 17 Approximately 25–30% of an upper stone. There are traces of radial grooving on the upper surface and vertical grooving down the outer rim. The hopper hole is around 80mm diameter and is stepped at the upper and lower edges. There are horizontal cracks in the bedding plain of the stone, leading from an external depression, which may be an aborted attempt to make a handle slot. The lower surface has been pecked flat. It has been trimmed later for re-use. Diameter 375mm. Depth 105mm.
- 18 Approximately 15–20% of a circular object. The upper surface is worn and dish-shaped. It has a sloping side and flat bottom, the underside also slopes upwards towards the edge. It has vertical fluting down the outside rim. It has possibly been used as a saddle stone with a rubbing or pounding stone, or as a mortar used with a pestle. Maybe it was trimmed down from a discarded flat quern for this purpose; it is difficult to tell from the small sample. Diameter 320mm. Thickness of base 45mm.
- 19 Approximately 60% of an upper stone. The top surface is roughly pecked with no hopper hole. The lower grinding surface is pecked and levelled. It is a 'rough-out'

which has probably been re-used as a capstone. Diameter 370mm. Depth 120mm. Not illustrated.

- 20 An approximately 25% segment of a quern stone. It is difficult to ascertain whether it is upper or lower and there is no discernible central hole. The top surface and outside rim show pecking. The underside is roughly-trimmed only. Another unfinished stone, but considerably larger and thicker than most. Diameter around 500mm, depth 150mm.
- 21 An almost whole upper stone, apart from slight chips off the edge. The upper surface is roughed out, the lower surface partially-pecked. No hopper hole, unfinished. It had been re-used in the owner's rockery. Diameter 360mm. Depth 100mm.
- 22 Approximately 50% of an upper stone. The upper surface shows the natural fracture only but the outer rim has been roughly dressed. No hopper hole. The lower surface has a partially hollowed out area to one side; another unfinished stone. Diameter 400mm. Depth 120mm.
- 23 Approximately 25% of an upper stone. The upper and lower surfaces are both pecked. The 20 degree angle of the grinding surface puts it in the 1st century. There is no hopper hole and no signs of use, again unfinished. Diameter 400mm. Depth 120mm.

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REFERENCES

- Bennett, R. and Elton, J. (1898) *History of Corn Milling*. New York.
- Brassington, M. and Webster, W.A. (1988) The Lumb Brook Pottery Kilns, Hazelwood: an Interim Report. *DAJ* 108: 21–32.
- Buckley, D.G. (2001) Querns and Millstones. In A.S. Anderson, J.S. Wachter and A.P.Fitzpatrick *Romano-British 'Small Town' at Wanborough, Wiltshire*: 156–160. Britannia Monograph Series no.19. Society for the Promotion of Roman Studies. London.
- Butcher, L.H. (1957) Archaeological Remains on the Wharnccliffe Grento-Upland, S. Yorks. *Transactions of the Hunter Archaeological Society* 7: 38–39.
- Crawford, O.G.S., Roder, J., *et al.* (1955) The Quern Quarries of Mayen in the Eifel. *Antiquity* 29: 68–76.
- Curwen, E.C. (1937) Querns. *Antiquity* 11: 131–151.
- Curwen, E.C. (1941) More about Querns. *Antiquity* 15: 15–32.

- Dodd, A.E. and Dodd E.M. (2000) *Peakland Roads and Trackways*. Landmark Publishing. Ashbourne.
- Dool, J. (1985) Derby Racecourse: Excavations on the Roman Industrial Settlement, 1974. *DAJ* 105: 155–221.
- Ellis, P. (1989) Roman Chesterfield: Excavations by T. Courtney 1974–78. *DAJ* 109: 51–130.
- Hart, C.R. (1985) Stanton Moor, Derbyshire: Burial and Ceremonial Monuments. In *Upland Settlement in Britain. The Second Millenium BC and After*. (eds D. Spratt and C. Burgess): 77–110. British Archaeological Reports, British Series 143. Oxford.
- Langley, R. and Drage, C. (2000) Roman Occupation at Little Chester, Derby: Salvage Excavation and Recording by the Trent & Peak Archaeological Trust 1986–1990. *DAJ* 120: 123–287.
- Makepeace, G.A. (1983) A Romano-British Settlement at Staden near Buxton. *DAJ* 103: 75–86.
- Makepeace, G.A. (1995) The Romano-British Settlement at Staden near Buxton: The 1987–88 and 1989–90 Excavations and Final Report. *DAJ* 115: 107–135.
- Moritz, L.A. (1958) *Grain Mills and Flour in Classical Antiquity*. Clarendon Press. Oxford.
- Palfreyman, A. (2001) Report on the Excavation of a Romano-British Aisled Building at Little Hay Grange Farm, Ockbrook, Derbyshire 1994–1997. *DAJ* 121: 70–161.
- Peacock, D.P.S. (1980) The Roman millstone trade: a petrological sketch. *World Archaeology* 12 (1).
- Peacock, D.P.S. (1987) Iron Age and Roman quern production at Lodsworth, West Sussex. *Antiquaries Journal* 67 Part 1: 61–87.
- Raistrick, A. (1966) *Pennine Walls*. Dalesman. Clapham.
- Shaffrey, R. (2003) The Rotary Querns for the Society of Antiquaries' Excavations at Silchester, 1890–1909. *Britannia* 34: 143–174.
- Smithard, W. (1913) Records and Traces of Old Roads near Derby. *DAJ* 35: 111–136.
- Sparey-Green, C. *et al.* (2002) Excavations on the South-Eastern Defences and Extramural Settlement of Little Chester, Derby 1971–2. *DAJ* 122: 1–328.
- Thompson Watkin, W. (1886) The Roman Minor Settlements, Camps, Discoveries of Coins, &c., and Roads in Derbyshire. *DANHJ* 8: 190–215.
- Ward, J. (1889) Relics of the Roman Occupation, Little Chester, Derby. *DANHJ* 11: 81–92.
- Watts, M. (1983) *Corn Milling*. Shire Publications Ltd. Buckinghamshire.
- Wright, M.E. (1996) Stone Artifacts. Querns. In *Dragonby. Volume 1* (J. May): 365–376. Oxford.
- Wright, M.E. (2002) Querns and millstones. In *Cataractonium: Roman Catterick and its hinterland. Part II*. (P.R. Wilson *et al.*): 267–285. York.

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