

THE ROMAN VILLA AT MINSTER IN THANET. PART 12: QUERNSTONES AND MILLSTONES

RUTH SHAFFREY

The quernstones and millstones from the Abbey Farm villa, Minster in Thanet, were recorded during research for a broader study of querns from Kentish sites (Blanning and Shaffrey in prep.). The 77 quern and millstone fragments recovered during the various excavations at Abbey Farm likely represent 20 querns in total. These are discussed below with an emphasis on what they were made from, how they were used and what this tells us about grain processing in north-east Kent.

Quernstones and millstones are a very significant, if often overlooked and undervalued, component of an archaeological assemblage. They enabled the vital processing of grains for food and drink – upon which all other activities rely. Whilst being very common finds on Roman sites, they are not ubiquitous, because they will only occur on or near to sites where grain was being ground into flour, where malt was being crushed for ale or malted drinks, or where other materials such as nuts, seeds, or legumes were being processed. Unfortunately it is difficult to precisely equate the number of querns found to the degree of reliance on grain as a staple part of the diet because so many factors influence the recovery of quern fragments, but where we find a significant number of querns we can at least be sure that flour and/or malt were being produced nearby. In addition, the presence of millstones is a clear indicator of the centralisation of some of this production either to create a surplus to exchange or sell for other goods, or to allow people to undertake tasks when they would otherwise be occupied grinding grain for flour.

A total of 77 quern and millstone fragments was recovered during all the phases of work at Abbey Farm. Given the worn friable nature of some of the fragments, these are likely to represent 20 querns in total. The lava querns are very degraded making quantification of them problematic but for the purposes of this analysis, fragments from a single context were taken to represent one quern. Two contexts also produced multiple fragments of Millstone Grit; in none of these instances do the fragments adjoin but they have a similar general appearance and it is assumed in each case that fragments from a single context are from the same quern. No fragments from separate contexts were found to adjoin, but it is perfectly possible that fewer than 20 querns are actually represented.

The querns were recorded by the author during visits to the Trust for Thanet Archaeology in April and May 2018. In the time since the excavations, four

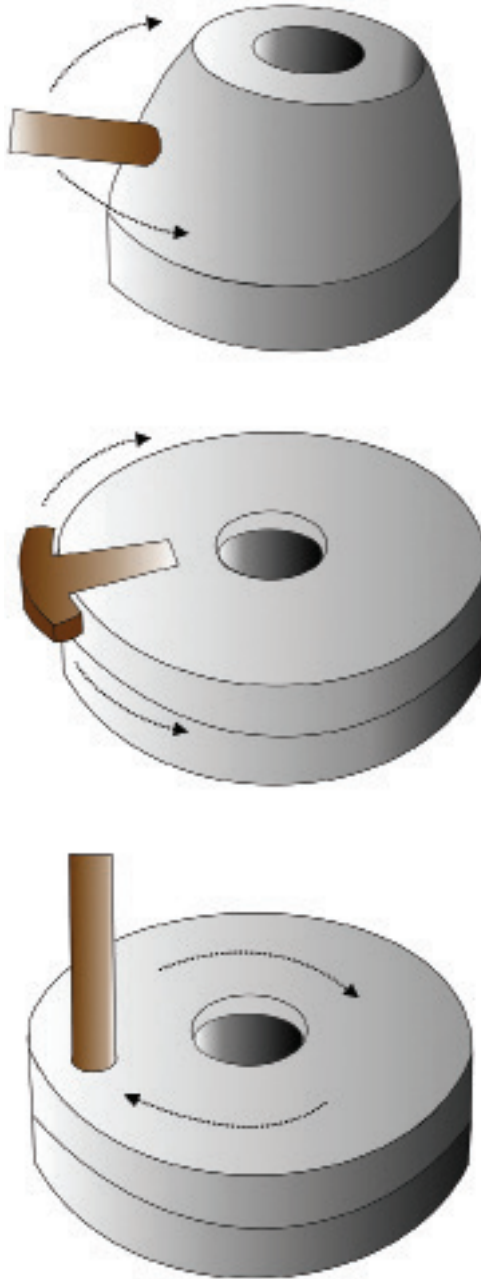


Fig. 1 Schematic drawing (by the author) showing how querns were used:
a: beehive/bun querns with side handles may have been oscillated from side to side
b: flat querns with lateral handle sockets may also have been oscillated
c: flat lava querns with vertical handles were probably fully rotated.

fragments had lost their context information, so all fragments were allocated a 'Q' number and the bags labelled accordingly. Multiple small fragments from a single context were only allocated a single 'Q' number but larger fragments from a single context were allocated different 'Q' numbers so that they can be distinguished in future, should the need arise. All the data was recorded into a Microsoft Access database and transferred into Microsoft Excel. A copy of the data has been filed in the project archive. A summary catalogue of the fragments is at **Appendix**.

Description of the stones

The assemblage is notable in that it is highly fragmentary making the identification of quern form problematic. However, a range of quern forms were in use in Roman Britain and a schematic drawing shows how these might have operated (**Fig. 1**). The thicker beehive and bun-shaped querns with side handle sockets were probably oscillated back and forth from side to side (**Fig. 1a**) as were those with lateral handle sockets set into the top of the stone (**Fig. 1b**, based on a quern from Silchester that survived with a portion of its wooden handle; Shaffrey 2003). This oscillation is suggested by the often uneven wear of the beehive querns, which tend to have suffered greater wear on the side of the quern with the handle. Those with vertical handles, almost exclusively lava querns in southern Britain, were probably fully rotated (**Fig. 1c**, although lava querns usually have an iron handle fitting extending beyond the circumference of the quern).

In Kent, most earlier (late Iron Age and early Roman) querns were of a beehive/bun form with side handle sockets whilst later Roman querns were of a flat disc type. Querns with lateral handle sockets (**Fig. 1b**) seem, on present evidence, to be rare in Kent but continued analysis of the material should establish whether this absence is real.

Diameters could not be accurately determined for any of the querns. However, it proved possible to determine a minimum diameter for three examples by measuring the surviving portion. Two of these measure >57cm diameter and must therefore be from mechanically-powered millstones (Shaffrey 2015): Q11 – from a fill of Building 7's kiln (7627) and Q3/4 from the robbed bathhouse, Building 3. The third fragment measures > 46cm diameter and is likely, but not certain, to be from a millstone (Q5, no context number recorded). A fourth fragment (previously examined only briefly), has been tentatively identified as a possible millstone (E. Blanning *pers. comm.*) but could not be located during this analysis for confirmation (Q23).

The two certain millstones are both of Millstone Grit (see below) and the possible example is of Greensand; all are of flat disc type. Q11 has a grooved grinding surface with an inner distribution groove (Cruse 2017) positioned 60mm from the edge of the 130mm diameter eye (**Fig. 2**). Since this groove typically lies at around 37% of the complete circumference (Cruse *pers. comm.*), the diameter of the millstone may have been around 675mm originally. Q3/4 do not adjoin but are very similar in appearance and are probably from the same millstone. The larger fragment has the remains of rotational grooves on the grinding surface and there may have been a basin shaped hopper (**Fig. 3**). Q5 has harped radial grooves on the grinding surface but is well worn.

Few diagnostic features can be identified on any other fragments. One fragment



Fig. 2 Q11 with large eye and inner distribution groove. (Photo by R. Shaffrey.)

(Q6) was particularly tricky to interpret and whilst it seems likely to be the edge fragment of a bun-shaped quern with circular handle socket, it is possible that it was used or reused as a large weight (**Fig. 4**). One other fragment (Q1) is particularly



Fig. 3 Q3 with rotational grooves. (Photo by R. Shaffrey.)



Fig. 4 Q6 with worn face and part of circular handle socket. (Photo by R. Shaffrey.)

thick and has harped grooves on its grinding surface. Most of the other fragments are completely undiagnostic, retaining only sections of one of more faces or being identifiable only by their material (lava).

None of the fragments can be absolutely identified as hand-powered rotary querns rather than mechanically-operated millstones and it is possible, if unlikely, that they are all from millstones. However, in order to make it clear in the following text where the known millstones are being referred to, the other fragments will be called querns. The uncertainty of the categorisation of the remainder must be borne in mind when reading this report.

Lithology

A likely six querns of lava are present in the assemblage, as well as six of Millstone Grit (plus the two millstones) and five of Greensand (plus one possible millstone). The Greensand querns are probably from the Folkestone Beds but they are of variable petrography ranging from fine to coarse-grained and with or without shell fragments. The exposures of this stone were extensively exploited during the late Iron Age and early Roman period at East Wear Bay, where hundreds of querns and quern blanks have been recovered (Keller 1988; Chris Green *pers. comm.*). It is also clear that production of querns from the Folkestone Beds Greensand continued, as evidenced by the survival of flatter style disc querns, but the precise localities of manufacture are not certain.

The presence of Millstone Grit querns is typical of Kent and the use of it for millstones at Minster villa is also unsurprising because approximately half of all

known Roman millstones from Kent are Millstone Grit. However, it is worth noting that the term Millstone Grit has historically been used for a range of medium and coarse grained ‘gritty’ and feldspathic sandstones in Kent (as elsewhere). Major quern quarries have been identified at Wharnccliffe and Rivelin in Yorkshire (Wright 1988) but the former is said to be a fine-grained sandstone (Pearson and Oswald 2000) and is therefore unlikely to be the source of many of the Kent querns and millstones, as these are typically medium- or coarse-grained. Indeed, the variability in petrography is clear evidence that these have not all come from the same quarry. It is also possible that some had Continental origins as suggested for the Millstone Grit millstone from the Blackfriars ship (Marsden 1994).

Lava querns are very common in Roman Kent and they occur on sites across the county, although often in a highly fragmentary state, due to the soil conditions. Lava was not used for querns in Britain before the Roman conquest (Fitzpatrick 2017) but it remains unclear whether they continued to be imported throughout the Roman period, or if their popularity declined from the third century as has been suggested (Peacock 1980, 50). Their use at Minster villa would suggest the occupants were accessing the same supply of materials as other people in Kent.

Context of recovery

It is always difficult to interpret the deposition of querns and millstones in relation to activity at a given site, because unlike many other finds, which may be lost or discarded during or shortly after their period of use, querns are virtually always re-employed in some other useful function, whether that be as sharpening stones, as packing in postholes, or structurally in floor surfaces, in walls, or in wall foundations. It is not unusual for querns to be fragmented before deposition; in fact, fragmentation seems to have been the usual fate of querns, to the extent that pieces of a single quern are rarely deposited together, a behaviour that statistics would suggest is deliberate (Heslop 2008, 71). However, it is rare to have an assemblage of more than a handful of querns without at least one being sufficiently complete for its diameter to be measured. Bearing this in mind, it seems likely that fragments of former quernstone were highly prized resources in their own right, and that further fragmentation was probably deliberate to allow for reuse.

Quern fragments were found across the site, in contexts associated with Buildings 3, 4, 6A, 6B and 7 and at the South Gate (**Fig. 5**). Several fragments had lost all evidence of their context of recovery (Q1, 2, 5 and 6) but it has been possible to determine where two of these were found (although not which two).

Despite the difficulty of spatial analysis, there was a clear focus for the reuse of quern fragments in association with Building 7. A likely eight querns (ten fragments) are from Building 7 where they were found in gully 7681, postholes 7695 and 7708 and fills in the kiln. The kiln structure (7672) contained two quern/millstone fragments (Moody 2010, fig. 2, section 3) but only one fragment is labelled as having come from this context so one of the un-labelled ones must also have been found here. One of the other un-labelled fragments was pulled out of the ground by a plough but was thought to have been used as packing in the westernmost post setting of the three forming Group 4 associated with the kiln structure of Building 7 (Moody 2010, 328).

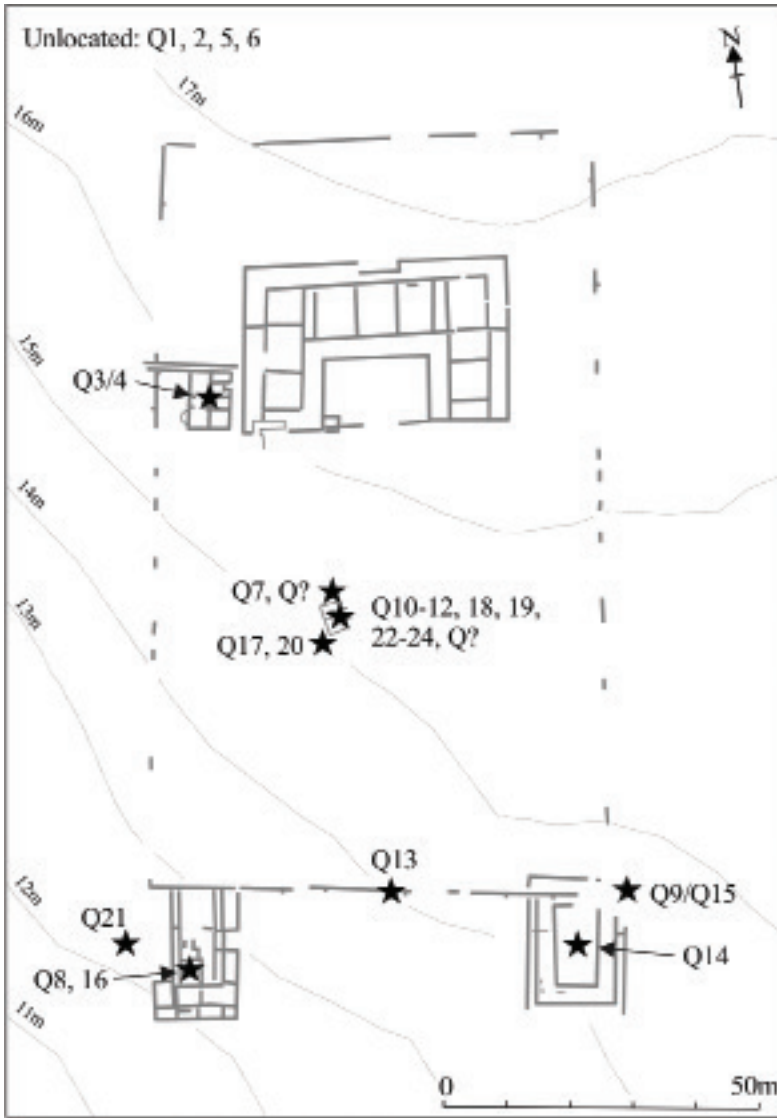


Fig. 5 General plan showing location of quern and millstone fragments. (R. Shaffrey.)

Whilst querns that were discarded in the general fill of the kiln may have been contemporary with its use for drying grain, the querns and millstones found in the structure of the kiln could not, so their original use must relate to activity predating the kiln, indicating an extensive history of crop processing in this area. Whether the querns were chosen to be incorporated into the kiln structure because of their convenient flat shape or because of the special significance they might bring to a structure with a connected function is not something we can know. However, there are clear examples of the use of quern and millstone fragments in kiln and

oven structures elsewhere in Kent (as well as further afield), including at Westwell (Leda Cottages), Broadstairs and Greenhithe (Keys and Shaffrey 2006; Moody 2005; Detsicas 1967, 143).

Discussion

The presence of both querns and millstones is evidence that crop processing was a significant part of the economy at Minster villa. No analysis of plant remains has been possible to date, so we cannot say precisely what the querns and millstones were used to process but the kiln represented by Building 2 has been interpreted as a possible malting kiln (Parfitt *et al.* 2009, 349) and the one in Building 7 as a classic corn dryer, also potentially used for malting (Moody 2010, 330-1). The evidence suggests that both flour and malt were being produced here but the chronology indicates that the kiln represented by Building 2 was contemporary with the main villa complex (second and early third century) whilst the Building 7 corn dryer probably post-dated the main villa (Parfitt *et al.* 2009, 356; Moody 2010, 329).

The millstones indicate the existence of a mill and the centralisation of grain processing. The fragments identifiable as millstones were all found in late Roman contexts but given how much they appear to have been reused once they were no longer fit to serve as millstones, their original function was probably contemporary with the lifetime of the villa.

Such a mill is likely to have been located somewhere very nearby. Unless it was powered by animals or humans, it cannot have been on top of the hill where the villa enclosure was constructed. However, there is a narrow valley just to the west in which a spring rises (Perkins 2004, 28). This seems a very plausible candidate to have provided water power for a mill, and although there may not have been a large volume of water, springs are known to have powered watermills elsewhere (Shaffrey 2017). Indeed, during the medieval period this stream had been dammed to create a line of three fish ponds and it is conceivable that these were the successors of a mill pond created by the Romans to power a small mill. Interestingly, Domesday Book records the presence of a Norman mill at both Minster and neighbouring Monkton, suggesting that such local streams flowing down into the Wantsum were being harnessed in later times.

The presence of millstones on villa sites is increasingly being recognised and it seems likely that where grain processing was a key part of a villa estate's economy, as here, investment in a mill would have occurred. This hypothesis is difficult to test because we so rarely identify surviving remains of mill buildings, either because they were located on rivers, many of which will have changed course over time with the result that Roman structures may have been destroyed, or because we are not excavating in the areas where they were located. Some, perhaps as at Minster, could lie deeply buried under down-washed soils subsequently accumulated on the lower valley slopes. This leaves millstones as the only consistent evidence for the existence of a mill and makes them a crucial piece of information in our quest to understand the organisation of grain processing in the Roman economy.

Unfortunately, we are hindered in comparison between sites due to the inconsistency of quern retrieval. Villa sites in particular were often the focus of

extensive excavation during the late 19th and early 20th centuries, when querns and millstones were commonly only retained if they were complete. This disregard for querns is exemplified by the excavation of a Victorian rubbish pit at Silchester, where the antiquarians had dumped what they considered to be uninteresting finds, amongst which were four quern fragments (Shaffrey 2002, 300). Although the Victorian excavators did retain some incomplete querns, the resulting assemblage contains a disproportionately high number of large fragments and complete specimens, and none of the small barely recognisable pieces that enter into our quantifications today. The absence of millstones and querns from villas and other sites excavated at this time is therefore not proof of the absence of grinding.

It is possible, however to draw some conclusions and for Thanet it is obvious that millstones are found with unusual frequency on Roman sites compared with the rest of Kent (Moody 2008). They can now be counted on at least 11 different sites, although research is ongoing and this number is likely to increase (Blanning and Shaffrey *in prep.*). It is also likely that a significant number of other pieces were also millstones, given their overall appearance, but have simply become too fragmented through reuse for their original size to be determined. Nonetheless, the high number of millstones is an indicator that the processing of grain was a significant component of the economy of Thanet to which the villa at Minster contributed. As with the millstones from Minster, most of those from the rest of Thanet were recovered from features dated to the third century onwards suggesting that centralised milling became part of the economy sometime preceding that, perhaps in the second century. This chronology would make the milling comparable or slightly earlier than that at Ickham where there was a watermill from the third century (Bennett *et al.* 2010).

APPENDIX

CATALOGUE OF QUERNSTONES AND MILLSTONES

(Shown in brackets are references to the various report Parts published in *Archaeologia Cantiana* since 2004.)

- Q1. *Rotary quern or millstone fragment.* Very thick with rough surfaces all over except one flat and slightly concave surface with harped radial grooves worn smooth. Not clear if an upper or lower stone as no centre or edges. Measures 93mm thick. Folkestone Beds Greensand. Fine-grained shelly type.
- Q2. *Rotary quern or millstone fragment.* Non-diagnostic but with a clear worked face. Folkestone Beds Greensand. Fine-grained shelly type.
- Q3/Q4. *Millstone fragments.* Two fragments, not adjoining but almost certainly from the same stone. Flat disc-shaped stone with possible basin shaped hopper. Larger fragment has remains of 5 rotational grooves on one face and the other is roughly dressed. Burnt/blackened and squared, presumably for reuse. Measures >570mm diameter x 51mm thick. Millstone Grit. From robbed bathhouse, Building 3. (Minster 1.)

- Q5. *Rotary quern or millstone fragment.* Flat disc-shaped quern with flat faces. The principal grinding surface has harped grooves but is worn and the other face is worn very smooth towards the circumference with traces of grooving on the rest of it. Measures >460mm diameter x 59mm thick and with an eye of approximately 60mm diameter. Greensand with some pink quartz and some polished grains.
- Q6. *Probable rotary quern fragment.* Small curved fragment with circular worn perforation of 25mm and traces of grooving. This could be the edge fragment of a bun shaped rotary quern with the handle slot or possibly could be the upper fragment of a large weight. Folkestone Beds Greensand.
- Q7. *Rotary quern or millstone fragments.* Non-diagnostic. Millstone Grit. Ctx 7619, fill of gully, F. 7681, perhaps associated with Building 7. (Minster 7.) Late Roman.
- Q8. *Rotary quern or millstone fragments.* Non-diagnostic. Lava. Ctx 7163, fill of pit, F. 7170 an ash-filled pit within Building 6B. (Minster 4.)
- Q9. *Rotary quern or millstone fragments.* Non-diagnostic. Slightly larger than fragments from other contexts. Lava. Ctx 5007, fill of re-cut boundary ditch, F. 5014, adjacent to Building 4. (Minster 3.)
- Q10/18/19. *Rotary quern or millstone fragments.* Flat disc-type lacking centre or circumference. These three fragments appear to be part of same quern or millstone but they do not adjoin. Each measures 59mm thick. Millstone Grit. Medium-grained, well-sorted micaceous sandstone. Ctx 7623, fill of kiln. Building 7. (Minster 7.) Late Roman.
- Q11. *Millstone fragment.* Flat disc-shape with pecked and grooved grinding surface (possibly an inner distribution ring) with the groove 60mm from the eye. The eye is 130mm diameter. The other face is roughly tooled. Probably a lower stone. Edges not present. Measures 126mm thick x >570mm diameter (570mm diameter survives and it is certainly much larger. Millstone Grit. Ctx 7627, fill of kiln, Building 7. (Minster 7.) Late Roman.
- Q12. *Rotary quern or millstone fragment.* No edges and a worn surface. Measurements are indeterminate. Millstone Grit. Medium-grained, well-sorted sandstone with frequent pink feldspar. Ctx 7672, fill of kiln, Building 7. (Minster 7.) Late Roman.
- Q13. *Rotary quern or millstone fragments.* Non-diagnostic. Millstone Grit. Ctx 7238, fill of main south gate post-pit, F. 7221. (Minster 6.) South Gate.
- Q14. *Rotary quern or millstone fragments.* Non-diagnostic. Lava. Ctx 4041, area of Building 4. (Minster 3.)
- Q15. *Rotary quern or millstone fragment.* Non-diagnostic. Lava. Ctx 5016, fill of boundary ditch, F. 5003, adjacent Building 4. (Minster 3.)

- Q16. *Rotary quern or millstone fragment*. Non-diagnostic. Lava. Ctx 7163, fill of pit, F. 7170, an ash-filled pit within Building 6B. (Minster 4.)
- Q17. *Rotary quern or millstone fragment*. Flat disc type with one worn and one worked face but of uncertain diameter. Millstone Grit. Ctx 7694, fill of outer post-hole, F. 7695, Building 7. (Minster 7.) Late Roman.
- Q20. *Rotary quern or millstone fragment*. Circumference is straight and has been possibly been reused. Grinding surface is pecked and some rotational grooves. Measures 62mm thick. Millstone Grit. Medium-grained moderately well-sorted sandstone. Ctx 7694, fill of outer post-hole, F. 7695, Building 7. (Minster 7.)
- Q21. *Rotary quern or millstone fragments*. Three sizeable and 30 very small non-diagnostic fragments. Lava. Ctx 7120, fill of well shaft, F. 7105 to the west of Building 6A. (Minster 4.)
- Q22. *Rotary quern or millstone fragment*. Measures 34mm thick. Millstone Grit. Ctx 7009.
- Q23. *Millstone fragment?* (Unseen by author.) Millstone Grit. Ctx 7671.
- Q24. *Probable rotary quern fragment*. With one flat pecked and worn face. No other original faces. Probably from beehive. Folkestone Beds Greensand. Ctx 7690, fill of north chamber of Building 7 kiln.

ACKNOWLEDGMENTS

Grateful thanks go to Elizabeth Blanning for bringing this assemblage to the author's attention and for help in recording it and to Paul Hart for helping with access to the material. Thank you also to Keith Parfitt for permission to produce this report, for suggesting it could form part of the series of articles on the Roman villa at Minster and for his helpful comments on the text.

REFERENCES

- Bennett, P., Riddler, I. and Sparey-Green, C., 2010, *The Roman Watermills and settlement at Ickham, Kent*, The Archaeology of Canterbury new Series V (Canterbury).
- Blanning, E. and Shaffrey, R., *in prep.*, 'The Roman disc querns and millstones of Kent'.
- Cruse, J. with Gaunt, G., 2017, 'The worked stone', in Ambrey, C. *et al.*, *A Roman Roadside Settlement at Healam Bridge. The Iron Age to early medieval evidence. Volume 2: Artefacts*, Northern Archaeological Associates Monograph Series Volume 3, E-book, Archaeology Data Service.
- Detsicas, A.P., 1966, 'An Iron Age and Romano-British site at Stone Castle Quarry, Greenhithe', *Archaeologia Cantiana*, LXXXI, 136-90.
- Fitzpatrick, A., 2017, 'The famous volcanic rock of the Eifel', was it imported to Britain in Prehistory', in R. Shaffrey (ed.), *Written in Stone: Papers on the Function, Form, and Provenancing of Prehistoric Stone Objects in Memory of Fiona Roe*, Highfield Press (St Andrews), 195-214.

- Heslop, D.H., 2008, *Patterns of quern production, acquisition and deposition. A Corpus of Beehive Querns from Northern Yorkshire and Southern Durham*, Yorkshire Archaeological Society Occasional paper 5 (Yeaden).
- Keller, P.T., 1988, 'Quern Production at Folkestone, South East Kent: an Interim Report', *Britannia*, 20, 193-201.
- Keys, L. and Shaffrey, R., 2006, 'Small finds from Leda Cottages, Westwell, Kent, CTRL', specialist report series, Archaeology Data Service.
- Marsden, P., 1994, *Ships of the Port of London, first to eleventh centuries AD*, English Heritage archaeological report 3 (Southampton).
- Moody, G.A., 2005, 'Land to rear of 103 Stone Road, Broadstairs, Kent', Trust for Thanet Archaeology unpubl. report.
- Moody, G.A., 2008, *The Isle of Thanet. From Prehistory to the Norman conquest* (Tempus).
- Moody, G.A., 2010, 'The Roman Villa complex at Abbey Farm, Minster-in-Thanet. Part 7: Building 7, a Late Roman Kiln and Post-Built Structures', *Archaeologia Cantiana*, CXXX, 315-332.
- Parfitt, K., Boast, E. and Moody, G., 2009, 'The Roman Villa at Minster-in-Thanet. Part 6: The Villa Enclosure; Buildings 2 and 5', *Archaeologia Cantiana*, CXXIX, 333-358.
- Peacock, D.P.S., 1980, 'The Roman millstone trade: a petrological sketch', *World Archaeology*, 12.1, 43-53.
- Pearson, T. and Oswald, A., 2000, *Quern manufacturing at Wharncliffe Rocks, Sheffield, South Yorkshire*, EH Report.
- Perkins, D.R.J., 2004, 'The Roman Villa at Minster-in-Thanet. Part 1: Introduction and report in the Bath-House', *Archaeologia Cantiana*, CXXIV, 25-49.
- Shaffrey, R., 2002, 'The Roman material: stone', in M. Fulford and A. Clarke, 'Victorian excavation methodology; the Society of Antiquaries at Silchester in 1893', *The Antiquaries Journal* 82, 285-306.
- Shaffrey, R., 2003, 'The Rotary Querns from the Society of Antiquaries' excavations at Silchester, 1890-1909', *Britannia*, 34, 143-174.
- Shaffrey, R., 2015, 'Intensive milling practices in the Romano-British landscape of southern England. Using newly established criteria for distinguishing millstones from rotary querns', *Britannia*, 46, 55-92.
- Shaffrey, R., 2017, 'Roman Ewell: a review of the querns and millstones and implications for understanding the organisation of grain processing', *Surrey Archaeological Society Collections*, 100, 259-269.
- Wright, E.M., 1988, 'Beehive Quern Manufacture in the South-East Pennines', *Scottish Archaeological Review*, 5, 65-77.