
West's Garage Site, Newmarket Road, Cambridge

Christiane Meckseper, Jonathan House, Chris Jarrett and Kevin Hayward

Illustrations by Heidi Hauser and Mark Roughley

An archaeological excavation was undertaken by Pre-Construct Archaeology prior to the re-development of the West's Garage site at Newmarket Road, Cambridge, CB5 8HD.

No evidence for any occupation pre-dating the post-medieval period was revealed during the excavations. This lack of medieval features suggests that the site was unoccupied ground within the precinct of the 12th century Barnwell priory, rather than being part of its extra-mural settlement and Barnwell suburb, previously excavated to the south of Newmarket Road.

The importance of the site lies in its post-medieval development. The earliest features recorded were a series of large intercutting quarry pits dating to the 17th and 18th century. The quarried areas were reinstated in the early 19th century and the ground consolidated to allow for residential housing and the establishment of a school. The material culture included a good collection of re-used medieval and post-medieval carved stone and an assemblage of clay tobacco pipes and production waste with evidence of local manufacturing. The archaeological structural and artefactual evidence supports historic records that the buildings in this part of Newmarket Road were mainly occupied by small traders, craftsmen and labourers. The housing was demolished in the mid 1960s to make way for the garage for which the site is named.

Introduction

Excavations at West's Garage, Newmarket Road, Cambridge (centred on NGR 54649 25898) were undertaken between March and May 2017. The work was commissioned by Watkin Jones & Son Ltd on the recommendation of The Environmental Consultancy (CgMs) in response to a planning condition attached to planning consent for the construction of student accommodation with associated services and landscaping. A two-phase evaluation of the site had been undertaken in 2015 and 2017 (Jones 2016).

The site is located in the Abbey Ward of the City of Cambridge, on the corner of Newmarket Road and River Lane (Fig. 1). It is relatively level at a height of 12m AOD but slopes slightly towards the River Cam, 220m to the north. The underlying geology is chalk of

the West Melbury Marly Chalk Formation with superficial deposits of 3rd river terrace sands and gravels (British Geological Survey 2019).

Two major excavations at Harvest Way and the Eastern Gate Hotel to the south of Newmarket Road (Fig. 1, Atkins 2015a + b, Atkins *et al.* 2015 b, 2016 and Newman 2013) revealed evidence for the medieval settlement of Barnwell, extra-mural to Barnwell Priory, established in 1112. No evidence for medieval settlement or activity was revealed on the development site itself.

The findings at West's Garage are predominantly related to 19th century occupation of the site, represented by structural building evidence and a large assemblage of 19th century finds. Of note were a collection of re-used medieval and post-medieval carved stone and an assemblage of clay tobacco pipe fragments and production waste. This report focusses on the post-medieval structural evidence and a discussion of those two finds groups. For a detailed analysis of the whole stratigraphic sequence and all finds assemblages, the reader is referred to the assessment report (House 2017).

Archaeological and Historical Background

Isolated finds and features of prehistoric, Roman and Anglo-Saxon date are recorded in the vicinity of the site in the Cambridgeshire Historic Environment Record, and on the excavations at Harvest Way and the Eastern Gate Hotel to the south of Newmarket Road (Atkins *et al.* 2016, Newman 2013). This suggests that the area was not settled prior to the medieval period. In the Roman period it would have been part of the agricultural hinterland of the Roman city of Cambridge.

Anglo-Saxon evidence in the vicinity of the development site comprises a 6th-century ditch and a residual cruciform brooch and loomweight, revealed in the excavations at the Eastern Gate Hotel site. Saxon burials were excavated on Coldhams Common c. 1km to the south-east, suggesting a burial ground and possible settlement nearby. In the medieval period the site lay within the East Field, one of the three large open

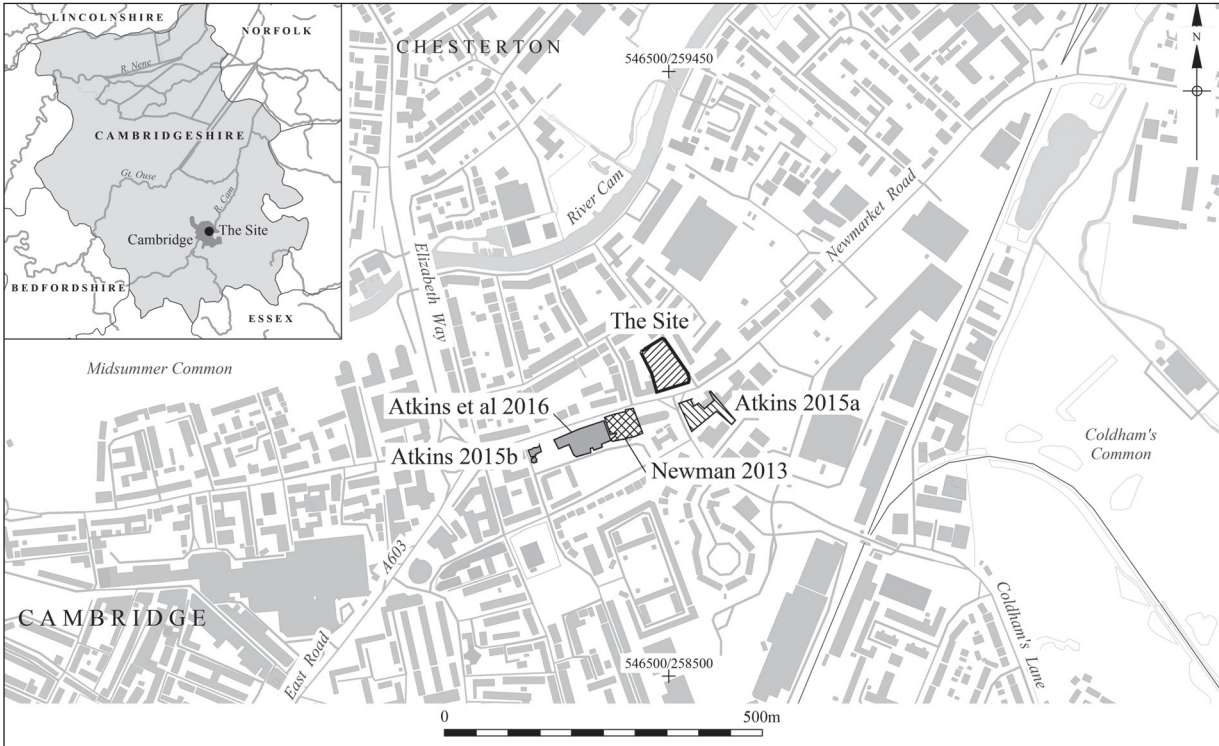


Figure 1. Site location and adjacent excavations.

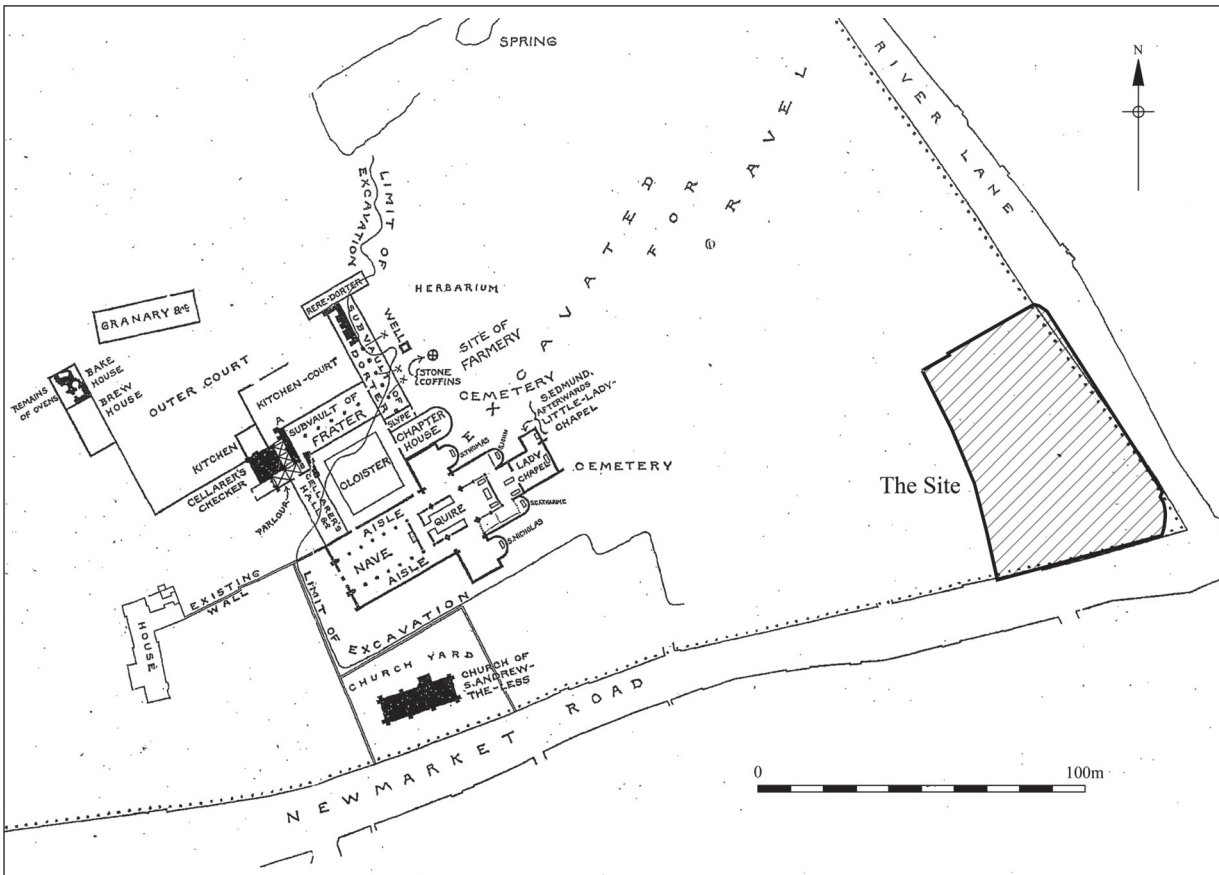


Figure 2. Site location in relation to Barnwell Priory. (From Clark, J W 1892, Cambridge Antiquarian Society Proceedings and Communications Pl. XLI.)

fields surrounding the medieval city (Hesse 2007).

The development site lies within the grounds of Barnwell Priory (Fig. 2), one of the earliest foundations of the Augustinian Order in England, which was established in 1092 with the construction of the church of St Giles on a site by Cambridge Castle. In 1112, after the House of St Giles had become 'desolate and reduced to nothing', insufficient for the needs of the resident canons and lacking a source of spring or fresh water, the canons moved to a newly donated site outside the city gates. This was located on green land by a well (the 'Bairns' Well') and soon a new church of St Giles and St Andrew as well as dormitories and other domestic buildings of the priory were built (Salzman 1948).

The small suburb of Barnwell grew up in the vicinity of the priory, numbering around 95 houses in 1279 (Roach 1959). Archaeological evidence from the Eastern Gate Hotel site shows how five burgage plots were established south of Newmarket Road in c. 1200, the alignment of the plots following the distinctive curve of the preceding agricultural strip fields (Newman 2013). At the Harvest Way site to the east further plots were laid out along the street frontage with evidence for large numbers of pits, deep wells, ovens and clay-lined tanks (Atkins *et al.* 2016). A rich ceramic evidence from both sites shows the relative affluence of the settlement. This went into decline in the 15th century and was further reduced after the dissolution of the priory in 1538. The settlement at Harvest Way continued throughout the 17th and 18th century with evidence for a high-status building, including a deep cess pit, lined with stones taken from the Priory (Atkins *et al.* 2016).

Post-medieval gravel extraction has been recorded either side of the river at Chesterton and along Newmarket Road, and gravel pits are marked on the early Ordnance Survey maps of the area.

During the 19th century Cambridge began to expand on a significant scale, with industrial and residential development occurring along Newmarket Road. This included several breweries and public houses and the Cambridge gas works, adjacent to the development site in the north-east. The Abbey School was established on the rear of the site between 1878 and 1884. West's Garage was first using premises on Newmarket Road in the early 1950s. It closed in 2016 and was demolished prior to the current development.

Results of the Excavations

Anglo-Saxon to medieval

No archaeological finds or features pre-dating the post-medieval period were revealed at West's Garage. The exceptions are a small assemblage of 15 struck flints, 12 sherds of early to middle Saxon and 9 sherds of medieval pottery, all residual, and a possible medieval clunch-lined well [867] capped with bricks. The

clunch blocks were shaped specifically to form the well-lining, rather than being re-used from earlier structures. No dating material was retrieved from the well, and it is likely that this is also post-medieval in date.

17th–18th century quarrying

The earliest surviving features relate to quarrying activity which was seen throughout the site, although it differed in scale and method (Fig. 3). In some areas the pits were small, dense and intercutting, in others they were larger, with sizable gaps between pits and, while a fairly consistent depth, much less regular in shape. Many of the pits were shallow (Fig. 4, Plate 8), suggesting considerable horizontal truncation by later levelling. Pottery from a tight group of pits in the eastern part of the site was consistent in date, although not closely dateable, between 1500–1800AD. Two pits contained one fragment each of 17th century clay tobacco pipe. The pits also contained a small assemblage of residual medieval pottery.

19th–20th century urban development

Following the extensive quarrying activity, there was evidence for partial terracing through removal of soils as well as the build-up of ground with layers of compacted re-deposited natural gravels, to prepare the site for construction.

A large number of 19th century wall foundations survived on the site, the majority of which match well with historic maps of the area, in particular the 1888 OS map (Figs. 5 and 6). Many of the walls were brick built although variation was seen in construction materials which included re-used stone and clunch. Some walls were constructed predominantly with clunch, or clunch with some intermittent brickwork. Foundation (607) in the south-western corner of the site included a large proportion of re-used stone, some of which originally came from Barnwell Priory (discussed below). Stratigraphic analysis showed all types of walls to be largely contemporary.

Eighteen brick-lined wells, plus the possibly earlier clunch-lined well, were identified within the excavation area, generally located in the southern part of the site close to the backs of the buildings. A single pit [1302] was identified as a cess pit or latrine, and appeared to have been maintained until it was finally used for refuse. A relatively large number of finds was recovered from the pit, including a small assemblage of College Plate.

Modern drainage systems survived between 19th century structural remains. Most of the surviving elements relating to the former Wests Garage, including fuel tanks, were removed under archaeological supervision during machine stripping of the site.



Figure 3. Post-medieval quarry pitting.



Figure 4. Excavations in progress at the West's Garage site. The Travelodge/Harvest Way site (Atkins et al. 2016) is in the background. See also Plate 8.



Figure 5. Site location and archaeological features on Baker's map of 1830.

The medieval and early post medieval worked stone
Kevin Hayward

A petrological and stylistic overview was undertaken of the total of 110 examples of reused architectural and funerary stone and the findings compared with the results of the worked stone analysis at Harvest Way (Samuels 2016). Most of the examples of worked stone had been re-incorporated as foundation materials into the post-1830 residential and commercial buildings on the site, with the majority of fragments coming from foundation (607), and had clearly once belonged to earlier structures in the area.

The medieval stone

The four stone types identified as belonging to medieval architectural fragments from Barnwell Priory are described in Table 1. All of these stone types are freestones, a term used of sandstone or limestone with a soft open porous texture enabling it to be worked or carved in any direction (Sutherland 2003). Freestones are common to priories and cathedrals throughout Eastern England such as Ely (Purcell 1996) Ramsey and Peterborough and come from either the Middle

Jurassic ridge of Northamptonshire, Cambridgeshire and Rutland or the Lower Chalk Burwell stone, immediately to the south of Cambridge.

The first group of medieval stone mouldings comprised window tracery. Most of the 12 examples of window tracery moulding consist of mullion (vertical elements). There is also one bifurcating element WSN17 (Table 1). Most have a form that is characteristic of medieval gothic 13th–14th century (Fig. 7 WSN 17, 99 and 101)

A second major group of medieval mouldings consisted of well-preserved medieval capital and column bases. The capitals are carved out of the lower density Ketton stone with the more structurally robust Barnack stone serving as octagonal and twelve sided column bases, forms common in Romanesque architecture. (Fig. 7 WSN 109, Fig. 8 WSN 2, 16 and 18).

Nearly all of the medieval stone, which was re-worked into the 19th century structures at West's Garage, was repointed in the same white cream brown mortar with yellow Gault and red brick inclusions, associated with the numerous post-medieval white Gault brick foundations. Evidence of a relict hard white mortar with chalk and occasional shell

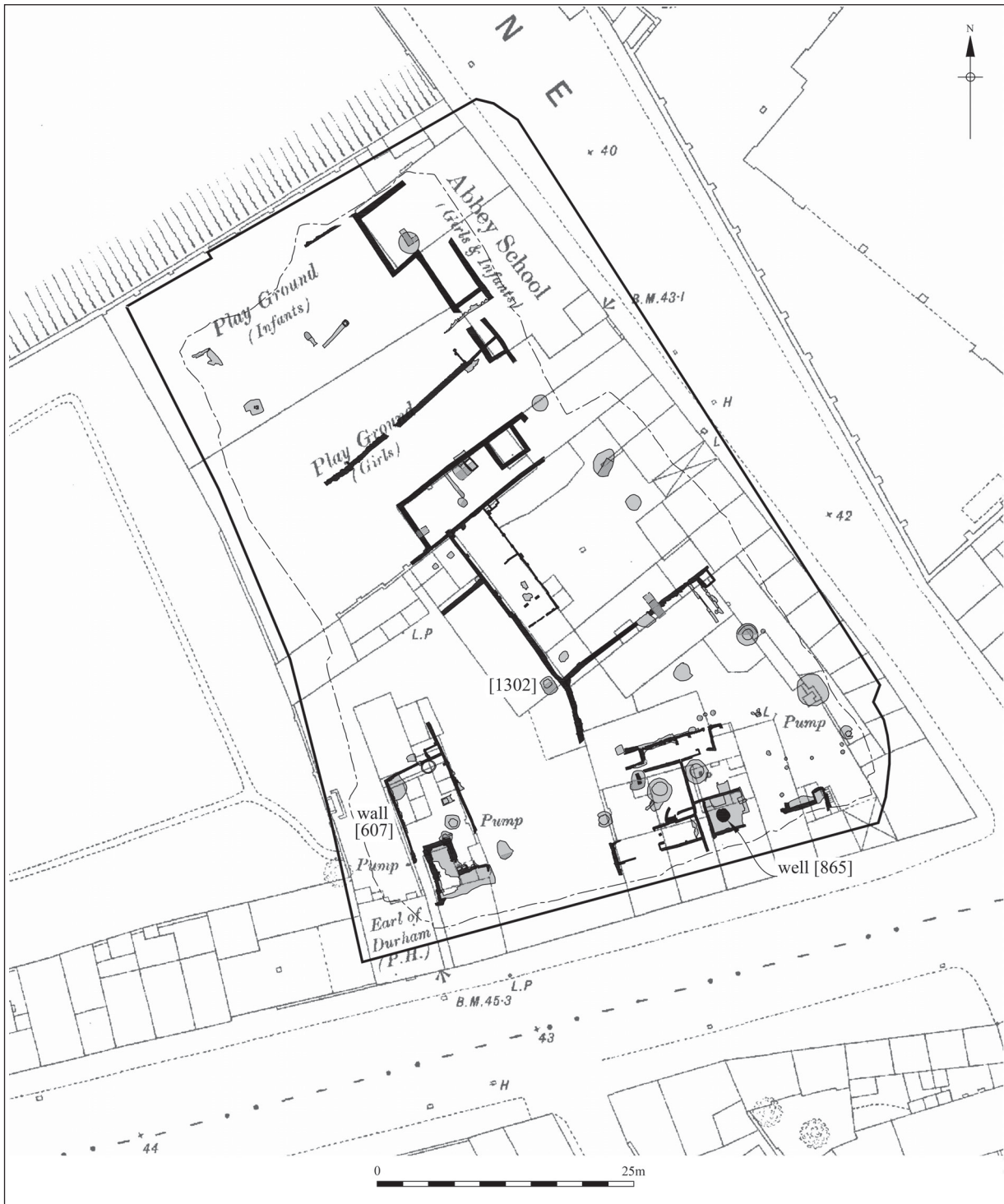


Figure 6. Site location and archaeological features on the Ordnance Survey Town Plan, 1888.

inclusions on the same stone points to its earlier, possible original use, in the priory.

The post medieval stone

The largest and best preserved examples of worked stone consist of 30 crisply executed trapezoidal elements up to 35kg in weight, all in grey Ketton stone. That these freshly carved elements interconnect with one another forming a least one large monumental shaped block is shown by the numerous narrow rectangular slots still with lead strips in place (Fig. 9 WSN 6 and 10). This could be an early post medieval monumental tomb, given that large quantities (89 elements) of Ketton stone were identified from a probable late 17th century balustrade tomb and inscription at Harvest Way. This came from the nearby graveyard of St Andrew the Less, 90 metres to the west (Samuels 2016, 115–116).

Small, freshly carved ashlar blocks made out of local clunch form the basic building block foundations for most of the light commercial buildings constructed between 1811 and 1830, as shown by their presence on Baker's map of 1830. These freshly quarried ashlar blocks, quoins and curved well lining elements form part of the widespread 19th century extraction of this stone, centred on Carter's Pit, Burwell (Worssam and Taylor 1969, 130–131). The examples present from this site probably belong to the "bond" stone unit, just 3 feet thick, which, if properly dried, became very hard and made a good building stone (Penning and Jukes-Browne 1881, 46). The blocks were shaped with a tool somewhat like a two-edged battle-axe, and allowed to get thoroughly dry before being used for building (Worssam and Taylor 1969, 130). Burwell stone was

however quarried extensively in the medieval period too, and it is likely that some of the elements may have been used in Barnwell Priory.

Conclusion

Compared with the adjacent site at Harvest Way (Samuels 2016), the quantities of architectural stone and ashlar at West's Garage are considerably less. This was to be expected given that the footprint of the abbey lies much closer to Harvest Way. This much smaller assemblage of moulded stone also limits the potential for their decoration and form to be sub-divided on an art-historical basis into the discrete building campaigns. Petrologically, however, the same suite of Middle Jurassic rock types are represented at Harvest Way (Barnack, Ketton and LL (Lincolnshire Limestone, presumably equating to Blisworth Limestone of West's Garage) suggesting that both assemblages come from the demolition and recycling of the quarried material of Barnwell Priory.

However, West's Garage lacks the "sandstone" identified in an early sarcophagus at Harvest Way. Medieval clunch moulding is also poorly represented at West's Garage, with just one unstratified window mould, as opposed to numerous examples of lancet windows from Harvest Way (Samuels 2016, 108). It is possible that the recycling of this much softer stone as foundation material for extensive 19th century residential and commercial development would have been seen as unwise. Structurally sound and flat shaped ashlar blocks made from Barnack stone from the Priory, on the other hand would provide a firmer, more robust base.

It is possible that the large quantity of trapezoidal

Table 1. Barnwell Priory: Stone types, geological source and frequency.

Stone Type and geological source	Description	Frequency and use WSN is worked stone number
Blisworth Limestone, Middle Jurassic (Bathonian). Banks of the River Ouse e.g. Stanwick, Northamptonshire	Calf-brown open textured shelly oolitic limestone with oyster plucked ooids	Eleven examples: [702] Large ashlar blocks one with lead attached WSN58, window tracery keystone block for arch WSN96. [738] WSN17 bifurcating window tracery element probably late gothic. [1578] WSN100 part of a column shaft
Barnack stone Middle Jurassic (Bajocian). Barnack NW Cambridgeshire	Very hard, sparry, light cream brown shelly oolitic limestone, with nerineid or spired gastropods	Twenty one examples Norman–Early English architectural elements: [702] Window Tracery WSN3; WSN15; WSN59; Octagonal column base WSN16; Twelve sided column base WSN18; Ashlar. [1578] Window Tracery WSN101 [+] Window Tracery WSN23; WSN71; WSN86; WSN97
Burwell stone Clunch (Lower Chalk) Upper Cretaceous, Cambridgeshire (e.g. Burwell)	Low density green glauconitic chalk (limestone)	[+] One window tracery fragment with slot WSN 91
Ketton stone, Middle Jurassic (Bajocian). Lincolnshire Limestone Rutland and Stamford area (different local names Edithweston stone, Ketton stone, Casterton stone)	Low density orange (oxidised) and grey (reduced) very open textured limestone prominent round ooids sometimes larger pelloids	Three examples WSN2: [607] Engaged capital [702] capital WSN109 [702] Window Tracery WSN24

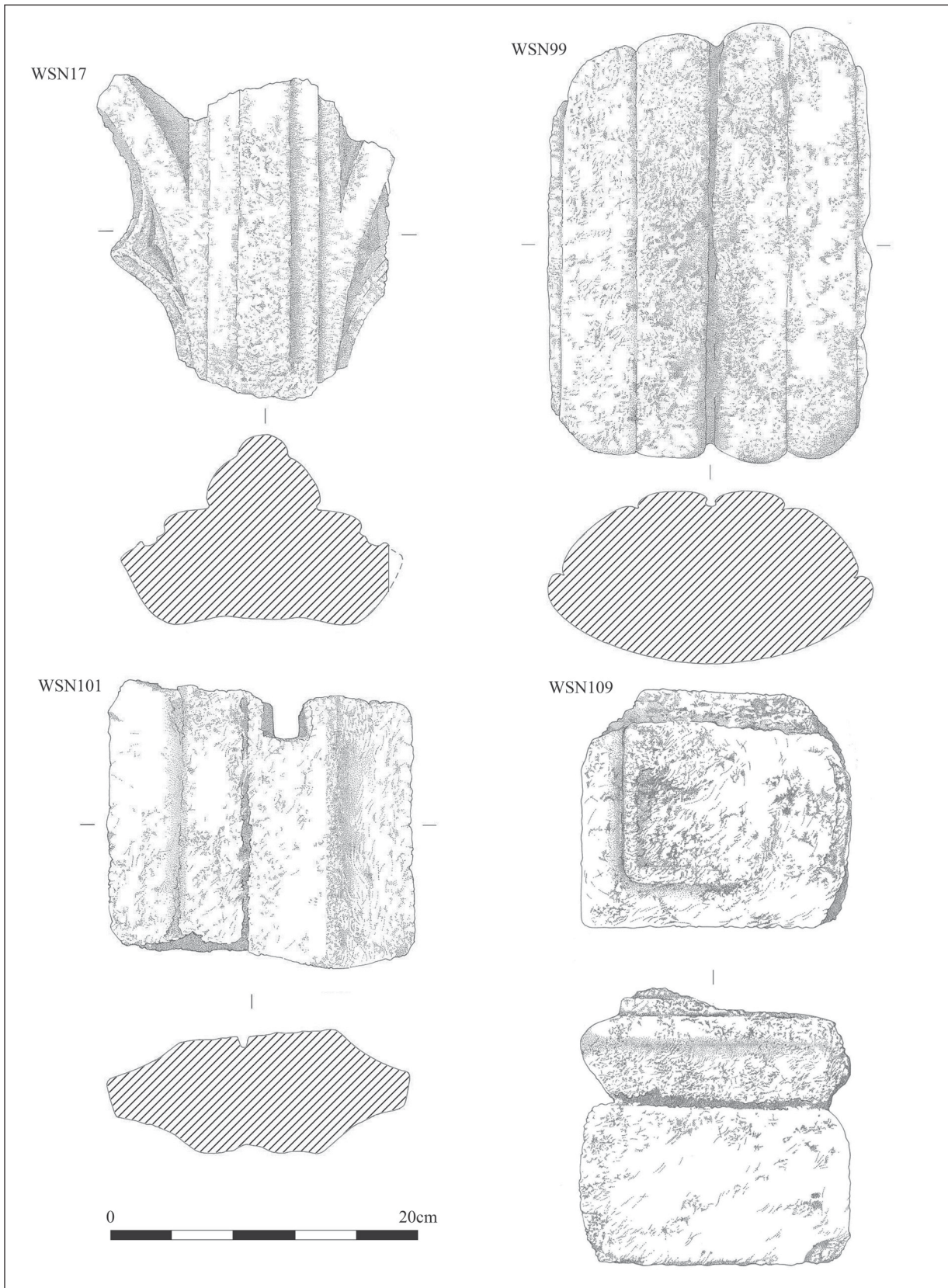


Figure 7.

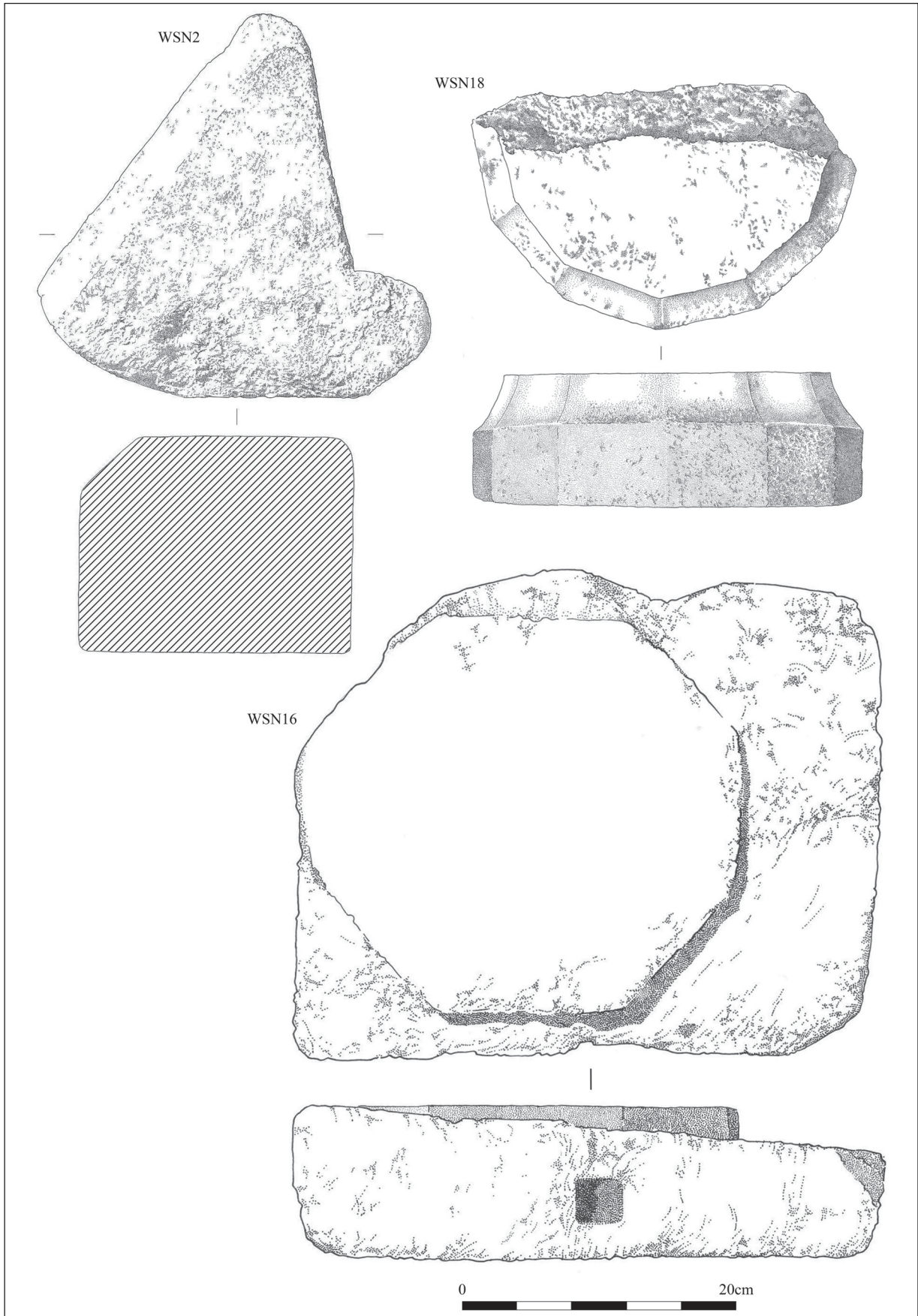


Figure 8.

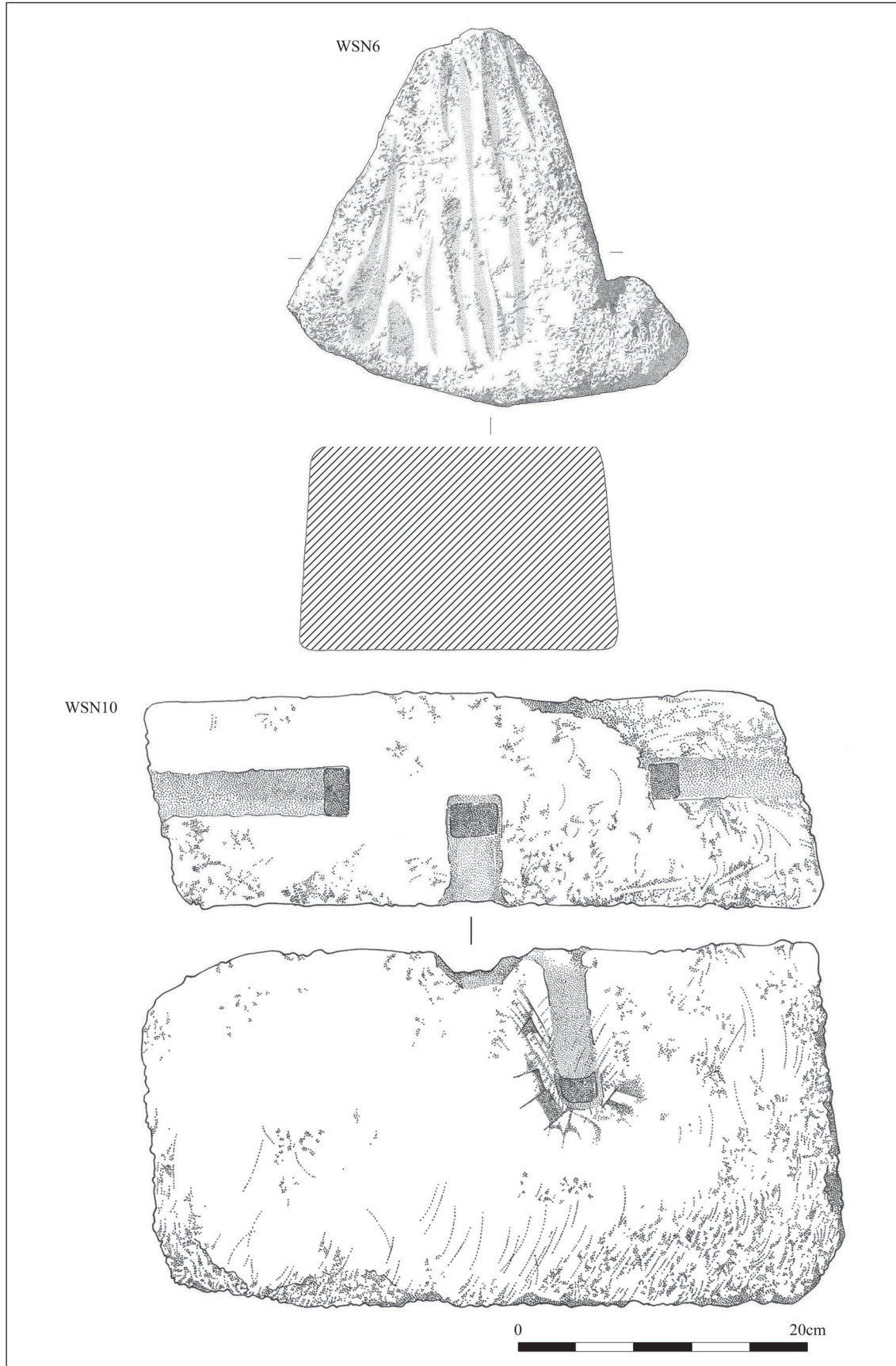


Figure 9.

fresh cut Ketton blocks with numerous interconnecting rectangular dowel holes (30 in total) derived from the same or a similar early post medieval funerary monument structure built entirely out of Ketton stone and identified in 89 blocks at Harvest Way (Samuels 2016, 119). If so, this may have come from the post medieval graveyard of St Andrew-the-Less.

Clay tobacco pipes and production waste

Chris Jarrett

A total of 751 fragments of clay tobacco pipes (of which four are unstratified) were recovered from the archaeological work. A summary of the assemblage is given here, while a detailed report (Jarrett 2019) forms part of the archive, and the wasters will be discussed in a separate publication (Jarrett in prep).

The majority of the assemblage dates to the 19th century and was mostly found in two features, pits [555] and [1439]. The pits also contained wasters and kiln furniture fragments and a fired pipeclay deposit that was once part of the muffle chamber of a clay tobacco pipe kiln. The features were recorded as pits but rather represented 'hollows' or scrapes in the ground, consolidated with imported waste material. The majority of clay tobacco pipes were therefore not used and discarded on site, but were imported as waste within make-up deposits for construction activity on site.

The fragments and the finds consist of 120 bowls, 610 stems and 21 mouth parts (nibs). The bowl types have a date range of c. 1660–1910 and the shapes were classified according to Oswald's (1975) general typology, using the prefix OS. Other variant bowl types are according to Higgins (2004). An imported Dutch pipe was coded according to Atkinson and Oswald's (1972) system (prefixed AT). Twenty-two fragmentary bowls could not be assigned to a diagnostic shape. The pipes were recorded according to Higgins's (2017) guidelines. Of significance are the occurrence of one, possibly two, groups of pipe wasters and a small quantity of associated production waste (61 fragments in total).

One of the earliest bowls in the assemblage is badly damaged and survives mostly as a heel stamp consisting of a circular spoke type in relief (Fig. 10 CTP.1) (layer [1277]). Two c. 1660–80 dated are found as OS6 heeled, robust East Anglian shapes (Fill [1187], Quarry Pit [1184] and Fill [1626], Quarry Pit [1627]). A notable stem, dated to the mid to late 17th-century, has an incuse F stamp (Fig. 10 CTP. 2: layer [1572]). Two heeled 1680–1710 dated OS8 bowls were found in layer [619]. Eighteenth-century bowls are absent, except for an unstratified, heeled OS12 shape, dated 1730–1780.

The earliest group (Fill [556], Pit [555]) produced a total of 413 fragments, of which 43 individual bowls were recorded and as two types: nine were too damaged to be assigned to a shape. Most of the bowls have marks on the heels or spurs but are otherwise plain. A tall variant of the square heeled OS13 bowl, dated c. 1770–1830 (Higgins 2004, 241) is recorded as 22 examples with two different marks on the sides of the

heels. The first mark comprises flower-type symbols (seven bowls) (Fig. 10 CTP. 3) and the second mark consists of the initials 'WB' (fifteen bowls) (Fig. 10 CTP. 4). The second bowl type is the OS24 shape, although it is a variant and resembles tall mid–late 18th-century shapes, except for having a deep vertical spur: two are unmarked and the others have star-type symbols (Fig. 10 CTP. 5). The interior bases of some of the OS13 and OS24 bowls have marks (a cross and/or a thin sheet of clay) made by the plunger forming the socket. Amongst the 354 stems nine examples have an incuse stamp bearing the name and address of 'BALLS/CAMBS.' within a cartouche (Fig. 10 CTP.6). These were mainly impressed perpendicular to the stem length. These stamped stems probably belong to the OS13 and OS24 bowls but did not conjoin. The group of pipes also produced nine nibs and seven fragments of thin laminar sheets (TLS: a temporary kiln roof covering formed of laid stems in a 'dirt' matrix and altered to a slag-like consistency by exposure to intense heat). The pipes from Pit [555] appear to be the products of **William Balls**, working at George Street (Sun Street), Cambridge, c. 1813–36 (Flood 1976, 39; Cessford 2001, 12). All of them could have been production waste, perhaps the bowls failed quality control: only one of the bowls has a firing fault (encrusting).

The second group of clay tobacco pipes was recovered from Fill [1441], Pit [1439] and consists of 193 fragments: 44 bowls (represented by four types), 114 stems and six nibs. The spurred OS24 shape, dated c. 1810–50 occurs as 20 examples, of which twelve are plain (made in three moulds), except for the initials T C on the spur. Seven bowls additionally have on the back a circular incuse stamp containing the name 'T. CLEEVER CAMBRIDGE' around a circular flower found (Fig. 10 CTP. 7). The decorated T C marked OS24 bowls occur as single examples with either acorn and oak leaf borders or with an elaborate fluted design (Fig. 10 CTP. 8), (also found as an unmarked example in layer [791]). A single short version of the OS24 shape, dated c. 1840–1880 (Higgins 2004, 242) shows evidence of leaf borders below a slag-type deposit. The angled rim, heeled OS15 bowl, dated 1840–80, occurs as fourteen bowls and all bar one was initialled T C on the heel. Five of the bowls (made in three different moulds) are plain (Fig. 10 CTP. 9–10), and the rest have leaf borders: three with the acorn and oak leaf type (Fig. 10 CTP. 11), two with a wheatear type (Fig. 11 CTP. 12) and one bowl with simpler leaves (Fig. 11 CTP. 13). The final bowl type is the OS28 shape (without a heel or spur) and dates from c. 1840. This shape occurs as four examples with a single design featuring scrolls, fluting and scalloping (Fig. 11 CTP. 14).

Many of the bowls from pit [1439] have firing faults, minimally with exploded or blow-out surfaces, while zoned discolouration or encrustations were more common. Bowls with these faults could also occur with a muffle deposit, as did many of the stems, indicating this material had been incorporated into the construction of a muffle kiln chamber. The latter was represented by two fragments. A fire brick

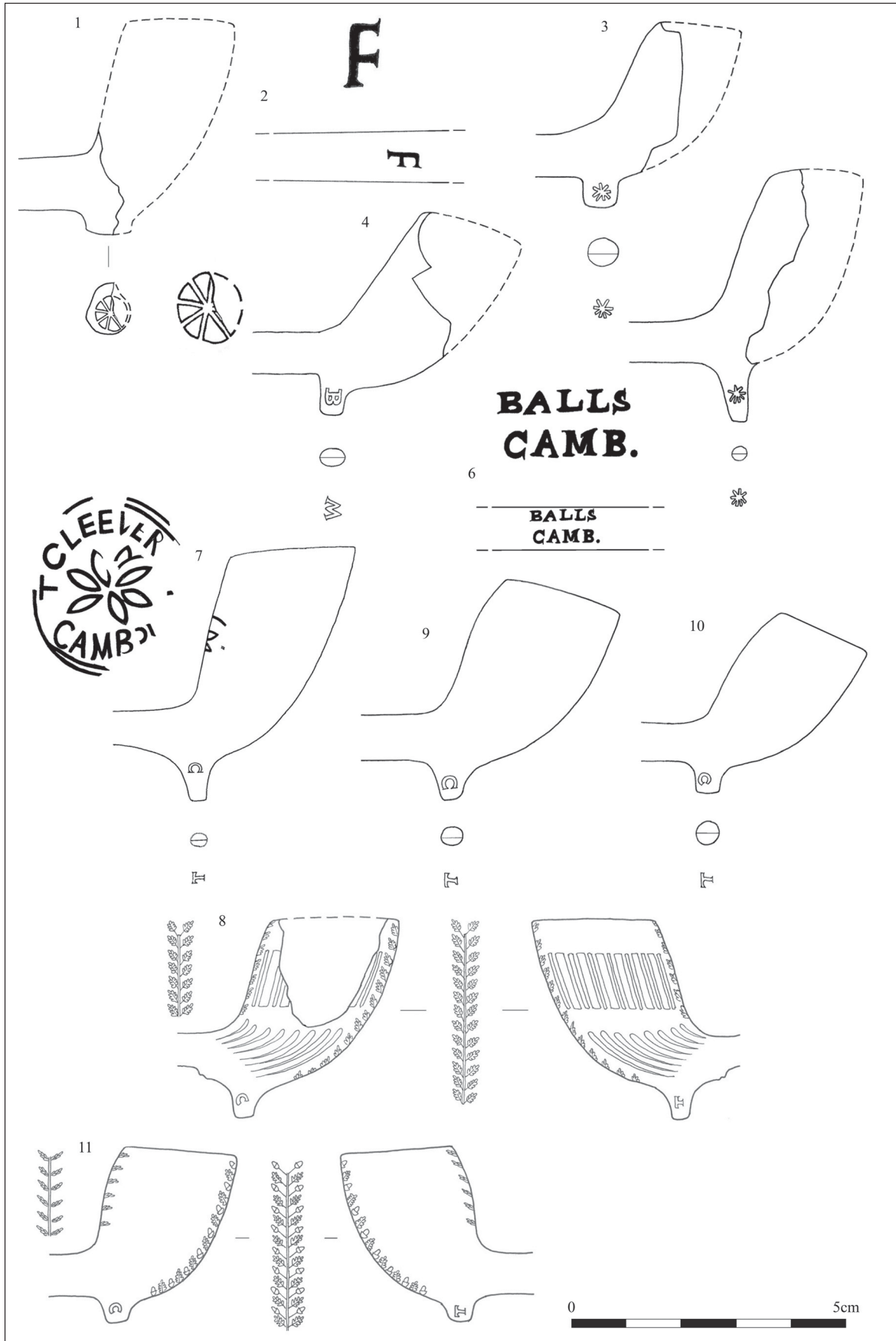


Figure 10.

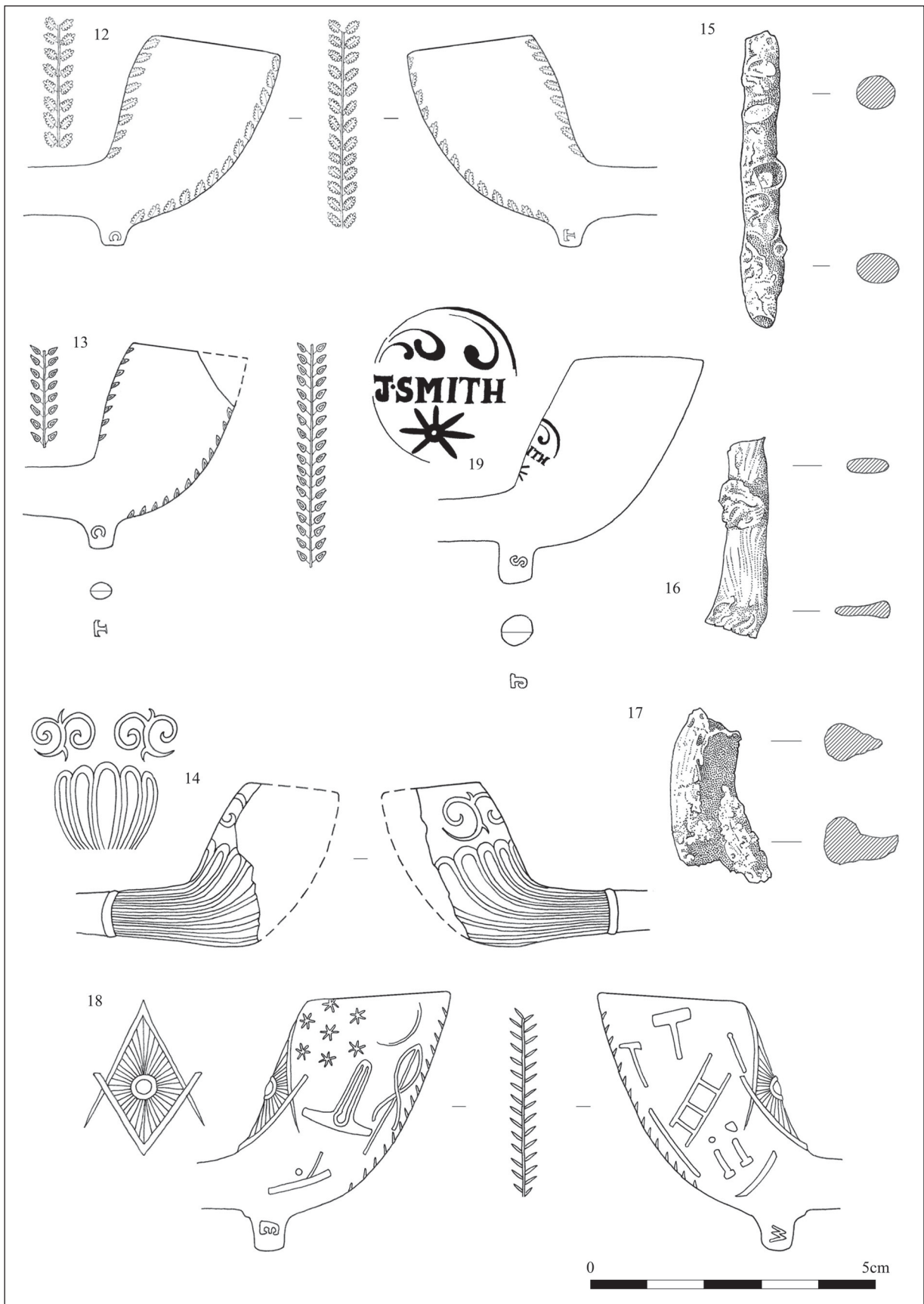


Figure 11.

covered in a slag-like concretion came from the inner structure of the outer kiln wall and eleven fragments of TLS, which unusually has additional strips of fired pipeclay laid perpendicularly upon the pipe stems. Additionally, there are nine fragments of slag-type material (?over-fired clay or fuel). The kiln furniture consists of single fragments of a roll (Fig. 11 CTP. 15), a strap (Fig. CTP. 11 CTP. 16), and two fragments of trimmings (Fig. 11 CTP. 17): these may have acted as spacers between the pipes (Peacey 1996).

The pipes and related finds recovered from pit [1439] can be associated with the local pipe maker Thomas Cleaver/Cleever. His working period in Cambridge was not from *c.* 1839 (Oswald 1975, 161), but actually from *c.* 1845, from the evidence of his children's baptism and the town's electoral rolls (Cambridgeshire Archives; Cambridge, England; Cambridgeshire Electoral Registers; Reference: PB/TC/1845, p. 11; England & Wales, Civil Registration Birth Index, 1837–1915, Cambridgeshire, vol. 14, 1). Cleaver continued working until his suicide in December 1858 (Cambridge Chronicle and University Journal, Saturday December 11th, 1858, No. 5012, page 4, column 6). His wife, Anne, continued to run the business until 1864 (Flood 1976; Cessford 2001) and a stem marked with her name 'A. CLEAV[ER]' and '[CAM]BRIDGE' was found, possibly in (1187).

Other 19th-century bowls of note occur as OS13 types, one with a masonic design and initialled **W E** on the heel (Fig. 11 CTP. 18), (Fill [1271], Well [1272]) and another with an incuse stamp on the back of the bowl with the name **J SMITH** and scrolls and a star (Fig. 11 CTP. 19). This may relate to James Smith, Meeting House Lane, Peckham, London, working *c.* 1803–33/39 (P. Hammond pers. comm.). Four OS24 examples, one of which is initialled **T C**, occurred in Fill [123], Pit [116]. Finally, the angled Dutch bowl is an AT29 type, dated *c.* 1725–1850 and occurs in a 19th-century dated deposit (layer (791)). The latter is missing the heel and the marks that would have perhaps indicated its precise place of manufacture.

Conclusions

The assemblage is important for containing two groups of clay pipes that give snapshots of the output of two prominent 19th-century Cambridge clay tobacco pipe makers, William Balls, *c.* 1813–36 and Thomas Cleaver, *c.* 1845–58, both of whom were working in the Barnwell area. The occurrence of a small number of non-local clay pipes, e.g. the Dutch bowl and the Smith stamped bowl (Fig. 11 CTP. 19), may relate to their owners travelling to Cambridge for academic, business or other reasons.

Discussion

It is a crucial aspect of the site that only one feature, well [865], is considered to be of possible medieval date, despite the close proximity of Barnwell Priory and the medieval settlement identified to the south of Newmarket Road (Newman 2013 and Atkins *et al.*

2016). The lack of medieval and late medieval settlement and associated features is not considered to be from truncation or the impact of later features as the adjacent sites were affected by similar processes and in parts had greater levels of modern disturbance, but earlier remains still survived. In addition sufficient areas of surviving gravels remained between the quarrying to be confident that at least partial remains of earlier features would have been observed.

The recovery of residual Early Saxon pottery, however, is noteworthy. The small number of sherds is not indicative of settlement *per se*, but the condition of the pottery and recovery of more than one sherd from the same vessel would suggest the material is unlikely to have moved far (Robinson 2017). This could be a further indication for the existence of a Saxon settlement in the vicinity of Barnwell.

The lack of medieval features is a genuine absence. The postulated reason for this absence is that the ground was not accessible to the inhabitants of Barnwell village as it lay within the grounds of the priory. The archaeological record suggests the land remained unused or inaccessible long after the Reformation, as the first quarrying activity did not take place until the 17th or 18th century. This may be due to the land being retained as farm land, however it may be a further indication of the decline of the local area after the dissolution of the priory and the diminishing of the importance of Stourbridge Fair. These local factors, alongside broader national themes such as late medieval suburban decline, have been recognised and discussed in the adjacent Eastern Gate Hotel site report (Newman 2013).

Evidence for the priory itself was seen in the form of the re-used architectural and worked stone, which would have been robbed from the priory remains. It is entirely likely that some of the stones may have been used multiple times, with some stones carrying more than one type of mortar on the surfaces.

The northern end of the site was heavily quarried, with small scale quarrying occurring across the remainder of the site. Quarry activity is well documented on historic maps of the area, with both the river terrace gravels and underlying clays being exploited. The 1813 pre-enclosure map (Fig. 12) and Baker's 1830 map of Cambridge (Fig. 5) illustrate the rapid development of housing along George Street, later renamed Newmarket Road. During this time Barnwell, or the parish of St Andrew the Less, became a suburb of Cambridge, coupled with a significant increase in population over the course of the century (Salzman 1948).

The majority of walls excavated and recorded match with buildings shown on the 1888 OS map (Fig. 6). One wall (1485) clearly matches with a structure only shown on the 1830 Baker's Map (Fig. 5) which is later replaced by the playground for the Abbey School. Once the school is established, the general layout of the buildings appears to be maintained up until the demolition and construction of West's garage in the mid-1950s. The overall layout of the buildings appears rigid, however the excavation showed

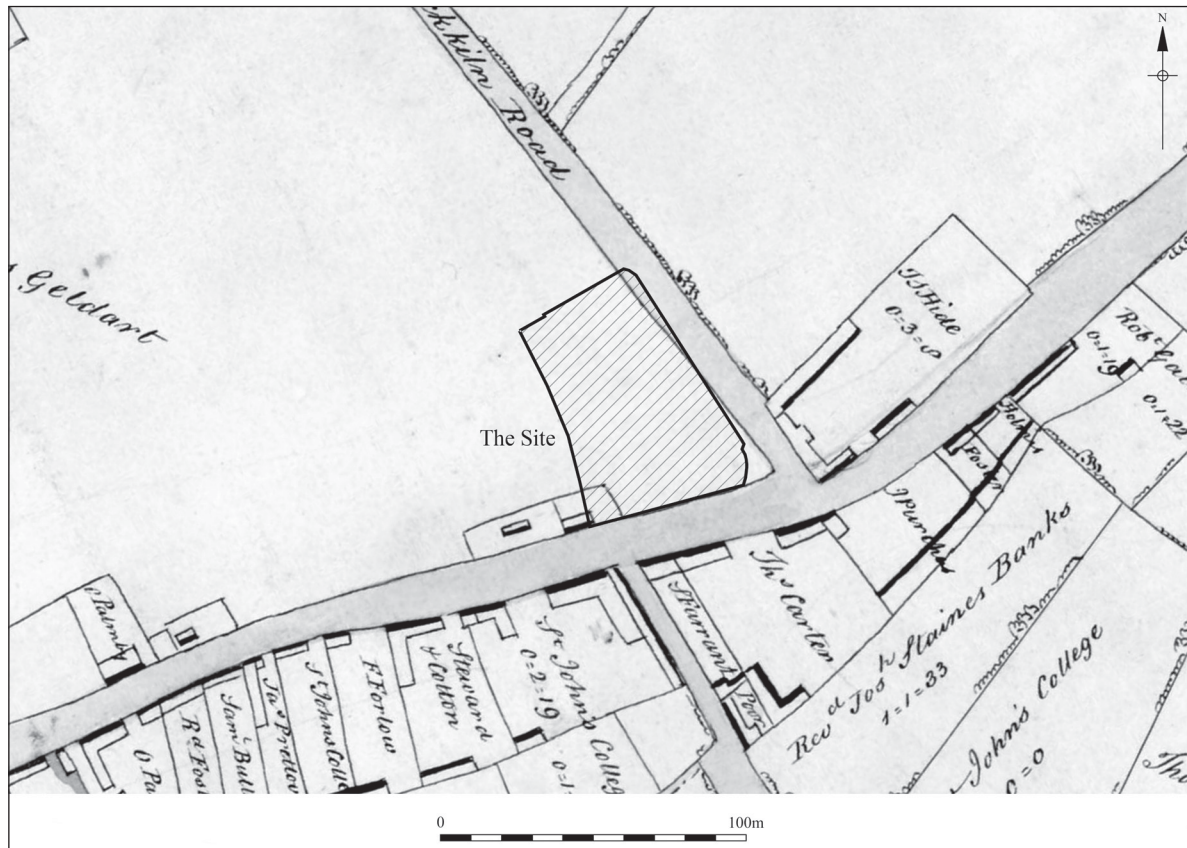


Figure 12. Site location in relation to pre-enclosure map of St Andrew the Less, 1813.

layers of demolition and build-up with re-arrangement of wall positions. This represented a reworking of internal space or changes to the existing buildings, rather than the complete demolition of a building and subsequent new construction.

Looking at trade directories from the 19th century it is possible to identify some of the inhabitants of the excavated buildings. James Wallis, coal and corn merchant, and later brickmaker, is listed first at 'George St. Barnwell' in 1830 and later at 73 Newmarket Road (Kelly's Post Office Directory of 1858) and 175 Newmarket Road (Mathieson's Directory of Cambridge, Ely and Newmarket of 1867). Together with the archaeological and cartographic evidence, the re-numbering of properties also reflects the rapid infilling of building plots along Newmarket Road in the middle of the 19th century. The Abbey School is first listed in Spaldings Directory of 1884 with a Miss Hall as schoolmistress.

A directory 'snapshot' of Newmarket Road in 1887, compiled one year before the second detailed OS map (Fig. 6), lists three public houses, The Brickmakers Arms, The Ship and The Earl of Durham, several labourers, a maltster and a bone merchant and bone yard (Spaldings Directory of 1887). The 1867 directory had previously listed a horse slaughterer, and it is interesting that several deposits of horse bones were found on site, suggesting the dumping of knacker's waste (Reilly 2017).

While the buildings along Newmarket Road are mostly occupied by professional men (and women) engaged in retail and craft trades, the houses along River Lane are more small scale and the homes of labourers, charwomen, engine drivers and the occasional gas worker. Both types of households are reflected in the ceramic assemblage which mainly comprises utilitarian wares, with a small number of table- and decorative wares yielding simple decorative styles, suggesting a lower middle class consumption.

West's Garage is first listed with a workshop at 217 Newmarket Road in Kelly's Directory of 1953 and by 1955 had expanded to 'Sidney A. West. A.M. Inst. B.E., M.I.M.I. propr. Motor engineers & motor cars for hire' with their own telephone number.

Conclusion

The excavations at West's Garage revealed a clear absence of medieval features which demonstrates that this parcel of land was most likely part of the grounds of the medieval priory rather than its extra-mural settlement, which is so evident to the south of Newmarket Road. The area remained open ground even after the dissolution of the monastery, with large scale quarrying of river gravels occurring in the northern and southern parts of the site in the 17th and 18th cen-

tury. The site began to be occupied in the early 19th century with the rapid expansion of Cambridge and re-population and growth of the suburb of Barnwell, now occupying both sides of Newmarket Road. The artefact assemblage supports historical evidence that this part of Barnwell was mainly occupied by small traders, craftsmen and labourers with a lower middle class consumption of goods.

Acknowledgements

Pre-Construct Archaeology Ltd would like to thank Richard von Kalinowski-Meager of RPS Consulting Services Limited, Watkin Jones and Son Ltd. for commissioning the work, and the assistance of Nathan Hendy and his team during the fieldwork. PCA are also grateful to Andy Thomas of Cambridgeshire County Council Historic Environment Team for his advice and for monitoring the work. The project team comprised: Mark Hinman (Project Manager), Johnathan House (Project Officer), Ana Iile, Hanna Jansen, Laura Day, Richard Hilton, Hannah Finn, Laura Malric-Smith, Benjamin Bazely, Sote Angeleski, Carina Mincioni, Ergian Musto, Britny Martlin, Judyte Mlynarska, Ryszard Molenda, Josh Nowlan, Jaime Kohler, Davis Strubergs, Antonio Pavez, Tom Revell, Julie Walker, Stuart Calow, Gary Collyer, Robbie Copey, Clare Jackson, Tom Learmonth and David Curry (Site Assistants). Mark Roughley of PCA's CAD department prepared the figures and the finds were illustrated by Heidi Hauser.

Bibliography

- Atkins, R 2015a, *A Mid/Late Iron Age ditch and medieval to modern settlement at Coldhams Lane, Cambridge*. Full archive report. Oxford Archaeology East Report 1711.
- Atkins R 2015b, *Medieval to modern remains at Newmarket Road, Barnwell, Cambridge*. Post-Excavation Assessment and Updated Project Design. Oxford Archaeology East Report 1669a.
- Atkins, R, Connor, A, and Morgan, S 2016, *Early Iron Age and medieval to modern settlement remains at Harvest Way, Barnwell, Cambridge. Part One: The Site Narrative*. Oxford Archaeology East Report 1806. Unpublished.
- Atkinson D and Oswald A 1972, A Brief Guide for the Identification of Dutch Clay Tobacco Pipes Found in England. *Post-Medieval Archaeology* 6, 175–82.
- British Geological Survey 2019, Online Viewer. [Internet] <<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>> [31 May 2019].
- British Geological Survey 1981, *Sheet 188. (Cambridge) Geological map 1:50,000 scale*. Keyworth, Nottingham, British Geological Survey.
- Cambridge Chronicle and University Journal, Saturday December 11th, 1858, No. 5012.
- Cessford, C 2001, The clay tobacco pipe industry in Cambridgeshire and Huntingdonshire. *Cambridgeshire Local History Society Review* 10, 3–19.
- Flood, R J 1976, *Clay Tobacco Pipes in Cambridgeshire*. Cambridge: Oleander Press.
- England & Wales, Civil Registration Birth Index, 1837–1915, Cambridgeshire, vol. 14.
- Hesse, M 2007, The East Fields of Cambridge. *Proceedings of the Cambridge Antiquarian Society* Vol. XCVI, 143–160.
- Higgins, D 2017, *Guidelines for the Recovery and Processing of Clay Tobacco Pipes from Archaeological Projects*. Unpublished.
- Higgins, D 2004, The clay tobacco pipes. In Keevill, G *The Tower of London Moat; archaeological excavations 1995–9*. Oxford Archaeology/Historic Royal Palaces Monograph 1, 241–57.
- Jarrett, C 2019, *Clay tobacco pipe and production waste (ECB4997)*. Unpublished.
- House, J 2017, *West's Garage Site, Newmarket Road, Cambridge, Cambridgeshire CB5 8HD. An Archaeological Post Excavation Assessment*. Pre-Construct Archaeology Report No: R1304. Unpublished.
- Jarrett, C in prep, Two groups of clay tobacco pipe production waste from West's Garage Cambridge. *Society for Clay Pipe Research Newsletter*.
- Jones, M 2016, *West's Garage Site, Newmarket Road, Cambridge, Cambridgeshire: An Archaeological Evaluation and Watching Brief*. Pre-Construct Archaeology Report No. R12303. Unpublished.
- Newman, R 2013, *The Eastern Gate Hotel Site, Cambridge. An Archaeological Excavation*. Cambridge Archaeological Unit Report No 1176. Unpublished archive report.
- Oswald, A 1975, *Clay pipes for the archaeologist*, British Archaeological Reports British Series 14.
- Peacey, A 1996, *The Archaeology of the Clay tobacco Pipe: XIV The Development of the Clay Tobacco Pipe Kiln in the British Isles*. British Archaeological Reports, British series, No. 246.
- Penning, W H, Jukes-Browne, A J and Etheridge, R 1881, The geology of the neighbourhood of Cambridge. *Memoirs of the Geological Survey of England and Wales*.
- Purcell, D 1966, *The stones of Ely Cathedral*. Friends of Ely Cathedral.
- Reilly, K 2017, The Animal Bone. In House, J 2017, *West's Garage Site, Newmarket Road, Cambridge, Cambridgeshire CB5 8HD. An Archaeological Post Excavation Assessment*. Report No: R13047.
- Roach J P C 1959, The city of Cambridge: Medieval history. In Roach J P C (ed.) *A History of the County of Cambridge and the Isle of Ely: Volume 3, the City and University of Cambridge*. London, 1959), pp. 2–15. [Internet] British History Online <<http://www.british-history.ac.uk/vch/cambs/vol3/pp2-15>> [20 May 2019].
- Robinson, L 2017, Post Medieval Pottery. In House, J. 2017 *West's Garage Site, Newmarket Road, Cambridge, Cambridgeshire CB5 8HD. An Archaeological Post Excavation Assessment*. Report no: R13047. Unpublished.
- Salzman, L F 1948, Houses of Augustinian canons: Priory of Barnwell. In Salzman, L F (ed.) *A History of the County of Cambridge and the Isle of Ely: Volume 2*. London, 1948, pp. 234–249. [Internet] British History Online <<http://www.british-history.ac.uk/vch/cambs/vol2/pp234-249>> [20 May 2019].
- Samuels, M 2016, Architectural fragments. In Atkins, R et al. 2016, *Early Iron Age and medieval to modern settlement remains at Harvest Way, Barnwell, Cambridge, Part 2 Excavation Report*. Unpublished. Oxford Archaeology East Excavation Report No. 1806, 98–119.
- Sutherland, D 2003, *Northamptonshire stone*. Dovecote Press.
- Worssam, B C and Taylor, J H 1969, Geology of the country around Cambridge. *Memoir of the Geological Survey of Great Britain*, Sheet 188 (England and Wales).