Excavation of two Romano-British Pottery Kilns and Associated Structures, Fisher Street, Carlisle

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ISHER Street lies at the heart of historic Carlisle, within the large Roman civilian settlement attached to the fort (Figure 1). Over the last 50 years many excavations have taken place, allowing a detailed picture of Roman Carlisle to emerge; much of this evidence has recently been synthesised by McCarthy (2002). The Roman fort was established in A.D. 72–3 and continued in use until c.A.D. 320–30. An annexe was added to the fort, encompassing the excavation area at Castle Street (McCarthy, 1991), and it is possible that Fisher Street lies within the annexe, or just to the east of it.

A desk-based assessment and an evaluation of the development area was carried out by The Archaeological Practice, University of Newcastle (AP, 2001, 2002). Subsequently, an archaeological excavation was undertaken in advance of development at 7a Fisher Street (NGR: NY 3993 5612; Fig. 1) by CFA Archaeology Ltd in June and July 2002. The excavation uncovered significant Roman features including a series of foundations, a well, two kilns, gullies and pits. The work was funded by Peregrine Properties (Northern) Ltd.

A trench measuring 11m by 18m, with a total area of $c.200\text{m}^2$, was excavated (Fig. 2), incorporating one of the evaluation trenches excavated by The Archaeological Practice, University of Newcastle (2002). The site was aligned parallel to Fisher Street and positioned immediately behind the street frontage, across the surviving foundations of the United Reform Church (built in 1894) and the demolished manse. The site was excavated in four separate blocks due to the presence of these modern foundations and services; areas which were preserved *in situ* are marked on Fig. 2 and included deposits around the well and the two kilns.

A report on the kilns and related finds has been submitted for publication in the *Journal of Roman Pottery Studies*, and a full excavation report including specialist analyses is archived with Cumbria SMR. The following report presents a summary of the findings.

Archaeological results

Phase 1: Primary features

Phase 1 consisted of an area of cobbles (016) covering much of the northern half of the site, and possibly forming a yard surface (Fig. 2). The cobbles were delimited to the south by a gully/ditch (077) and were cut by two post-holes (083, 090). To the south of the gully, evidence for a possible structure in the form of a trench (031) and

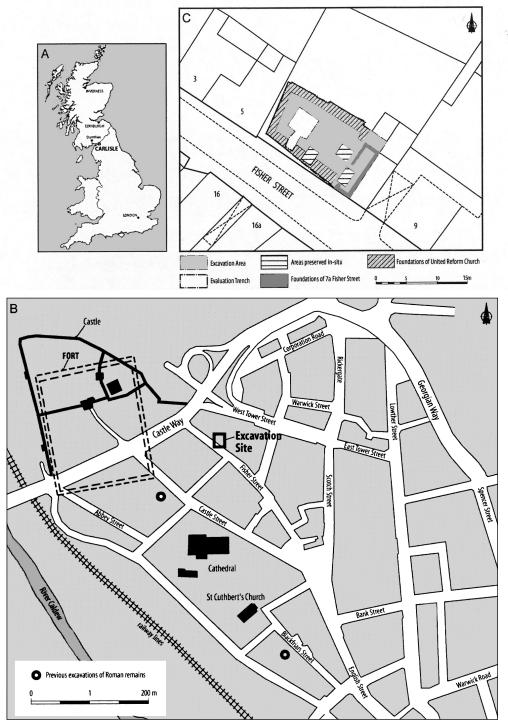


Fig. 1. Location map.

post-holes (079, 080, 118, 145–6) was also assigned to Phase 1, although it is possible that it post-dated gully/ditch 077 and continued into (or belonged to) Phase 2. South of this, a large, deep pit (102) cut a layer of silt which appeared to be contemporary with the cobbles. Finds of pottery, mortaria and kiln waste from the gullies suggest that, although constructed in this phase, they continued in use as open features into the next phase, from whence their rubbish infill came.

Phase 2: Kiln 117, c.A.D. 72-117

The earlier of the two kilns (117) cut subsoil and was located midway along the southern edge of the trench; about two-thirds was revealed in plan. The deposits overlying subsoil were heavily truncated in this area. The kiln consisted of a barrel-shaped, clay-lined bowl (1.15-1.25m diameter, 1.2m deep) which contained banded fills of clay in the upper half. Below these was a suspended oven floor of fired clay which had several small vents around its edge and across the centre, many of which had been partially covered by large, flattish pot sherds. The floor varied in thickness (0.05m to 0.12m) and had been constructed by pressing clay onto a framework of timber. The floor was supported above the combustion-chamber by a single central pillar (0.4m high), built of clay and partially fired. Below the floor was a loose layer of fallen oven floor fragments overlying a waterlogged deposit of charcoal and burnt timber that comprised mainly hazel and oak. Many fragments of pottery and two almost complete vessels were found in the combustion-chamber. It is likely that pit 092 (Figs. 2-3) formed the stokehole, comparable with the layout of the later Kiln 113.

A number of other features also belong in this phase and are probably related to the potting activities on the site. They comprise a sequence of deposits to the southwest of Kiln 117 and on the east side of the site, many of which were cut by the construction of Kiln 113 in Phase 3. These may have been produced during the operation or demolition of Kiln 117. It is also possible, depending on the level at which the construction cut for Kiln 113 was started, that some of the upper layers here were contemporary with Kiln 113. These contexts produced very few finds except pottery and fired clay. One mixed gritty layer is the exception, as it contained a deposit of cattle skulls, an iron ring fragment and fired clay.

Phase 3: Kiln 113 (Figs. 11-13), c.A.D. 117-150

The modern foundations around Kiln 113 were removed to expose the surviving extent of the feature. The roughly built stone walls edged a deep bowl-shaped cut (0.95-1.45m diameter, 0.8m deep) and had been lined with clay and subsequently fired. The wall stones were set within a reddish matrix of heat-affected silt. The upper fill of the kiln consisted of mixed reddish and black friable silts with patches of pale clay. The oven floor was constructed of clay pressed onto an organic (and non-surviving) framework. Small vents formed a ring within the oven floor, and further small vents were noted across the centre of the floor. Many of the vents were covered by large flat pot fragments. The oven floor was situated 0.4m above the base of the kiln and was supported by a single central pillar built of stone and lumps of fired clay. Two deposits lay within the combustion-chamber at the base of the kiln. A grey ashy deposit lay

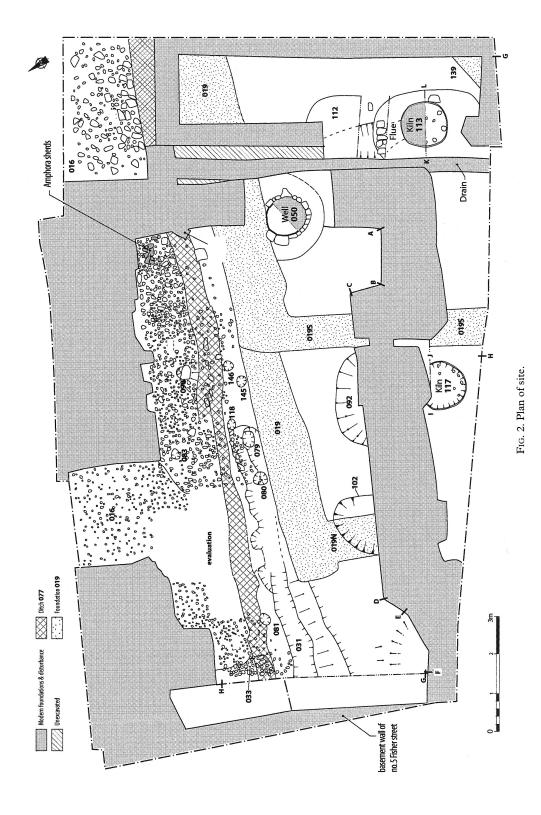
directly on the base and underlay a thick deposit of charred timber, comprising mainly hazel and oak. Two complete pots were recovered from inside this kiln.

The flue lay on the north-western side of the kiln. The flue walls were built of small slab-like stones and the external aperture was covered with corbelled small flat stones tipping downwards towards the kiln bowl. Within the kiln bowl, the internal aperture was lined with fired clay with a curved capping of shaped and fired clay over the aperture, producing a funnel effect into the kiln bowl. Three fills were present within the flue; the lowest was a sticky, waterlogged charcoal-rich deposit containing considerable quantities of pottery, including at least one whole vessel, and was overlain by two layers of silt. The stokepit was not fully excavated.

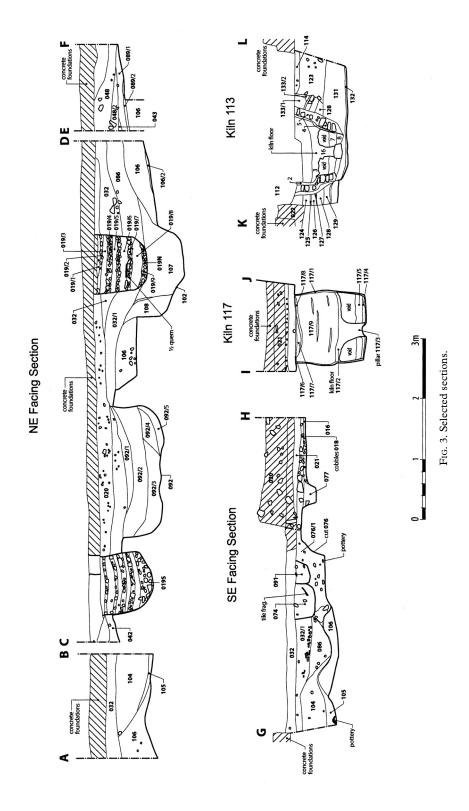
Two deposits around the kiln flue area are particularly noteworthy. The first of these consisted of a dump of broken pottery (112; Fig. 2), including many flagon neck sherds, body sherds and handles. This deposit lay within a charcoal-rich silt matrix and was visible on either side of the flue area. The second was a lump of compacted, and sterile, pale green-white clay (134) that lay above the southern edge of the flue. A general spread of mottled silt (058, 137) showing evidence of burning and containing charcoal was visible across the kiln area prior to identification of the feature. This deposit was cut by Phase 4 foundation 139 (Fig. 2), indicating the kiln to be of an earlier phase than that foundation. Kiln 113 and dump 112 contained coarsewares of the Hadrianic/early Antonine period, and stamped mortaria of Docilis.

A number of other contexts have been attributed to this phase, including soil deposits, possible cobble surfaces, pits and gullies, some of which were cut by the foundation 019 in Phase 3. The remains of a circular stone-built well (050) were located in the east central part of the trench (Figs. 2 and 4) and can be attributed to Phase 3 as it had been cut on its north-eastern side by foundation 019S. The well had an internal diameter of 1m and was built of faced stone set into a sub-circular cut of diameter 2m. It was excavated to a depth of 1m and two fills were identified; coring demonstrated that it was at least 6m deep and its base was not reached. The upper fill contained at least one sherd of medieval pottery and was contaminated with rubble and mortar debris. The lower fill consisted of soft-packed, brown-grey sandy silt. Occasional sherds of calcite-gritted ware were found throughout this fill, dating to the late 3rd or 4th centuries.

This phase is marked by the deposition of context 018 (also numbered 033), present over much of the site and covering parts of the gullies and some postholes (eg 077, 081). This was interpreted during the excavation as a rough cobbled surface. However, as it reached 0.5m deep and contained a large quantity of animal bone and other artefacts, including a lead strip, nails, a bone pin, tiles and mortar, it may be less of a cobbled surface intended for traffic than a levelling or make-up layer or simply the spread of rubbish and midden from other activities on site. An equivalent deposit was recognised to the east of the site but none was recorded in the vicinity of Kilns 113 and 117. A slightly stonier patch overlying this deposit within the south-eastern corner of the central portion of the site may represent the fragmentary remains of a further surface.



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Phase 4: Foundation 019, Late 3rd century A.D.

Foundation 019 represents the final surviving phase of Roman construction on the site, cutting through many of the earlier deposits including the Phase 3 well. It is unlikely that this was the final phase of use of the site prior to the construction of the church, and deposits and features of Roman and later date may now be missing because of modern building.

The structure defined by these foundations was aligned roughly east to west, parallel to (and cutting) earlier linear features on the site, and not in alignment with Fisher Street. Two returns were identified running towards Fisher Street, and the feature could be divided into two L-shaped segments, 019S and 019N, with 019N being stratigraphically the later (Fig. 2). Although the foundation had two phases of construction (019N and 019S), they may in fact be broadly contemporary.

The foundation cuts were U-shaped in profile with near-vertical sides and slightly rounded bases (0.8-1.35m wide, up to 1.2m deep). The fills comprised alternating thin bands of small cobbles/gravels and stone-free silts and clays, of average thickness 0.1m (Fig. 3). Occasional bands of re-deposited clay subsoil were also present. This banding was a deliberate act of construction as the stones of the cobble layers were horizontally bedded and the layers were horizontal, rather than appearing as tip-lines or slumping. Where the basal layer was recorded, it was always a cobble layer and was slightly thicker than those above. The number of fill strata varied between 4 to 12 layers depending on depth.

Artefacts were occasionally recovered from these fills; for example, half a quernstone lay on the surface of one of the stone layers in 019N (Fig. 5) and a collection of hobnails probably from a complete shoe was found. Other finds include pottery and samian sherds, a fragment of a glass cup or beaker, a sestertius coin, an iron loop, nails, slag, tile and kiln waste.

A small portion of a similar feature (139) was revealed in the south-east corner of the site (Fig. 2), and is also interpreted as a foundation. It appeared to be aligned diagonally across the corner of the trench and cut through deposits associated with Kiln 113. Its horizontally bedded layers of cobbles and silt comprised at least seven individual strata (0.7m deep), but these were less well-defined than those of 019. The full width of the feature was not revealed.

These features have been interpreted, on the basis of known parallels (Blackfriars Street, Carlisle: McCarthy, 1990), as structural foundations, although no aboveground elements for an associated structure were identified. The alignment of 139, if contemporary with and related to foundation 019, suggests that the structure was not rectilinear in plan.

The finds

The following is a summary based on the work of a number of specialists. Full finds



Fig. 4. Well.



Fig. 5. Quern in situ.

reports are available in archive, and the pottery, fired clay and charcoal are published in detail elsewhere (Johnson *et al.*, forthcoming).

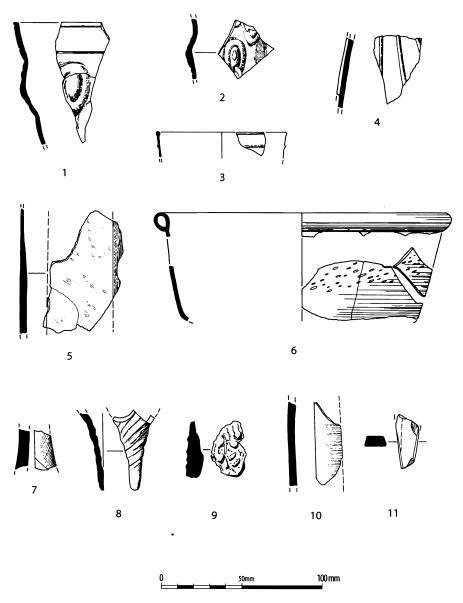
Pottery (from reports by A.T. Croom, R. McBride and K. Hartley)

The pottery assemblage, some 125kg in total, included amphorae (20kg), samian and other finewares (2.5kg), mortaria (20kg) and local and non-local coarsewares (82.5kg). A few of the mortaria were made elsewhere, but the majority were wasters from kilns in the vicinity (though not those discovered on this site). Of 19 stamps, 13 belonged to the potter Docilis, one to Austinus and five were unidentified. The most common coarsewares were those thought to have been produced in the kilns on the site, and the assemblage included complete and highly fragmented vessels, wasters and sherds of unfinished pots. The wide range of forms and numbers of vessels suggested that the assemblage was from a much larger production area than just the two excavated kilns. The wasters suggested two main periods of production, Flavian or Flavian-Trajanic (A.D. 69-117) associated mainly with Kiln 113, and Hadrianic/early Antonine (A.D. 117-150) associated largely with Kiln 117. Later pottery was also present, most notably in the lowest excavated fill of the well.

The identification of stamps of the potter Docilis is significant because it provides evidence that kiln(s) used by a Docilis workshop in the early 2nd century were close by, producing quantities of his mortaria and coarsewares. Potter's stamps linked to the name Docilis have been found at the workshops at Wroxeter, Wilderspool and Waltonle-Dale but until now there has been insufficient evidence from the die forms to link them to the same person. The presence of his stamps in Carlisle provides a dramatic link between the Carlisle and Wroxeter workshops and appears to be evidence for the setting up of a subsidiary workshop here. This information allows the exploration of links between known workshops and may result in their dating, dies and fabrics being refined. It seems very likely that the Docilis element in Carlisle came directly from the Wroxeter workshop, presumably via a potter sent to Carlisle with a die. It is unlikely that Docilis himself used Kiln 113, as the filling of the kiln contained only one vessel of his, along with four vessels by a different potter which post-dated Docilis' work, and at least one Antonine vessel profile. However, the Carlisle workshop may have continued in use under Docilis' name even after he died. Subsidiary workshops were probably linked in some way with military activity, whether they were demanded by the army or whether established because workshops saw opportunities to expand.

Glass (from a report by D. Ingemark)

A large group of Roman glass was recovered. A deposit of 60 fragments (43 per cent of the assemblage) in stokepit 092 has been interpreted as a hoard of cullet and is dated to the late 1st century A.D. From the overall assemblage, vessel types included mould-blown conical beakers (late 1st century; Fig 6.1-2); miscellaneous cups and beakers (one dated late 2nd to mid 3rd century was from foundation 019; Fig 6.3); conical jugs decorated with diagonal or vertical ribs (late 1st-late 2nd century.; Fig 6.4); a globular ribbed jug/jar (late 1st- early 2nd century); miscellaneous jugs, flagons and flasks; cylindrical and prismatic bottles (forming about a third of the assemblage;



- 1. Mould-blown conical beaker. 092.
- 2. Mould-blown conical beaker. 092.
- 3. Cylindrical cup/beaker. 019.
- 4. Conical jug. 120.
- 5. Prismatic hexagonal bottle. 025.
- 6. Shallow tubular-rimmed bowl. 092, 117/2.
- 7. Moile. 092/1.
- 8. Twisted object (end of a paraison). 092/1.
- 9. Nugget or lump of melted glass/slag. 092.
- 10. Fragment of a tall and narrow, cylindrical object. 092.
- 11. Flat, thick fragment of colourless glass.

Fig. 6. Glass objects.

Fig 6.5); shallow tubular-rimmed bowls (these may pre-date the foundation of the fort at Carlisle; Fig 6.6); and possible unguent flasks. In addition to these, five fragments of cast matt/glossy window-glass (late 1st-3rd century) were unearthed. A number of finds are by-products of glass blowing and indicate that glass blowing had been taking place, although this was not taking place on this site nor necessarily even in its near vicinity: a moile (the remains of glass from around the blowing iron; Fig 6.7), the end of a paraison (the inflated glass bubble which was twisted and cracked-off; Fig 6.8), and a small lump or nugget of molten glass in natural coloured green glass with a white 'chalky' crust (Fig 6.9). There were also two finds which were executed in a crude manner and in poor quality glass (Fig 6.10-11).

Worked stone (from a report by A. Jackson)

Two fragments of lava rotary querns were recovered from foundation 019 (Fig. 5) and deposit 112 near Kiln 113. Only one (from 019) survived with part of the central perforation or hopper. There was a slightly raised collar around the latter and the central perforation had an hourglass-shaped section consistent with having been drilled from two sides. Both examples had radial grooves that fan out from the hopper. A piece of worked sandstone from foundation 019 showed evidence of having been crudely dressed on one face and was likely to have been building material. A piece of fine-grained sandstone from pit 092 may be a fragment from a larger object such as a platter or shallow grinding dish.

Slag (from a report by A. Heald)

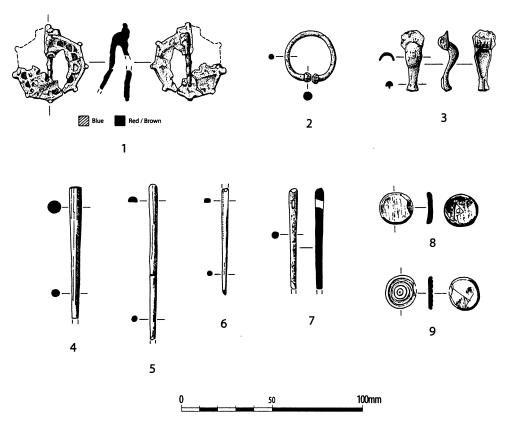
A small collection (1,243g) of slag consisted of small and fragmentary pieces, none with enough diagnostic features to be confident of the process, although some appeared to be associated with ironworking. It falls into four broad types: iron-rich slag, small residues, unclassified slag and vitrified material. The slag was recovered in small quantities from many contexts, with the largest concentrations (>150g) from the foundation (context 019), a slot (context 086/2) and layer 048/2; all of it appears to be residual, from ironworking taking place somewhere in the general area.

Fired clay (from a report by S. Anderson)

The bulk of fired clay consisted of samples of oven lining, oven floor and pieces which have been interpreted as oven dome. Fragments from the floor contained impressions of timbers which were sooted and probably represent an organic framework which was burnt out at the first firing. Evidence of reconstruction of the kilns could be seen in some fragments, where separate layers were visible.

Ceramic building material (from a report by S. Anderson)

The ceramic building material assemblage was small, but consisted largely of Roman tile with a small post-medieval element. Fragments of *tegulae*, *imbrices*, box flue tiles and *bipedales* were identified, but over half the fragments could not be identified to type. Based on thicknesses, most of these were probably pieces of flanged *tegulae* and floor/wall bricks. At least one piece of *opus signinum* was recovered. The majority of



- Two non-joining fragments from an enamelled octagonal umbonate disc brooch. 074/2 and 048.
- 2. Penannular brooch (Fowler, 1960, type A2).
- 3. Knee brooch (Snape, 1993, 17-18, sub-group D). Mid 2nd-early 3rd century. 044.
- Bone pin, Canterbury type A1 (Greep, 1995, 1114). Mid 2nd century onwards. 018 S baulk.
- 5. Bone pin, Canterbury type A2.1 (Greep, 1995, 1116-7), late 1st to mid 3rd century. 055.

- 6. Bone needle, Canterbury type 3 (Greep, 1995, 1122-3). 041.
- Bone needle, Canterbury type 2.1 (Greep, 1995, 1122). 020.
- 8. Bone counter, Canterbury type 2 (Greep, 1995, 125). The dished side bears a slightly off-centre graffito 'P'. 044.
- Bone counter, Canterbury type 3 (Greep, 1995, 1125). The flat rear bears a graffito 'P' in narrow knife-cut linear incisions. 045.

Fig. 7. Copper alloy and bone objects.

Roman ceramic building material appears to have come from structural features, most notably the foundation 019 and several surfaces. Pieces from the foundation were all fragments and included roof, floor and flue tile, some with mortar adhering, probably indicating re-use of fragments from a demolished building as hardcore. The presence of 'IMP'-stamped tile fragments in foundation 019 and surface 018 suggests a *terminus post quem* of the early 3rd century for these features. Fragments of *tegulae* with 'IMP' stamps are known from elsewhere in Carlisle (*RIB 2483 (part vi and vii*); and e.g. Carlisle Millennium site – S. Pringle, *pers. comm.*), and it has been suggested that they were made at the turn of the 3rd century (McCarthy, 1990, 145).

Small finds (from a report by F. Hunter with K. Eremin, N. Holmes and D. McLaren)

The small finds point to several industrial or craft activities – glass-working, ironworking, non-ferrous metalworking (lead casting and sheet-working, probably as part of repairs to other materials; a possible crucible fragment may indicate copper alloy casting), textile and perhaps leather-working (if the punches are for this process) – although the primary locations of these activities were not within the excavated area. Other activities are less well-represented. There is a reasonable quantity of personal items, notably brooches, pins and bangles, but it is noticeable that the types are all very standard and (in the case of the bone pins) plain. Coins are rare, with only a single sestertius, while two bone counters point to gaming and perhaps gambling; the matching graffiti on them suggests they come from one set. The absences are as striking as the presences: nothing military, nothing particularly ornate, and few coins. The assemblage as a whole is rather a functional one, appropriate for an everyday working area.

Animal bone (from a report by J. Thoms)

From contexts identified as non-modern, 2,435 fragments of bone were retrieved, of which 1,264 were identifiable fragments and, of those, 754 (60 per cent) were identifiable to species; 36 per cent cattle, 10 per cent sheep/goat and 14 per cent pig, with smaller quantities of deer, horse and dog. The bone assemblage is characteristic of one derived from an urban environment with animals being imported whole onto site and consumed at their prime meat weight. The exception is the presence of pig bones from animals older than the prime age for consumption. There was some evidence for bone working, on antler fragments, but they were retrieved from an insecure context. One possible 'special' deposit of bone was discovered in context 051 where there appeared to have been a deliberate deposition of cattle skulls together, largely to the exclusion of other elements. The taphonomic data indicated well preserved bone, mainly from undisturbed deposits, that had been buried relatively quickly without exposure to carnivores or rodents.

Charred plant remains (from a report by M. Cressey)

Apart from the kiln-related contexts, charcoal quantities were generally low. In order of abundance, *Corylus avellana* (hazel) attained the highest weight (66 per cent), followed by *Quercus* sp. (oak) at 34 per cent, and *Betula* sp. (birch) at less than 1 per cent. Typically, the samples recovered from the bases of the kilns contained the largest fragments of charcoal. Context 117/4 contained a large piece of hazel charcoal that had evidence of splitting and multiple facets forming a distinct point. A fragment of oak from this sample had been deliberately squared-off. It is likely that some of this material may have been carpentry waste that was conveniently used as fuel.

Discussion

The kilns

Kiln 117 and pit 092 are associated with coarsewares and mortaria made in the Flavian

or Flavian-Trajanic period, while the pit contains glass debris from the late 1st century A.D., so the period of use of this kiln could fall between about A.D. 69-117. Kiln 113 and dump 112 contained coarsewares of the Hadrianic/early Antonine period; the latest vessel recovered was an Antonine mortarium from the floor of the kiln. The period of use of this kiln could fall between about A.D. 117-150.

The kilns are typical Romano-British updraught kilns. They had a free-standing pedestal support for the oven floor, which was a perforated clay disc (Swan, 1984, 31, type ii). The kilns were sunken and no evidence for any permanent superstructure survived. Charcoal analysis indicated that some carpentry waste and coppiced wood was being used as fuel.

The pottery dates from the 1st to the mid-4th century, but the assemblage is dominated by material from the kilns: large sherds from unused vessels, overfired sherds and wasters. Mortaria production was being carried out on or near the site. Other kiln products included flagons, beakers, jars/cooking pots, bowls and lids. There was a difference in fabrics and products between the two kilns, which strengthens the chronological distinction between them.

The kilns are associated with other features on the site, primarily a system of gullies/ ditches running east—west across the excavation area with associated cobble surfaces, pits and layers of material probably representing build-up or make-up layers. These features may well be related to the potting industry on site, and are comparable to features recorded at Trent Vale, Staffordshire (Mountford *et al.*, 1968), where a linear gully/ditch was interpreted as being used to create pools of water by placing stone blockings along its length (*ibid.*, 23). Channels from the main gully/ditch fed into pits, interpreted as being used for clay levigation (*ibid.*, 26). Some of the pits at Fisher Street (e.g. 102) were perhaps dug to recover raw materials, or to hold clay for storage or for souring, and were later used for the deposition of rubbish. Some of the cobble surfaces could represent work surfaces or yard areas. A source of water on the site was possibly provided by the well in Phase 3. Although it contained late 3rd/4th-century pottery in its uppermost layers, it had gone out of use by the time foundation 019 was constructed and was probably contemporary with the kilns.

The foundation

The clay and cobble foundations seem to signify a change in function of the site. They were likely to have been built in the early 3rd century A.D. The equivalent period at Blackfriars Street (Period 9, late 2nd/early 3rd centuries) comprised a rectangular building with clay and pebble foundations and a board floor. This rectangular 'strip' building with an internal subdivision towards the rear, continued in use through the 3rd-mid/late 4th centuries, with cobble floors superseding the board ones. It was interpreted as a possible barn, and would certainly appear to be non-domestic (McCarthy, 1990). Antonine foundations of similar construction were interpreted as a timber-framed warehouse (*ibid.*, 366).

The horizontally banded cobble, silt and clay foundations identified at Fisher Street

(019, 139) are also likely to have supported timber-framed structures built on horizontal sill beams. There was no surviving evidence for a stone superstructure, nor for floors or supporting posts for a planked floor. The foundations were aligned roughly east—west, respecting the line of the earlier gullies/ditches. The eastern building (019S) was the slightly earlier of the two, and would have measured at least 7m east—west by 6m north—south internally. The slightly later structure, defined by foundation 019N to the west, measured 4.5m east—west by at least 5m north—south internally. Only a small fragment of foundation 139 was excavated in the south—east corner of the site, so its full width and alignment could not be established with certainty: it may represent the other side of 019S or an internal subdivision, but could belong to another phase as it appears to be on a different alignment. At Blackfriars Street the buildings were aligned so that their long axis was at 90° to the road, described as 'strip' houses by McCarthy (1990, 45). Their dimensions are comparable to Fisher Street; the Blackfriars Street buildings measured between about 4m and 5m wide by up to 21m in length, and some of these buildings were separated by metalled roads/lanes.

Foundation 019 is parallel with earlier gullies/ditches, perhaps indicating that an external factor such as a street or other building was present which dictated the alignment of features and structures in this area of the settlement. If so, this street is unlikely to have been on the same alignment as the current Fisher Street. The gullies and cobbled surfaces could indicate the position of a street or lane to the north of gully 077, with the ditch defining the edge of the street or marking a property boundary.

Two objects were discovered in the foundation layers. Half of the lower stone of a rotary quern was deliberately incorporated into the horizontally bedded cobbles within 019N. The other object was a shoe (evidenced by its hobnails). Although it is possible that these artefacts represent ritual deposition or a deliberate offering during the foundation's construction, they may equally have been incorporated without ceremony.

The structures represented by the foundations cannot currently be assigned a function. It is unlikely that they were for military purposes – the lack of relevant artefacts suggests that this site was never military in nature. The finds assemblage associated with this phase also contained fewer objects of an industrial nature, such as tools. There is perhaps a hiatus in the use of this part of the settlement – represented by layer 018 – followed by regeneration with an alternate function. Truncation of the site in recent times has scalped the upper layers, including foundation 019; it is not certain that this survived to its full original depth, which may account for the lack of any internal features or traces of its superstructure. The position and alignment of the foundations suggest that parts of these buildings would have continued beneath Fisher Street road and buildings adjacent to the east.

Conclusions

Pottery production was one of the primary functions of this part of Fisher Street in the late 1st/2nd century A.D.. However, the finds assemblage indicates that other industrial activities were being carried out during the same period, possibly very close

to the site. There are finds indicative of glass working, although there was no evidence for a furnace on the site, with the large deposit of glass fragments in pit 092 being interpreted as cullet and including a moile, indicative of waste from glass-blowing. Other industrial activities included iron-working, non-ferrous metalworking (lead casting and sheet working, copper alloy casting), and textile and leather working, along with something which involved the use of mercury, although actual locations of these were probably not within the site boundary. A certain amount of animal butchery took place on the site too, which may have been responsible for the unusual deposit of cattle skulls in 051 if this were not a ritual deposit.

It is apparent that there was nothing in the finds assemblage of a military nature, and that the personal items were few and of a very plain, ordinary type. These items give an impression of an everyday working area. It seems likely that Fisher Street was in a zone of industrial and craft activities during the late 1st and 2nd centuries A.D. Even though no metal detector survey was carried out, the presence of only one coin is very low compared to other sites excavated within Carlisle; for example, Castle Street (McCarthy, 1991) produced 59 coins and this was considered to be a 'relatively small' number (McCarthy, 1991, 5) compared to other Carlisle sites, such as Blackfrairs Street with 342 coins (McCarthy, 1990) and may suggest that monetary transactions were not taking place on the site.

During Phase 4 of the site's occupation, in the 3rd century A.D., there was a change of use from a kiln site to one dominated by the foundations of at least two buildings. The function of these buildings is not certain; they could have been workshops, warehouses, or perhaps strip houses, providing a mixture of domestic dwellings and small-scale cottage industries.

The fort and civitas settlement at Carlisle would have provided a ready market for the products of Fisher Street's pottery kilns and would have allowed ease of transport to more distant markets, such as the rural settlements known to have existed around Carlisle.

The importance of the Fisher Street excavations is that they have demonstrated that this area of the Roman town was where much of the pottery production in Carlisle was concentrated, until at least the middle of the 2nd century A.D.. Other industries were also occurring in the vicinity. The excavations have also demonstrated that one of the workshops at Carlisle belonged to the potter Docilis.

Acknowledgements

The excavations were directed by Kirsty Cameron for CFA Archaeology Ltd. Illustrations are by Alan Braby and Kevin Hicks. CFA are grateful for the help and advice provided by Helena Smith, formerly of Cumbria County Council Archaeology Service. The assistance and interest shown by Richard Fawcett of Peregrine Properties was very much appreciated. While thanks are due to the above, responsibility for the content of this paper lies with the authors and CFA Archaeology Ltd.

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