

Medieval Occupation and Late Medieval Tawing at Fairfield Gardens, Glastonbury

Cai Mason with contributions from Alejandra Gutiérrez, Lorrain Higbee, Elizabeth Pearson, Cheryl Green and Michael Hughes

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MEDIEVAL OCCUPATION AND LATE MEDIEVAL TAWING AT FAIRFIELD GARDENS, GLASTONBURY

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SUMMARY

Excavations at Fairfield Gardens, Glastonbury, uncovered evidence of medieval occupation and late medieval tawing (light leather making). A single piece of prehistoric struck flint and a few sherds of residual Romano-British and late Saxon pottery attest to some early activity in the surrounding area, but there are no indications of any significant activity on the site until the 12th century. The eastern edge of the site may have been occupied by the late 12th century; the remainder was probably undeveloped until the second half of the 15th century. The evidence of tawing dates from the late 14th/15th to mid-16th centuries; the heyday of the industry appears to have been the period *c.* 1450–1550. There was a marked reduction in activity on the site after the mid-16th century, and by the end of 17th century it had reverted to agricultural or horticultural use.

INTRODUCTION

In September 2013 an archaeological excavation was undertaken in advance of a new housing development on a vacant plot to the east of Fairfield Gardens, Glastonbury (Fig. 1). The excavation (Mason 2014) was carried out by Bristol and Region Archaeological Services (BaRAS) and followed an earlier evaluation (Hollinrake & Hollinrake 2004) which had identified evidence of medieval and post-medieval occupation and leather making.

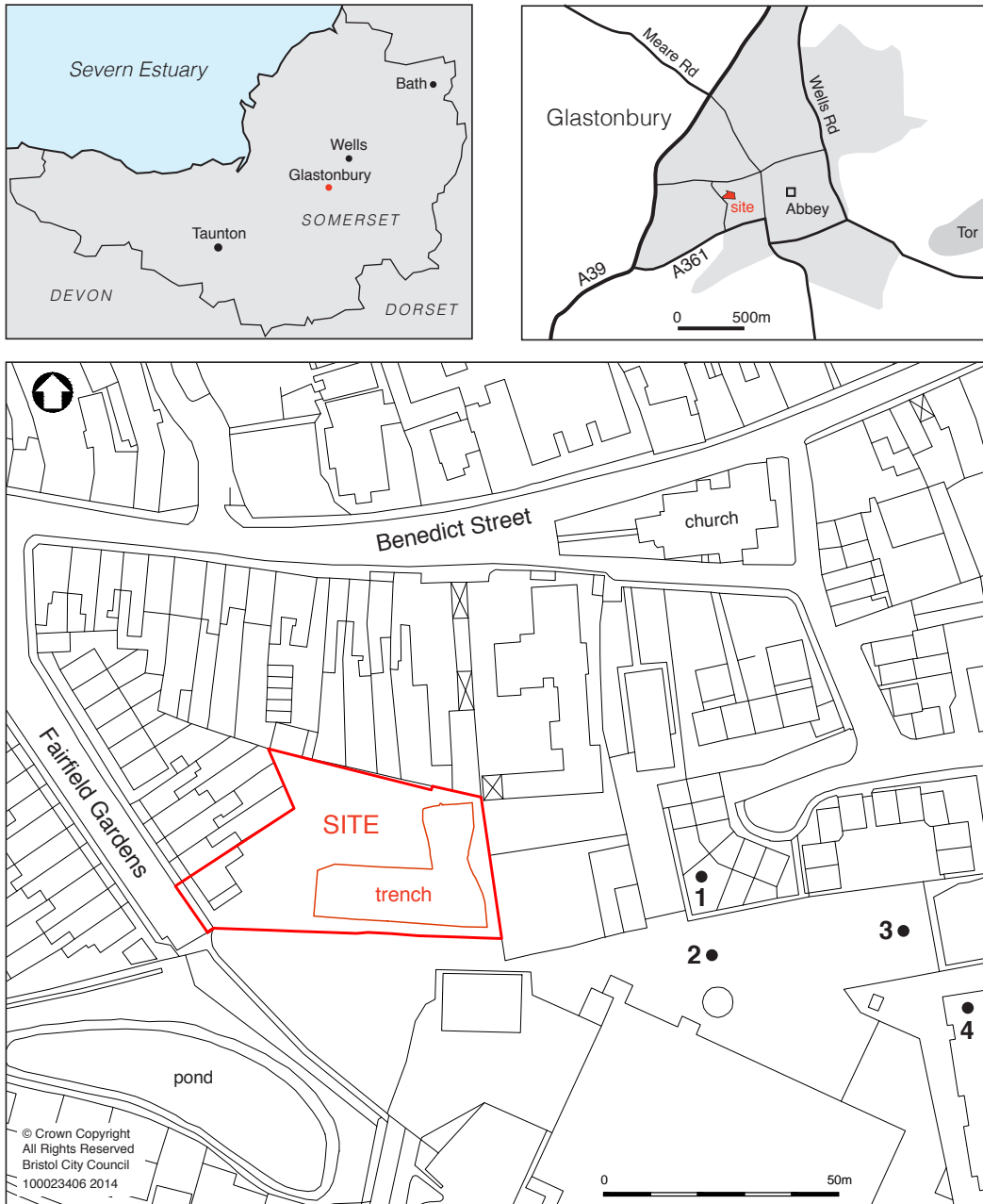
The excavation comprised a 550m² area set within a 0.14ha plot bounded by 13-16 Fairfield Gardens to the west, 35-41 Benedict Street and the King Arthur public house to the north, St Benedict's Nursing Home to the east, and a public park to the south. The site is situated on the west side of Glastonbury town, near to the point where the 'dry'

land of Glastonbury peninsular gives way to the low-lying wetlands of the Somerset Levels. The solid geology is Jurassic mudstone and clay of the Blue Lias Formation (BGS 2013). The site slopes uphill slightly from south-west to north-east and ranges between 10.16m and 11.02m aOD in height.

This report is focussed on the evidence for medieval occupation and leather making in the Benedict Street area of Glastonbury, and more specifically on the evidence for tawing at Fairfield Gardens. Tawing, which is also known as whittawing, leather-dressing, and light tanning, is the production of light leather from the skins of sheep, goats, pigs, calves, and occasionally other animals such as knackered horses and dogs. In this report the terms 'tawyer' and 'tawing' are used when referring to the producers and production of light leather; 'tanner' and 'tanning' refers to the craftsmen and the technically different processes involved in the production of heavy leather from cattle skins. 'Leather making' refers to the industry as a whole.

ARCHAEOLOGICAL BACKGROUND

The area around Glastonbury has a rich archaeological record dating from the Palaeolithic onwards. However, despite the fact that there are exceptionally-preserved prehistoric sites, such as Bronze Age trackways and Iron Age 'lake villages', on the moors to the west of Glastonbury, the evidence of prehistoric activity in the vicinity of the town has, to date, been fairly restricted. Prehistoric worked flint has been found on the Tor, Beckery Chapel and Wearyall Hill. Archaeological work around the Chalice Well has also uncovered Mesolithic flint, a Bronze Age ditch and Iron Age or early Romano-British pottery (Gathercole 2003, 11-13). The evidence for Roman activity on the



*Fig. 1 Site location plan showing archaeological sites in the Benedict Street/Magdalen Street area that produced evidence of medieval and post-medieval animal processing industries:
1. Heritage Court; 2. Convent Field; 3. Somerset House; 4. Abbey School.*

peninsula is more substantial and comprises finds of building material and pottery at a number of sites including the Abbey precinct, the Mound, the Tor, Beckery Chapel, Fairfield, Bove Town, Wearyall Hill, Chalice Well and Wick (*ibid*, 13-14).

Early medieval activity has been recorded in a number of locations, including the Tor, the Abbey precinct and Beckery (*ibid*, 16-40). There was probably an extra-mural settlement around the site of the later market by the late Saxon period. This settlement may have extended as far west as St Benedict's Church, but the archaeological evidence for this remains elusive (*ibid*, 36-37).

The origins of Glastonbury Abbey remain obscure, but some form of monastic settlement certainly existed by the 7th century. The monastic church was built or rebuilt in the late 7th or early 8th century, and substantially extended 8th or 9th century, and again during Dunstan's abbacy (946-955). During the latter period the monastery was reformed along Benedictine lines and there

was a considerable expansion in its power and landholdings (Rahtz 1993, 66-100). During Turstin's abbacy (1082-1100) work began on a new larger church. This work was never completed and his successor, Herlewin (1100-1126), demolished all the existing buildings and began constructing a new Romanesque church, which was completed c 1140 by Abbot Henry de Blois (1126-1171). Turstin and Herlewin were also responsible for a re-modelling of the precinct boundary, which laid the framework for future development of the town (Gathercole 2003, 7, 49). The new Abbey was destroyed by a devastating fire in 1184. This event provided the impetus for a further re-building of the Abbey, a re-organisation of the precinct, and the laying out of the principal modern streets; all of which existed by the 13th century (Rahtz 1993, 101).

During the medieval period Benedict Street was known as '*Madelode Street*'; meaning 'middle river crossing' or 'middle landing stage' (Dunning 1994, 25; Hollinrake & Hollinrake 2004). This name is



Fig. 2 General view of the site looking north-east towards St Benedict's Church, showing pit 186 in the foreground.

first recorded in 1245 (Dunning *et al* 2006, 16-43), but the street may have existed by the late Saxon period (Gathercole 2003, 42). Madelode Street has, since the 13th century, also occasionally been known as the 'street of St Benignus' after the original, and correct, dedication of St Benedict's Church (Dunning 1994, 25), which is thought to have been consecrated in 1091 following the translation of the relics of St Benignus from Mere to Glastonbury (Dunning *et al* 2006, 16-43). The mistaken conflation of St Benignus and St Benedict probably occurred in the late medieval period, and by the mid-17th century name Madelode Street was being used interchangeably with *Benningstreat* and Benedict Street. The earliest recorded use of the latter name is Senior's plan of 1610.

There are numerous records of properties along Benedict Street in the 13th century, one of which gives the dimensions of a tenement that measured 55 feet (17m) in width and extended 400 feet (122m) from the street to the 'ditch of the Abbot's Park' (Watkins 1952, 266). These dimensions imply that at least some of the tenements along Benedict Street originally extended much further south than they do at present.

Previous archaeological work in an area between Benedict Street and Magdalene Street has uncovered evidence of late medieval and early post-medieval animal processing industries (mainly tanning) in a number of locations, the evidence for which includes two tan pits at Heritage Court (Hollinrake & Hollinrake 1993, 93), an extensive dump of animal bones (mainly cattle horn cores) in the Convent Field (*ibid*), and finds of worked deer antler and dumps of cattle horn cores in 13th–14th century and post-medieval pits at Somerset House, Magdalene Street (Hollinrake & Hollinrake 2001b, 147-48; Wessex Archaeology 2011). Archaeological work at Abbey School, Magdalene Street uncovered two rows of shallow sub-rectangular pits dating from the 14th–15th century. The initial evaluation (Currie & Rushton 2004) suggested that these features may have been tanning pits. However, when they were excavated the backfills were found to contain finds more consistent with domestic refuse (Hart 2006).

There is documentary evidence of tanners in Glastonbury from 1274–5 onwards (Dunning *et al* 2006, 16-43). There are further records of tanners in 1303 and 1340 (Watkins 1952, 341, 344, 346-47), and records of a skinner in Glastonbury and a tanner in Northover in 1451 (Cal. Pat. 1446–52, 481). A glover is recorded in the town in 1353 (Dunning *et*

al 2006, 16-43), and between 1425 and 1439 there are references to a glover named Robert Wyllins and his wife Johanna, renting a tenement and a plot of land called '*St Mary's Heye*' in '*Madelode by Old Gropecombe Lane*' (Daniel 1895, 13, 22; SHC D\P\ gla.j/5/1/18).

Gropecombe Lane, which is also recorded as *Gropecuntelene* and *Gropekomelane* (SHC DD\SAS/C795/PD/30(e), DD\SAS/C795/PR/404 & D\P\ gla.j/17/1/2; Daniel 1895, 22), is the medieval name of St Benedict's Close. This name appears a number of times between c 1290 and 1439 after which it became known as '*Grope Lane*'; its modern name dates from the late 20th century. Gropecuntelene is a street name that occurs in a number of medieval towns, often close to markets, and is thought to be indicative of an area used for prostitution (Holt & Barker 2001).

The suppression of Glastonbury Abbey in 1539 ended violently with the execution of Abbot Whiting and two of his fellow monks on Glastonbury Tor. The Abbey was subsequently plundered for building materials, leaving the church and most of the conventual buildings in ruins. The Dissolution had a major impact on the town's economy and in 1598 '*Benynge Street*' (Benedict Street) appears in a list of streets that contained derelict buildings (Dunning 1994, 46).

There are no known records of tanners in the town in the 16th century, but there are a number of references to them in the 17th and 18th centuries (SHC Q/SR/5/77-8, Q/SOR, DD\AH/46/4/6, DD\S\ BT/6/9/13 & Q/SR/363/1/31). Many of Glastonbury's post-medieval tanners lived in St Benedict's Parish, but it is unclear whether they were based in the town or Northover (also in St Benedict's parish). By the early 19th century Glastonbury's only tannery was located in Northover.

The earliest surviving cartographic depiction of Glastonbury is Senior's 1610 plan of the Earl of Devonshire's estates. This plan shows the south side of Benedict Street lined with houses as far as the junction with modern Fairfield Gardens. The land to the south of these houses is labelled '*Dnus Rex*' (Lord King), which suggests that it was Crown property. Later plans show that the pattern of development in this part of the town remained largely static until well into the 19th century.

The earliest detailed plan of the site is the *Church Rate Survey* of 1822, which depicts a single enclosure that is identified in the accompanying account book as an orchard. The tithe map of 1844 shows what appears to be a large pond in the

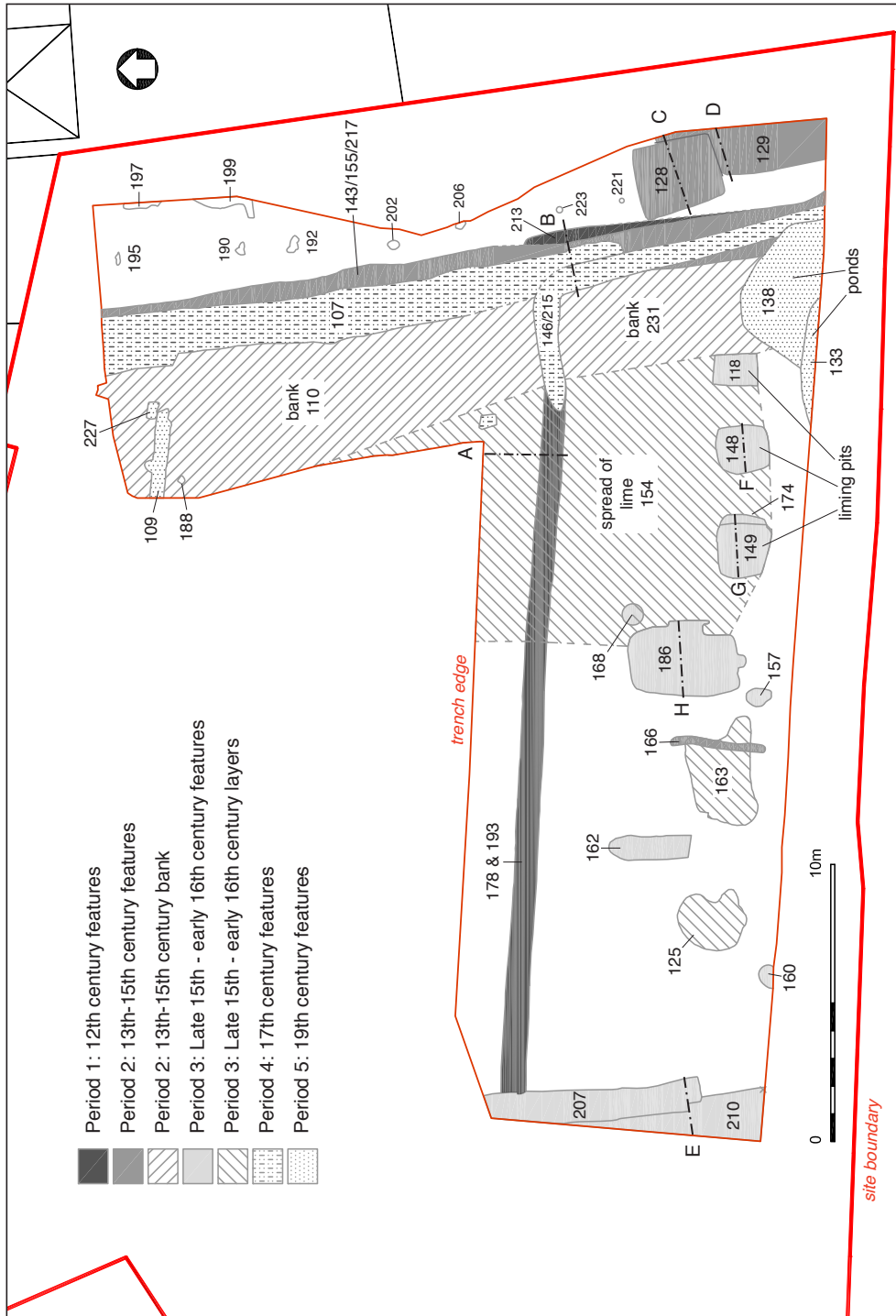


Fig. 3 Site plan

south-east corner of the site and two outbuildings that extend into the north-east corner of the site. By the time the 1886 Ordnance Survey plan was produced, the pond had been filled in and the outbuildings had been demolished.

During the early 20th century the area to the west of the site was developed as a street of terraced houses named Fairfield Gardens. Part of the field to the south of the site (formerly known as the Convent Field after a Roman Catholic Convent on Magdalene Street) was developed as a supermarket in 1988; the remaining open area is now a public park. The site itself remained undeveloped throughout the 20th century.

RESULTS

Five periods of activity dating from the 12th century onwards were identified. Archaeological features are discussed separately by period below and illustrated on the site plan (Fig. 3). A small quantity of Romano-British and late Saxon pottery and a single Neolithic/Bronze Age flint flake were also recovered as residual finds in later features.

The geology of the site comprised mottled orangey-grey silty clay (130), the upper surface of which contained a few sherds of intrusive mid-11th–13th-century pottery.

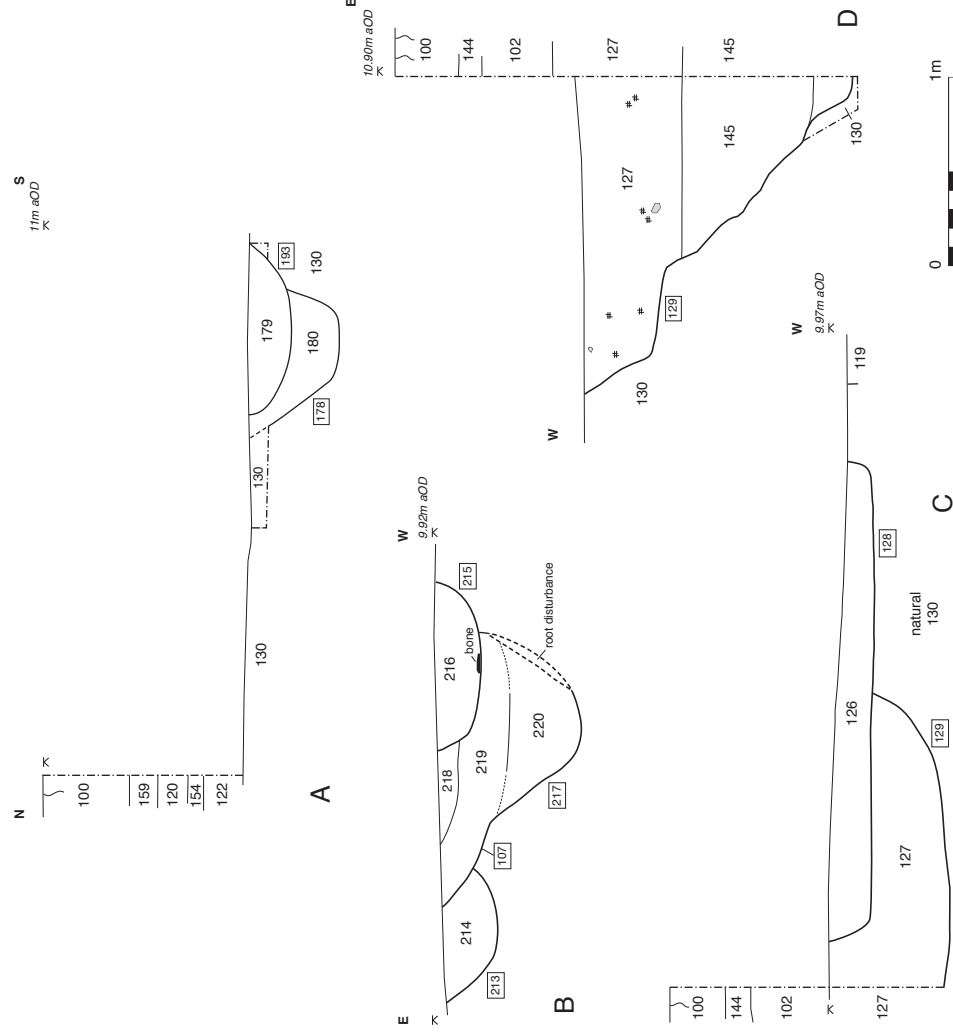


Fig. 4 Sections

Period 1: 12th century

The earliest archaeological features were two 0.4m deep by 0.7–0.9m wide ditches (178 & 213; Fig. 4, sections A–B), the infills of which contained sherds of unglazed 11th- and 12th-century coarsewares. Ditch 213 followed a similar N-S alignment to 13th–14th-century ditch 143, but it appears to have terminated or turned to the west approximately halfway across the site. Ditch 178 may have been part of ditch 213, but the relationship between the two had been destroyed by later features. The boundary defined by ditch 213 may originally have continued further north; this putative extension to the boundary may have been defined by an earlier ditch along the line of 143/155/217, or possibly by a fence line following a row of undated postholes to the east (see undated features below).

Period 2: 13th – 15th century

The most substantial Period 2 feature was an N-S aligned ditch (143/155/217) that truncated and followed a similar alignment to ditch 213 (Fig. 4 section B). The lower fills contained 13th–14th-

century ceramics and a small, probably intrusive, 16th-century scale-tang knife handle. The ditch was flanked by a 3–5m wide bank (110/231) that sealed a soil horizon (111) that contained 13th–14th-century pottery.

Ditch 178 was re-cut during Period 2 (193). The fill (179), which contained late 12th–13th-century pottery, was overlain by an extensive soil layer (122) that contained 13th–16th-century pottery.

The area to the east of ditch 143 contained two large intercutting features (128-9; Fig. 4, sections C–D), the purpose of which remains unclear. Cut 129 was over 7m long, over 1.7m wide and over 1.4m deep. The lower fill (145), which appears to have been natural silting, contained late 14th–15th-century pottery; the upper fill (127) contained similarly dated ceramics and a lead weight, and appears to have been a deliberate backfill. Cut 129 extended for an unknown distance beyond the south-eastern corner of the excavation and could be interpreted as a pit, the terminus of a very large ditch, or possibly a pond. The upper fill (127) was cut by a 3.05m by 2.55m wide and 0.2m deep

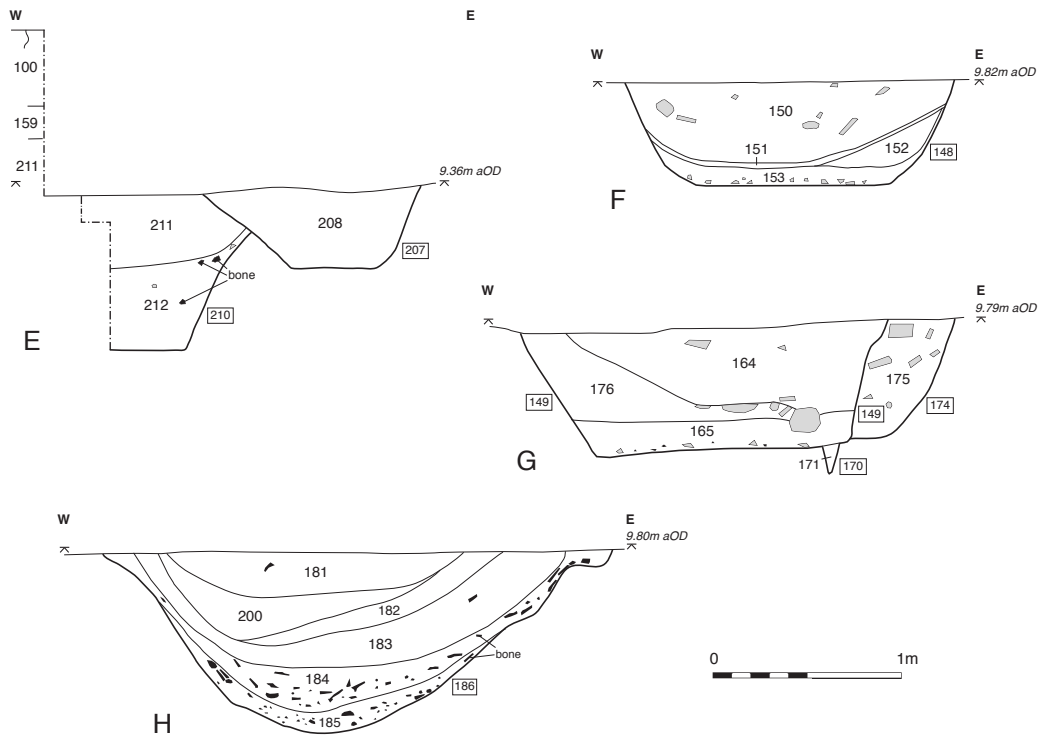


Fig. 5 Sections

rectangular pit (128), which was backfilled with a deliberate dump of silty clay (126) that contained 13th–16th-century pottery, and a small quantity of tawing waste (sheep/goat foot bones).

The only other Period 2 feature was a shallow N-S aligned gully (166) that contained a few sherds of 13th–16th century pottery; this feature was either a heavily truncated ditch or horticultural bedding trench.

Period 3: Late 15th – early 16th century

During Period 3, the area to the west of ditch 143 appears to have formed part of a single property occupied by a tawyer. The western extent of this property was defined by a ditch (210; Fig. 5, section E) that contained a dump of tawing waste (mostly sheep/goat foot bones, some of which were partially articulated) in its primary fill (212). One of the bones was submitted for radiocarbon age determination which produced a date of 1441–1631 calAD (2-sigma), with a 68.8% probability of it dating from the period 1441–1525 calAD (SUERC-49550). Ditch 210 appears to have silted up soon after it was dug, but it was later re-cut (207) along a similar line slightly to the east. The re-cut terminated at its lowest point, which is likely to have caused the ditch to silt up rapidly. The only find from the lower fill (208) of the re-cut was a sherd of abraded medieval pottery; the upper fill, which appears to be deliberate backfill, contained 17th-century pottery.

The Period 2 soil (122) to the west of bank 110/231 was covered with an extensive spread of crushed lime (154) that extended as far south as a row of three contemporary lime-filled pits (118, 148, 149; Fig. 5, sections F–G). The pits were all sub-rectangular and ranged between 0.36m and 0.65m deep and up to 1.95m wide. The basal fills comprised a deposit of lime with burnt limestone pebble inclusions. The lime formed a hard concretion on the sides and base of the pits. Pit 149, which was a re-cut of earlier pit 174 (also a liming pit), had two stake holes driven into its base along its eastern edge. This could indicate that had some form of lining, such as wattle or planks; possibly to retain the soft infill of the earlier pit. All of the lime pits were deliberately backfilled with soils that contained abraded late medieval pottery; one of the fills in pit 148 also contained a single sherd of early 16th-century pottery.

The western extent of lime spread 154 was defined by a large (4.2m by 2.8m wide and 0.95m deep) sub-rectangular pit (186; Fig. 5, section H),

the primary fills of which (184–5) contained very large quantities of tawing waste (mainly sheep/goat foot bones) mixed with hearth ash, domestic refuse and the skeletons of at least two large, powerfully built dogs that appear to have been unceremoniously dumped in the pit.

Finds from context 184 include early 16th-century ceramics, food waste (mammal and fish bones, crab and marine mollusc shells), a small decayed quarry from a leadlight window, a late medieval rowel spur, a small bone-handled whittle-tang knife, a 14th–15th-century French jetton, and a large quantity of iron nails. The nails were probably derived from structural timbers used as firewood. Environmental analysis of the pit fill showed that the deposit contained a large quantity of elder berries. These could have been used to dye leather, or they may simply have fallen from elder trees growing around the pit. The upper fills of the pit comprised deliberate dumps of silty clays (181–3 & 200) that contained lenses of lime and late 15th–early 16th century ceramics.

A small shallow lime-filled circular pit (168) was recorded to the north-east of pit 186. The function of this pit is unclear, but it was probably contemporary with lime spread 154.

The area to the west of pit 186 was characterised by soil spreads (125 & 163) and shallow cut features (157, 160 & 162) that contained large quantities of animal bones (predominantly sheep/goat foot bones), which suggest that this area was used as a surface midden for tawing waste.

Period 4: 17th century

Ditch 143/155/217 was re-cut twice after *c* 1650 (107 & 146/215), but by the end of the century it had been deliberately backfilled with dumps of soil and domestic refuse. Finds from the backfill (106, 141, 119, 216 & 219) include *c* 1650–70 clay tobacco pipes and a complete Somerset redware jug. Ditch 207 was also backfilled in the 17th century, which suggests that a major re-organisation of property boundaries occurred during this period.

Apart from the re-cutting of boundary ditches, the only other Period 4 feature was a shallow rectangular pit (227) to the west of bank 110; the function of which remains unknown.

After the ditches were backfilled the northern half of the site was covered with an extensive dump of dark silty clays (102, 105 & 120) that contained 17th/18th-century ceramics and *c* 1650–70 clay tobacco pipes. These soil layers were up to 0.55m thick along the northern edge of the excavation

area and became progressively thinner towards the south. These soils appear to have been imported onto the site, and may be spoil derived from nearby excavations, such as the digging of cess/refuse pits or foundation trenches for new buildings along the Benedict Street.

Period 5: 19th century

By the 18th century, the site appears to have reverted to agricultural or horticultural use, which is reflected in the paucity of post-17th-century finds and features.

Period 5 features comprise a robbed out footing for an outbuilding (109) and a pond (138); both of which existed by 1844 and had been removed by 1886. The robbed out wall footing contained a c 1690–1720 clay tobacco pipe and a complete cattle skeleton; presumably a diseased animal that was disposed of in a convenient hole. Pond 138 was deliberately backfilled with soil that contained late 18th–early 19th-century ceramics. The backfill was cut by a slightly later cut feature (133) of unknown purpose. These features were sealed by garden soils and dumps of imported silty clay (100-4).

Undated

An irregular row of shallow postholes (190, 192, 195, 202, 206, 221 & 223) was uncovered parallel to and immediately to the east of ditch 143. No finds were recovered from the fills of any of these features, but given that they shared an alignment with ditch 143, it is reasonable to suggest that they are of a similar (medieval) date. The most likely interpretation of these postholes is that they are part of a fence line, but the possibility that some or all of them could be parts of post-built buildings cannot be entirely discounted.

Two shallow amorphous features (197 & 199) were recorded along the eastern edge of the site. It is unclear if these were manmade features or natural disturbance from tree roots or animal burrowing. The fill (198) of cut 199 contained a few sherds of late 12th–13th-century pottery, but given the ubiquity of medieval ceramics on the site these are not considered to be strong dating evidence.

CERAMICS

Alejandra Gutiérrez

Introduction

The excavation produced a small assemblage (11.7kg), comprising 917 potsherds, 15 sherds of

ceramic building material and 5 unidentifiable soft crumbs (perhaps from cob, or simply worn ceramics).

The pottery assemblage is dominated by medieval wares, which amount to 95.3% of all the sherds collected; post-medieval (4.4%) and Roman (0.7%) wares make up for the rest. The almost complete absence of 19th-century and later pottery is notable.

The pottery was examined with the aid of a binocular microscope (x10), sorted into fabrics, counted and weighed. A limited range of fabrics was identified based on the type and size of macroscopic inclusions. Wherever possible cross-reference has been made to defined types, such as to Bristol Pottery Types (BPT; Ponsford 1998), Bath products (Vince 1979) or the Shapwick type series (Gutiérrez 2007a). The other fabric codes are site-specific. The assemblage is very fragmented and few diagnostic sherds were present. The group includes a range of typical regional products, together with some vessels of particular interest, such as a rare medieval aquamanile, a complete post-medieval jug and a medieval floor tile. A breakdown of the overall ceramics found is shown in Table 1. Illustrated sherds are shown in Figs. 6-7.

TABLE 1 – OVERALL QUANTIFICATION OF THE CERAMICS

Ceramics date	Sherds		Weight	
	No.	%	g	%
Medieval pottery	869	92.7	10798	86.3
Post-medieval and modern pottery	41	4.4	837	6.7
Ceramic building material	15	1.6	792	6.3
Roman	7	0.7	66	0.5
Unidentified crumbs	5	0.5	21	0.2
Total	937	100.0	12514	100.0

Roman pottery

The Roman pottery includes greywares and blackwares, together with a possible Samian sherd and a possible colour-coat (4th century), both totally worn and with lost surfaces. All the Roman sherds appear mixed in contexts of medieval and modern dates and do not seem to derive directly from the excavated on-site stratigraphy (contexts 110, 122, 163, 214, 216, 219).

Medieval pottery

The medieval assemblage includes well-known local and regional wares. The main fabrics are quantified in Table 2 and described below.

TABLE 2 – OVERALL QUANTIFICATION OF MEDIEVAL FABRICS

Fabric	Sherds		Weight	
	No.	%	g	%
Coarsewares:				
U1	160	18.6	1064	9.9
Bath A	141	16.4	940	8.7
U2	105	12.1	801	7.4
U5	11	1.3	82	0.8
AA2	7	0.8	33	0.3
U6	5	0.6	41	0.4
Glazed wares:				
Med2	121	14.1	1494	13.9
C7	108	12.6	4514	41.8
Med11	59	6.9	455	4.2
Bristol Redcliffe	40	4.7	275	2.5
Med3	25	2.9	413	3.8
Ham Green jugs	17	2.0	109	1.0
Med8	15	1.7	148	1.4
Med7	15	1.7	83	0.8
Med5	12	1.4	127	1.2
C27	9	1.0	50	0.5
Med9	7	0.8	77	0.7
Tudor Green	4	0.5	7	0.1
LIM1	3	0.3	28	0.3
Med1	2	0.2	22	0.2
Aquamanile	1	0.1	60	0.6
Med6	1	0.1	8	0.1
Med4	1	0.1	5	0.0
Cistercian Ware	1	0.1	4	0.0
Total	870	100.0	10840	100.0

Unglazed coarsewares:

Fabric AA2. South Somerset (Gutiérrez 2007a). Soapy, thick fabric with dark grey core and buff surfaces. Abundant limestone and glassy quartz. Handmade cooking pot. Late 10th–early 11th centuries.

Fabric U1. South Somerset chert-tempered wares (Gutiérrez 2007a). Hard fabric in a variety of colours (from light grey core to orange surfaces) with abundant polished quartz and flint/chert as the main inclusions. Handmade cooking pots. Mid-11th–14th centuries.

Fabric U2. Brown throughout or grey fabric with brown exterior surface. Sandy fabric with micaceous matrix and rare flint, rare red inclusions. Handmade coarsewares.

Fabric U4. Bath A-type. Bath/Avon Valley? Late 11th–13th centuries (Vince 1979; Gutiérrez 2007a). Grey core, buff margins and grey/buff surfaces. Micaceous matrix, moderate flint/chert <3mm, moderate glassy quartz <2 mm and sometimes with calcareous inclusions. Smoothed over surfaces. Handmade with occasional combing on exterior surface. Later examples have some green glaze applied on the exterior wall or over the rim.

Fabric U5. Grey fabric with light brown exterior surface. Fine sandy fabric with micaceous matrix, and inclusions of clay pellets and burnt out organic inclusions visible as blackened voids. Handmade. Most sherds are quite worn. It includes ring-and-dot decorated sherds with some glaze.

Fabric U6. Thick, soapy, sandy coarseware with grey core and brown surfaces and inclusions of flint. Handmade. A single vessel found. Perhaps a finer version of fabric U1.

Glazed wares:

Med1. Fine hard medieval redware with exterior grey surface and micaceous matrix. Moderate white (chalk/limestone?) inclusions. A single wheel-made jug found, highly decorated. Glastonbury?

Med2. Sandy fabric with grey core and brown surfaces; or red throughout. Fine sand with abundant black, rounded, shiny inclusions. Wheel made. Forms: jugs, partially green glazed on exterior surface only; sometimes with wet sgraffito decoration.

Med3. South Somerset, medieval fine redwares with a micaceous matrix. Wheel made; unglazed or with transparent, brown or green glaze. A range of forms, including cooking pots, jugs, lobed cups, pancheons. Decoration used includes wet sgraffito, paralleled at Donyatt (vessels 5/4, 4/112, 1/112; Coleman-Smith & Pearson 1988, 52, 136, 158) and dated there to the first half of the 16th century,

but see also medieval examples from Shapwick (Gutiérrez 2007a, fig. 13.32, M190).

Med4. Very similar to Med8, but slightly finer. A single sherd with ring-and-dot decoration under brown glaze, with a vertical dark brown band. Jug.

Med5. Brown fabric throughout. Very sandy, silty fabric with no visible inclusions; micaceous matrix. Spots of transparent and also of green glaze. Wheel-made?

Med6. Dense dark red fabric with grey core. Sandy fabric with patches of white slip and glaze on exterior surface only. Overfired sherd?

Med7. Orange fabric. Sandy with occasional large inclusions of chert/flint (<4mm) and occasional iron ore (<3mm). Micaceous matrix. Spots of transparent glaze visible. South Somerset? Similar to Kennet Valley ware from North East Hampshire (Mephram 2000).

Med8. Grey fabric with light brown internal surface and orange external surface. Micaceous matrix with quartz sand. Partial green glaze on exterior surface. Medieval handmade (?) jugs. One example has white slip and ring-and-dot decoration under glaze.

Med9. South Somerset. 13th–16th centuries. Fine, light red fabric with poorly sorted quartz inclusions. Wheel thrown jugs, brown glazed on exterior surface only. Sometimes decorated with vertical bands of black glaze and white slip. Later forms are glazed all-over. (A sandier version of Med2.)

Med11. South Somerset? Late 11th–13th centuries. Grey core and margins, with orange interior surfaces. Sandy fabric with flint, up to 6mm across. Splashes of green glaze on exterior surface. Handmade tripod pitchers, with combed decoration (wavy lines), and perhaps jugs with frilled bases.

LIM1. Grey fabric with orange internal surface. Inclusions of quartz sand and angular chalk/limestone (<4mm) visible on both surfaces. Handmade wares with green glaze on exterior surface.

Ham Green (BPT 26). Bristol. 12th–13th centuries (Barton 1963; Ponsford 1991). Grey core; buff or white margins; pink, orange or buff interior surface. Inclusions of well-sorted quartz, limestone and clay pellets. Handmade and finished on turntable. Green glaze on exterior surface and over the interior of the rim only.

Bristol Redcliffe-type wares (BPT 67). Bristol. 13th–14th centuries (Vince 1988, 260; Ponsford 1998; Burchill 2004). Pale yellow, grey or light pink fabrics. Inclusions of quartz and quartzite up to 1.2 mm, clay pellets <1 mm, occasional sandstone <7 mm, iron ore 0.2 mm across, rounded limestone <0.3 mm (Vince 1988). Wheel thrown. Green glaze on exterior surface.

C7. Late medieval South Somerset fine redwares (Gutiérrez 2007a). Wheel made and glazed all-over (interior and exterior surfaces). Jugs, pancheons, bowls, jars.

C27. Late medieval South Somerset wares, with glaze only on exterior surface of jugs (Gutiérrez 2007a). Wheel made fine sandy redwares with silty texture.

Cistercian Ware. Late 15th–16th centuries. Fine black or dark brown fabric and glaze with no visible inclusions.

Tudor Green. Fine whitewares from the Surrey/Hampshire border. Vessels with thin walls and all-over green-glaze. 15th–first half of the 16th century (Pearce 1992).

Sources and dating

A recent revision of the evidence has confirmed that Somerset was aceramic until the middle of the 10th century (Gutiérrez 2007a, 602; Allan *et al* forthcoming) and the earliest pottery identified from the Fairfield Gardens excavations dates to the late 10th or early 11th centuries. A discrete group of seven sherds of a soapy, soft, limestone-rich ware resembles fabric B at Cheddar and AA2 at nearby Shapwick, where they represent some of the earliest medieval pottery used (Rahtz 1979, 310; Gutiérrez 2007a, 603). This group is also very similar to fabric 1 at Brent Knoll, where thin sectioning has indicated a source in the Blackdown Hills of South Somerset (Taylor 2009).

By far the most frequent coarsewares from the Fairfield Gardens excavations are the chert-tempered wares in fabric U1. Recent on-going analysis has concluded that this type of ware was also made in South Somerset with clay from the Blackdown Hills (Allan *et al* 2011; Allan 2003). The ware has an extensive distribution across Somerset and the South West generally, but is best documented and dated in Exeter where it was in circulation by the 11th century and until the end of the 14th century (fabric 20; Allan 1984).

Another important coarseware group is fabric 'Bath A', named after the site where it was first described rather than its place of manufacture. This pottery is also frequent in the region, having been found at Cheddar (fabric JJ) and Shapwick (fabric U4), for example, but with its distribution stretching into Wiltshire. Vince proposed an origin in West Wiltshire, near Crockerton (Vince 1988). However, this ware seems to represent an extended regional tradition rather than a single workshop (Vince 1979, 31) and more analytical work is needed in order to pinpoint its source.

Fabric U2 is similar to fabric U3 at Shapwick. This comprises handmade coarsewares that may be fairly local. Vessels recovered from Fairfield Gardens have similar profiles to those published from Shapwick, where they are dated to the 12th–13th centuries (Gutiérrez 2007a, 603 and fig. 13.29).

Handmade tripod pitchers with patches of green glaze are early glazed wares and here they are represented by fabric Med11. Similar vessels have also been identified at Shapwick (fabric XX), Ilchester (fabrics G24/G25) and Exeter (fabric 60), for example. Their main characteristic is their flint/chert inclusions and they may also be, perhaps, a South Somerset product of the late 11th–13th centuries.

The most frequent glazed fabrics are sandy redwares (sometimes with grey core where walls are thicker). These have been split into several groups between finer (Med2, Med3) and coarser sand (Med4, Med8, Med9, C27), but all these groups may in fact be related. They are all characterised by partial glaze, avoiding the interior surfaces of jugs. Fabric C7, with glaze applied all-over, is also part of this group and may simply represent the late medieval phases of production. Fabric C7 has, however, a long life span that stretches up to the 18th century and the task of differentiating between early and later wares can be complicated by the lack of diagnostic features, such as techniques of decoration (for example, trailed slipware or sgraffito).

Glazed medieval wares are well paralleled at Donyatt (Coleman-Smith & Pearson 1988).

Although this was a major centre of production from the medieval period onwards, other workshops are also known from Somerset and Devon and their products are not always easy to identify by eye (Allan 1999). A further centre of pottery production may have also been located at Glastonbury itself, where wasters of decorated jugs in a micaceous fabric have been found (Hollinrake & Hollinrake

2005) not dissimilar to the jug in fabric Med1 illustrated here.

Of the later medieval redwares, twisted handles and applied thumbled bands around rims are traditionally dated to the early 16th century (Allan 1984; Coleman-Smith & Pearson 1988) and these also form part of the assemblage.

Other glazed wares are less frequent. Some may represent atypical products (perhaps overfired) of those local fabrics mentioned above, for example fabric Med6 (a single sherd found). Others are regional imports. Med7 is characterised by the distinctive presence of flint, an inclusion often found in the potteries from South Somerset potteries and of neighbouring areas; this fabric also resembles the wares from North East Hampshire (Kennet Valley ware; Mephram 2000). Unfortunately no diagnostic sherds survive and most of the sherds are worn.

All the sherds of fabric LIM1 seem to belong to a single vessel, characterised by its white inclusions protruding through both surfaces and being visible through the external glaze. This is an unsourced handmade tripod pitcher with partial green glaze probably dating to the 12th century.

From the Bristol area are handmade jugs from Ham Green and wheel-made jugs of Bristol ware (Redcliffe type). These are all very fragmented, but a rim with the typical roller-stamped criss-crossed decoration of the 12th century survives, if very worn (context 111). A handle with thumbled joint to the body is traditionally thought to be from the later phases of production (mid-14th or 15th centuries; Ponsford 1998) although here it appears with pottery of earlier date (context 145). A few sherds were decorated with thumbled bands around the body (context 102), with applied dark brown or red bands (context 111). All the diagnostic sherds found belong to jugs; one of them had soot/burning on the exterior wall (context 129) and one further sherd had been trimmed to a 29mm by 30mm square shape (context 106).

Later medieval wares from other sources are 'Tudor Green' wares from Surrey and Cistercian wares, perhaps from Gloucester. Both these types represent small forms with very thin walls and over-all green glaze or very dark (almost black) glaze respectively. Only five sherds were found in total, but their presence is a good indicator of the later medieval phases of activity of the site during the 15th–16th centuries.

Forms and uses

The fragmentary condition of the assemblage has made identification of forms difficult, but the range seems to be very restricted. At first glance only jars, tripod pitchers and jugs dominate the assemblage, but these are also the easiest to identify among very fragmented sherds. Smaller vessels, such as bowls, tend to go unnoticed unless they are more complete.

All the coarsewares found are jars, although no significant profiles have survived. Fragments show everted rims and slightly rounded bases with parallels in Glastonbury itself and in the region at Shapwick, Cheddar, Ilchester and Taunton, for example. A single base from an inturned jar was also found (fabric Bath A). This is a smaller type of vessel which is sometimes called 'West Country dish' or 'honey dish', although its function, if ever had a specific one, remains a mystery. Coarseware jars were traditionally used in the house for cooking or storing foodstuffs. Some of the sherds from the Fairfield Gardens excavations did show evidence of burning and sooting (fabrics U2, Bath A, U1; contexts 130, 113, 114, 214), sometimes in the form of a thick layer of soot on the exterior wall (fabric Bath A, U1; context 102) or burnt residue still adhered to the interior wall (fabric U2, context 122). Sometimes the sherd had been burnt throughout (fabrics U2, Bath A; context 127, 105).

Jugs dominate the glazed repertoire but these were standard items from the 13th century onwards. Their precursors were tripod pitchers, with handles, spouts and legs, as seen at Ilchester or Taunton, for example (Pearson 1982, figs. 97 and 98; Burrow 1988, fig. 15, no. 5). Jugs are traditionally items associated with serving liquids (wine or beer) at the table, although in a couple of instances some sherds have also been found that appear to have been burnt or show sooted exteriors (fabrics Med2, Med5, Bristol ware; contexts 216, 184, 127).

In the late medieval period the pottery repertoire expands and includes open forms, such as bowls and pancheons. A couple of examples – one with a pouring lip – were found with a sooted exterior wall showing they also had been used near a fire, perhaps heating or cooking contents (fabric C7; contexts 103 and 106). At least three lobed cups were also found in fabrics Med2 and Med3 and dated to the early 16th century (context 184).

A sherd of particular interest is the animal head from context 156 (Fig. 6.9). This is unlikely to have belonged to a high decorated spout such as those attached to jugs and produced at Kingston in Surrey (these are slightly larger and funnel-

shaped in profile; Pearce and Vince 1988, fig. 71). It is more likely that this element was part of an aquamanile, typical of the 13th and 14th centuries. These are containers with zoomorphic shapes, generally knight on horses or animals, rams with curled horns being preferred, although other unidentified beasts were also fashioned. Pottery examples seem to have been inspired in metal vessels (Alexander & Binski 1987, 439, 266). The ceramic aquamaniles have a hollow cylindrical body, a top aperture which was presumably used to fill them up, and a handle; the head acts as a spout to pour out the contents. In essence these are decorated and colourful decanters which are very rare in the ceramic repertoire. Examples are known from several workshops across the country, such as Colchester, York, London, Laverstock and Lyveden to name but a few (McCarthy & Brooks 1988, nos. 1107, 1119, 1164, 1350, 1486; Nenck & Walker 1991), although Scarborough (North Yorkshire) seems to have specialised in their production as part of a highly decorated range of jugs and other vessels (Hinton 1991, 200). The term 'aquamanile' appears in the 12th century listed in church inventories and associated with ewers used to wash the priest's hands, although this was not their exclusive use and metal examples are also documented as being used at the table (Lewis 1999; Nelson 1932, 300 & 446), although of unknown material and shape. Washing hands at the table was a requisite at polite banquets and a sign of good manners (Elias 2000).

There is, however, no means of confirming that pottery aquamaniles were used to carry water to wash hands at the table or exclusively to do so; they may well have acted simply as another type of container for wine or beer, but one that would have added colour and fun to the table. This example from Fairfield Gardens does not originate from any of the workshops listed above but chemical analysis (Appendix 1) has confirmed that it is a Saintonge-type ware. Pottery aquamaniles are rare and specialist items that could travel long distances from their place of origin. Examples found in Exeter, for example, were made in Scarborough and Lincoln (Allan 1984, 30) and those found in Sussex are also thought to come from the north, perhaps from Scarborough or Nottingham (Barton 1979, 32-35). The finding of this sherd in the outskirts of medieval Glastonbury is a surprise. Imported pottery or exclusive ceramic articles, such as this, are certainly status indicators and it seems unlikely that the object was used by a humble leather craftsman in the 13th–14th century. This object

was found in the same context as the medieval floor tile, another status item, and on that basis it seems plausible that at least some of the pottery from this fill may have come from elsewhere in the town.

Distribution on site

Medieval pottery was found across the site, but concentrated on the eastern part of the plot. It is difficult to establish any clear phasing within the assemblage, given that most of it has a long timespan and much of it appears mixed in medieval contexts. Some contexts also produced very low numbers of sherds (<10), producing groups which are probably not reliable enough to use as a definite dating tool.

The earliest features in the plot are ditches 178 and 213 and this is confirmed by the pottery, which contains no medieval glazed wares, a characteristic of the 13th century onwards. The fills in these ditches contain 11th- and 12th-century pottery, mainly coarsewares (fabrics U1 and U2) and tripod pitchers (fabric Med11) typical of this period.

The fill of pit 128 produced 60 sherds, one of the most prolific features. The pottery comprises a number of Bath A coarsewares (23 sherds), U1 (10), U2 (5), plus glazed local wares (8) and Bristol wares (7), together with clearly earlier pottery (AA2, x1; Med11, x5). Similar mix was also found in feature 129 and in both the top and bottom fills (contexts 127 and 145); and in contexts 111 and 116.

The liming pits (fills 117, 150, 152 & 164) associated with leather working produced very little pottery, mostly of medieval date, but including some that can be dated to the early 16th century (by parallels with published examples from Donyatt; Coleman-Smith & Pearson 1988, vessels 5/4,

4/112). Associated feature 186 (contexts 181, 182, 184) produced further dating evidence with sherds of Cistercian Ware and Tudor Ware within the fills, together with early 16th century lobed cups from south Somerset. This date may signal the filling of these pits, and perhaps the end of the craft in this plot.

Some of the pottery found was very worn, having lost original surfaces or having eroded glaze and edges; this was the case with some sherds from contexts 111, 122, 125, 163, and 207-8, and this may indicate water wear or simply perhaps the movement and redeposition of some finds. A sherd from a Bristol jug had been trimmed into a square shape, possibly a counter.

The only definitive cross-fits or joining sherds found across the stratigraphy were for the LIM1 vessel, which was found in contexts 120, 214 and 220; and a Med11 vessel found in contexts 214 and 114.

Post-medieval and later pottery

Only 41 sherds were attributed to the 17th century onwards (837g). The dominant wares during this period are decorated redwares from South Somerset (fabric C7), with a characteristic fine red fabric and a range of decorative styles, including wet sgraffito and slipwares, together with black-glazed wares. This range of decoration is best paralleled at Donyatt where it has been dated to the 17th and 18th centuries (Coleman-Smith & Pearson 1988, figs. 114, 129). A similar type with a fine, very micaceous fabric with abundant inclusions of clay relicts and a light buff fabric (fabric F2) is perhaps a regional variant with characteristic wavy lines of white slip under transparent glaze.

TABLE 3 – OVERALL QUANTIFICATION OF POST-MEDIEVAL AND LATER FABRICS

Fabric		Sherds		Weight	
		No.	%	g	%
C7	17th-18thC	127	89.4	5012	94.9
F2	17th-18thC	5	3.5	133	2.5
Creamware	1740-1800s	6	4.2	59	1.1
Pearlware	1780s+	2	1.4	28	0.5
Mottled ware	18thC	1	0.7	27	0.5
C20	18thC	1	0.7	21	0.4
Total		142	100.0	5280	100.0

Attempts have been made in the past to try and identify these fine redwares with particular workshops across the region, but identification by eye is not always reliable (for a recent assessment, see Gutiérrez 2007a, 664; Good 1987). Fabric F2 was also found at nearby Shapwick, where a possible source in Bridgwater was suggested (Gutiérrez 2007a, 612). The products better known from Bridgwater are, however, much later types of a very different fabric (Boore & Pearson 2010).

Other types of wares were very poorly represented (Table 3). Two single sherds of Bristol slipwares cups/porrings of the late 17th and 18th centuries were found, together with six creamware sherds of the later 18th century; two pearlwares (1780s+), a single mottled ware (18th century) and a single modern redware (18th century+).

Single sherds of post-medieval wares appear in fill 132 and in soil layer 120. A handful of sherds of the 17th–18th centuries was also found in the soil layer 105 (South Somerset slipwares, Bristol slipware, modern redware, mottled ware); the remaining post-medieval wares have a restricted distribution on site, appearing in the fill of a few features: ditch 107 (contexts 106 & 119), robber trench 109 (context 108), ditch 139, feature 133 (context 132) and the fill of the pond (context 135). Both feature 133 and the pond contain the latest types of pottery from the site (albeit in very small numbers), and may date to the late 18th or very early 19th century.

The fragments of post-medieval and early modern wares found are remarkably few in number and this would seem to confirm that the plot remained empty, as indicated by map evidence, since the traditional way of disposing of rubbish was to bury it in the backyards of occupied plots (Keene 1982). All the pots found are domestic vessels, such as jars, chamber pots, mugs, dishes and bowls.

Ceramic building materials

Floor tiles

Two sherds from medieval floor tiles were found, both from 17th-century ditch fill 106. One is a plain, brown glazed sliver from the top surface of a tile (in a fine red fabric; burnt at the corner). The other is a fragment from a fine red tile, 22mm thick, decorated with two rampant lionesses facing each other. An identical tile was found at Glastonbury Abbey, and the design is also to be found in Somerset churches at Cleeve Abbey, Beckery, South Petherton, and also in Dorset (Sherborne and Tintern Abbey) (Lowe 2003, pattern 101, 21, 74 & 141). They are dated to the late 13th–14th centuries.

The use of medieval floor tiles was restricted to high status sites, especially churches and manor houses during the 13th and 14th centuries. Their presence at Fairfield Gardens is surprising given that the site’s location on the edge of the medieval town, in an area associated with tanning and leather working. Both tiles were found in context 106 (the fill of a re-cut of ditch 143); this is of interest, since it is also here where the aquamanile sherd was found. Given that there were no known high status dwellings in this part of the town, one possible interpretation is that the ditch was filled with rubbish originating elsewhere. Given the presence of the floor tile, the Abbey, which made extensive use of floor tiles in its buildings, would be the more obvious origin for this. Another possible source for the floor tiles is St John’s church to the north of the Abbey. Here some 31 fragments of 13th-century floor tiles were recovered during excavation; none were found *in situ* and they seem to have been removed during the construction of the present church in the 15th century (Ellis 1988). The carting-off of rubble and rubbish to adjacent areas (for ease of disposal or to fill in potholes, etc) or even some distances away from the settlement is well documented and such exclusive items such as

TABLE 4. OVERALL QUANTIFICATION OF ROOF TILE

Fabric		Sherds		Weight	
		No.	%	g	%
Pantile	18th-19thC	3	23.1	151	25.6
Ridge roof tile	late medieval	3	23.1	240	40.7
Flat roof tile	late medieval?	4	30.8	121	20.5
Ridge/flat roof tile	late medieval?	3	23.1	78	13.2
Total		13	100.0	590	100.0

floor tiles are good clues to this practice (see also examples from nearby Shapwick; Gutiérrez 2007a, 632, 645, 649; 2007b, 804).

Roof tiles

Apart from a single 18th/19th-century pantile (context 132), the rest of the assemblage consists of medieval tiles (Table 4). Two sherds are clearly identified as ridge tiles, of sandy grey fabric with red interior surface; they are decorated with crests and exterior green glaze (contexts 226 & 149). The crests are plain and have a low profile, typical of the late medieval period (Gutiérrez 2007b, fig. 9.13, T6). Three sherds are clearly flat roof tiles, one still with part of a circular hole for the hanging peg. These are all sherds of a very fine, orange, soft fabric and are very eroded all-over. A few sherds are undiagnostic and could be either ridge or flat tiles.

Conclusions

This small assemblage of pottery has produced types of ceramics which can be paralleled with other excavated groups from Glastonbury (Rahtz & Hirst 1974; Hollinrake & Hollinrake 1993; Allan *et al* forthcoming). Although the excavations produced a few sherds of Roman pottery, the earliest medieval wares from the site date to the 10th–11th centuries. Thereafter there is a good range of medieval pottery, all of it domestic rather than industrial, up to the early/mid-16th century. The later medieval material found in the fills of leather-working liming pits may date to the Dissolution of the Abbey when documentary sources indicate that economic decline set in. The medieval assemblage is dominated by local wares, many of which were sourced from near the Blackdown Hills in south Somerset. The quantities of material found are, however, small for a medieval plot with domestic occupation and perhaps this is an indication that settlement in this part of Glastonbury was sparse. The finding of a rare French aquamanile and two medieval floor tiles is intriguing and surely indicates that at least some of the ceramics from this plot originated from elsewhere in the town.

Illustrated ceramics (Figs. 6–7)

1. Fabric AA2. Late 10th–early 11th century. Brown with redder surfaces. Context 127.
2. Fabric U1. Mid-11th–14th-century, South Somerset chert-tempered cooking pot. Grey fabric with orange interior surface. Context 127.
3. Fabric U1. Mid-11th–14th-century, South Somerset chert-tempered cooking pot. Grey throughout. Context 127.
4. Fabric U1. Mid-11th–14th-century, South Somerset chert-tempered cooking pot. Grey with dark surfaces; wavy incised line on rim. Context 216.
5. Fabric U2. 12th–13th-century cooking pot. Grey with brown external surface. Context 127.
6. Fabric U2. 12th–13th-century jar rim. Grey throughout. Context 126.
7. Fabric U5. Medieval jug, straight rim with ring-and-dot decoration; some green glaze on exterior surface. Context 122.
8. Fabric Med11. Late 11th–early 13th century handmade tripod pitcher with green glaze on interior of rim. Grey fabric throughout with external orange surface. Context 106.
9. Saintonge gritty ware. 13th–14th-century aquamanile head. Eye with applied red clay. Green glazed on exterior surface. Light grey fabric. Context 156.
10. Ham Green A ware. 12th-century jug with roller stamped decoration under exterior green glaze. Context 111.
11. Fabric Med1. Medieval. Red fabric with grey exterior margin in places. Transparent glaze on exterior with applied bands of vertical black decoration and applied white pellets. Context 198.
12. Fabric Med2. Early 16th century jug with wet sgraffito decoration. Grey fabric with interior red surface; green glaze on exterior surface. Context 184.
13. Fabric Med2. Medieval jug with green glaze on exterior surface and remains of white slip (from wet sgraffito) and an applied band of black ?clay. Context 184.
14. Fabric Med2. Medieval jug with some brown glaze under base and on the interior. Burnt base. Context 184.
15. Fabric Med2. Medieval jug with wet sgraffito decoration; green glaze on exterior surface. Context 184.
16. Fabric Med3. Late medieval cooking pot with some spots of green glaze on the interior of the base. Plain base with smoothed (with knife or palette?) exterior surface. Context 184.
17. Fabric Med3. Late medieval cooking pot. Context 184.
18. Fabric Med3. Early 16th-century lobed cup. Light brown/transparent glaze all-over. Context 184.

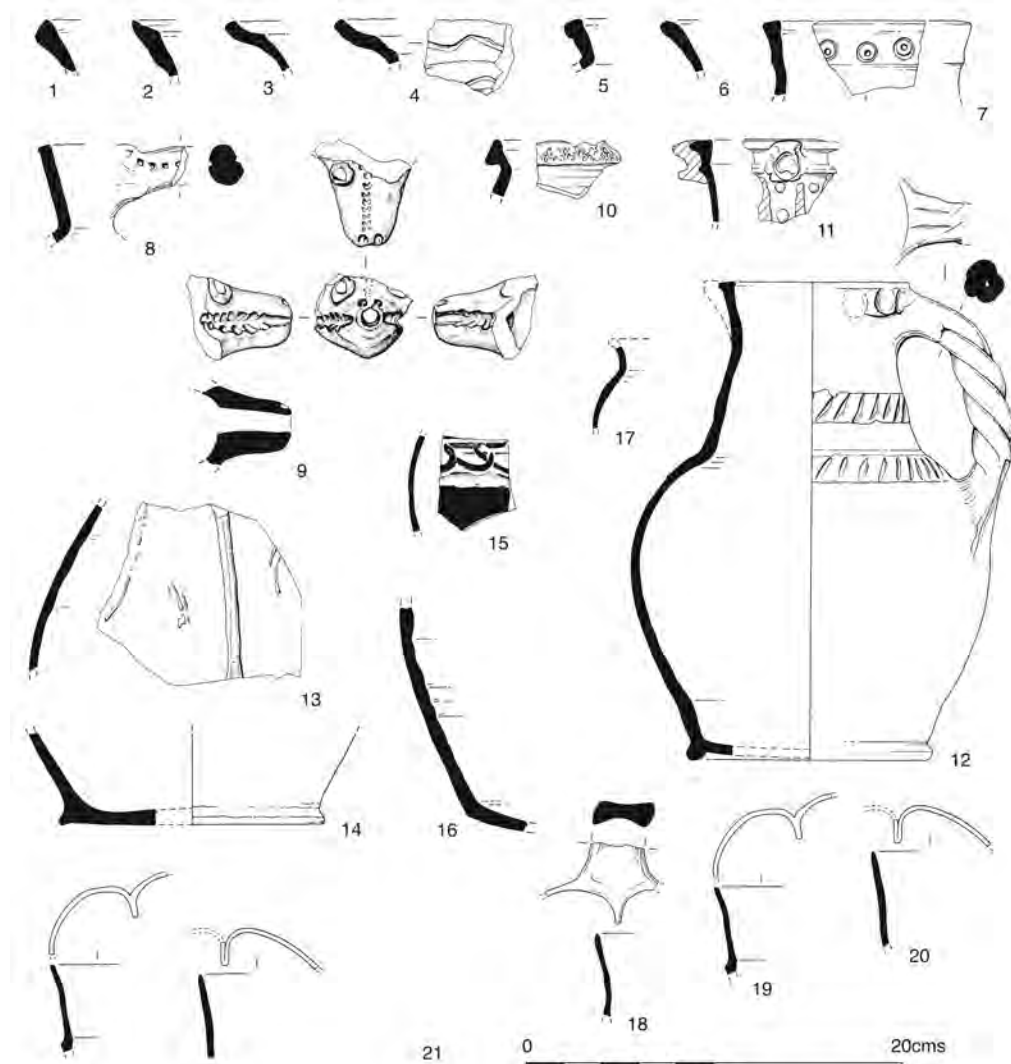


Fig. 6 Illustrated ceramics

- | | |
|--|---|
| <p>19. Fabric Med2. Early 16th-century lobed cup, very dark brown (almost black) glaze all-over. Context 184.</p> <p>20. Fabric Med2. Early 16th-century lobed cup, green glaze all-over. Context 184.</p> <p>21. Fabric C7. Late medieval. Silty red fabric with transparent/brown glaze on the interior surface. Context 103.</p> <p>22. Fabric C7. Late medieval/early post-medieval bowl with frilly lip. Green glazed on interior surface. Grey fabric with exterior red surface.</p> | <p>Context 103.</p> <p>23. Fabric C7. Late medieval/early post-medieval bowl with grey fabric and exterior red surface. Green/brown glazed on interior surface. Context 106.</p> <p>24. Fabric C7. Late medieval/early post-medieval jar in a red fabric. Brown glaze on the interior and external surfaces. Soot/burning on top area of rim. Context 103.</p> <p>25. Fabric C7. Post-medieval jar with thumb band around the rim. Silty grey fabric with</p> |
|--|---|



Fig. 7 Illustrated ceramics

- interior red surface. Dark green glaze on interior and exterior surfaces. Burnt interior surface. Context 102.
26. Fabric C7. Late medieval/early post-medieval jar in a red fabric with grey areas where thicker. Brown glaze on interior and external surfaces. Context 139.
27. Fabric C7. Complete 17th-century jug. Red fabric with greyish brown core visible in chipped area on base. Green/transparent glaze on interior and upper half of the body. Context 106.
28. Fabric C7. 17th-century cup with trailed white slip decoration. Red fabric throughout. Patches of burnt exterior surface. Context 106.
29. Fabric C7. 17th-century jar/cup with all-over white slip on exterior surface; unglazed exterior. Red fabric throughout. Burnt exterior surface. Context 106.
30. Fabric C7. 17th-century jar/chamber pot in a red fabric (grey in area of the interior surface). All-over white slip under transparent (yellowish) glaze on the interior; wet sgraffito on exterior surface. Context 139.
31. Fabric F2. 17th-18th-century bowl/dish with a buff fabric. Wavy lines of white slip under transparent (yellowish) glaze on the interior; exterior (and top of rim) unglazed. Context 136.
32. 13th-14th-century floor tile with impressed decoration of lion rampant filled in with white slip; transparent glaze. Context 106.
33. Medieval ridge tile. Green glaze on exterior surface; sanded undersurface. Context 226.

ANIMAL BONE

Lorrain Higbee

Introduction

The assemblage comprises 4115 fragments of animal bone. Most (96%) of this material was hand-collected; the rest was retrieved from the residues of three bulk soil samples. The main focus of this report is the large Period 3 assemblage, which dates to the late 15th to early 16th century, and includes a substantial quantity of tawing waste.

Methods

All anatomical elements were identified to species where possible, with the exception of ribs, which were assigned to general size categories. Where appropriate the following information was recorded for each identified fragment: element, anatomical position, epiphyseal fusion data (after O'Connor 1989), gnawing, burning, surface condition and evidence for butchery. Tooth ageing data (after Grant 1982; Halstead 1985; Hambleton 1999; Payne 1973) was only recorded for mandibles retaining at least three teeth with recordable wear. A selection of bone measurements were also recorded (after von den Driesch 1976; Payne & Bull 1988).

Results

Bone preservation across the site is extremely good, cortical surfaces are intact and fine details such as knife cuts, are clear and well defined. Poorly preserved bones were recorded from liming pits 118, 148 and 149. The bones from these features have lost some or all of the outer layer of cortical bone; this has not hindered identification, but is likely to have effaced surface details such as butchery marks. Seventy-four per cent of fragments are identifiable to species and skeletal element. The assemblage is quantified in Table 5 by species and period, and described by period below.

Period 1: 12th century

Sixteen bone fragments were recovered from ditches 178 and 213. The identified remains include a fragment of horse mandible, two cattle foot bones, and a sheep/goat tooth and tibia.

Period 2: 13th – 15th century

A total of 134 bone fragments were recovered from Period 2 features including ditches 143, 193 and 217, pits 128, 129 and 199, gully 166, and layers 110, 111, 113, 116, and 122. Most of the identified fragments belong to sheep/goat and cattle, less common

species include pig and domestic fowl. The sheep/goat bone assemblage includes a small quantity of tawing waste, while the cattle bone assemblage is a mixture of bone waste from different sources including both primary butchery and domestic consumption.

Period 3: Late 15th – early 16th century

The Period 3 assemblage is the largest stratified group from the site and comes from a range of different feature types, including some that are directly associated with the tawing industry from which most of the animal bone originates. These include a number of liming (or slaking) pits, as well as other pits, ditches and layers.

The assemblage comprises 3457 fragments of animal bone, approximately 80% of which is identifiable to species and skeletal element. As indicated above, the dominant characteristic of the assemblage is the tawing waste, which largely comprises sheep/goat foot bones and cranial fragments (Table 6 & Fig. 8). These parts of the skeleton are usually left attached to the skin when it is sold on to the tanner. Most (77%) of the tawing waste is from pit 186, however all of the Period 3 contexts contained small amounts of tawing waste, even layers 124, 125, and 163, which suggests that waste material was initially discarded on to surface middens before it was deposited into disused pits.

As already indicated above, most (89%) of the identified bones are from sheep/goat, and this category includes a small number of positively identified sheep (2%) and goat bones (0.2%). Metacarpal and metatarsal bones account for half of all identified sheep/goat bones. They are from a minimum of 304 individual animals, and most (84–87%) have fused distal epiphyses indicating that they are from adult animals. Mandibles, horn cores and phalanges are also relatively common elements, particularly in relation to the more meaty parts of the mutton carcass. Overall however, it is clear from the body part information that although the sheep/goat assemblage is predominantly made-up of tawing waste, all parts of the mutton carcass are represented, indicating that the assemblage also includes a small amount of domestic refuse.

Age information obtained from mandibles retaining 3 or more teeth with recordable wear indicates that the sheep/goat skins processed at the site were from animals aged between 1-2 years and 8-10 years (Table 7). The mortality profile (Fig. 9) shows a peak at 6-8 years, and animals in this age

TABLE 5 – NUMBER OF IDENTIFIED SPECIMENS PRESENT (OR NISP) BY PERIOD.

Species	0	1	2	3	4	5	Total
human				1			1
cattle	1	2	31	67	54	38	193
sheep/goat	1	2	33	2399	49	5	2489
sheep				51	1		52
goat				5			5
pig			9	15	14	1	39
horse		1		9	12	6	28
dog				147	5	1	153
Red deer					2		2
Fallow deer				1	1		2
hare				1			1
domestic fowl			3	5	1		9
duck				2	1		3
goose				2			2
raven				3			3
crow				2			2
whiting				58			58
cod				2			2
ling				3			3
<i>Gadidae</i> sp.				10			10
hake				1			1
mackerel				11			11
eel				2			2
Total identified	2	5	76	2797	140	51	3071
large mammal	1	10	40	125	69	188	433
medium mammal		1	17	433	15		466
mammal			1	127	1		129
bird				15			15
fish				1			1
Total unidentifiable	1	11	58	701	85	188	1044
Overall total	3	16	134	3498	225	239	4115

TABLE 6 – PERIOD 3 SHEEP/GOAT: BODY PART REPRESENTATION BY NISP.
 MNI (= MINIMUM NUMBER OF INDIVIDUALS, ONLY SHOWN FOR SELECT ELEMENTS).
 %MNI CALCULATED IN RELATION TO THE MOST COMMON ELEMENT.

Skeletal element	NISP	MNI	% MNI
skull	7	7	2.3
horn core	48	24	7.8
mandible	163	82	26.9
loose lower tooth	129		
vertebra	1		
scapula	2	1	0.3
humerus	4	2	0.6
radius	2	1	0.3
ulna	1	1	0.3
pelvis	1	1	0.3
sacrum	2	2	0.6
femur	4	2	0.6
tibia	8	4	1.3
carpal, tarsal, sesamoid	130		
metacarpal	567	284	93.4
metatarsal	607	304	100
metapodial	28	14	4.6
1st phalanx	421	53	17.4
2nd phalanx	168	21	6.9
3rd phalanx	157	20	6.5
Total	2450	823	

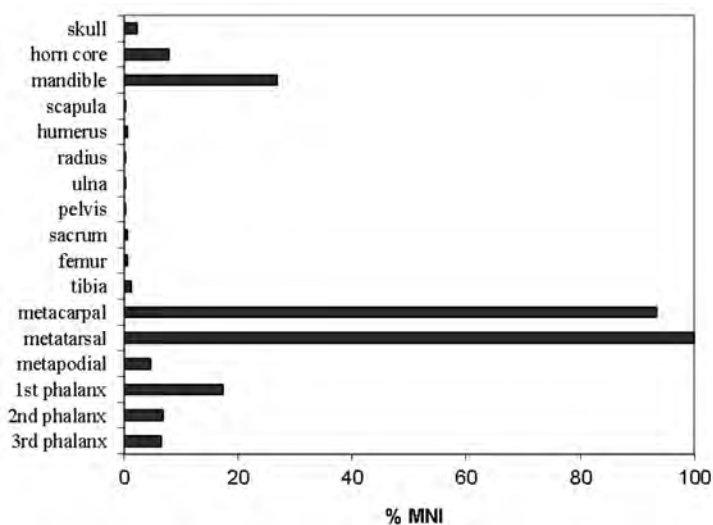


Fig. 8 Phase 3 sheep/goat: body part representation.

TABLE 7 – PERIOD 3 SHEEP/GOAT: NUMBER, PERCENTAGE AND CUMULATIVE PERCENTAGE OF MANDIBLES (RETAINING 3+ TEETH WITH RECORDABLE WEAR) IN EACH MANDIBULAR WEAR STAGE (OR MWS; AFTER PAYNE 1973).

MWS	Suggested age	N	Phase 3	
			%	Cum. %
A	0-2 months			100
B	2-6 months			100
C	6-12 months			100
D	1-2 years	2	3.6	96.4
E	2-3 years	12	21.4	75
F	3-4 years	12	21.4	53.6
G	4-6 years	8	14.3	39.3
H	6-8 years	19	34	5.3
I	8-10 years	3	5.3	0
Total		56	100	

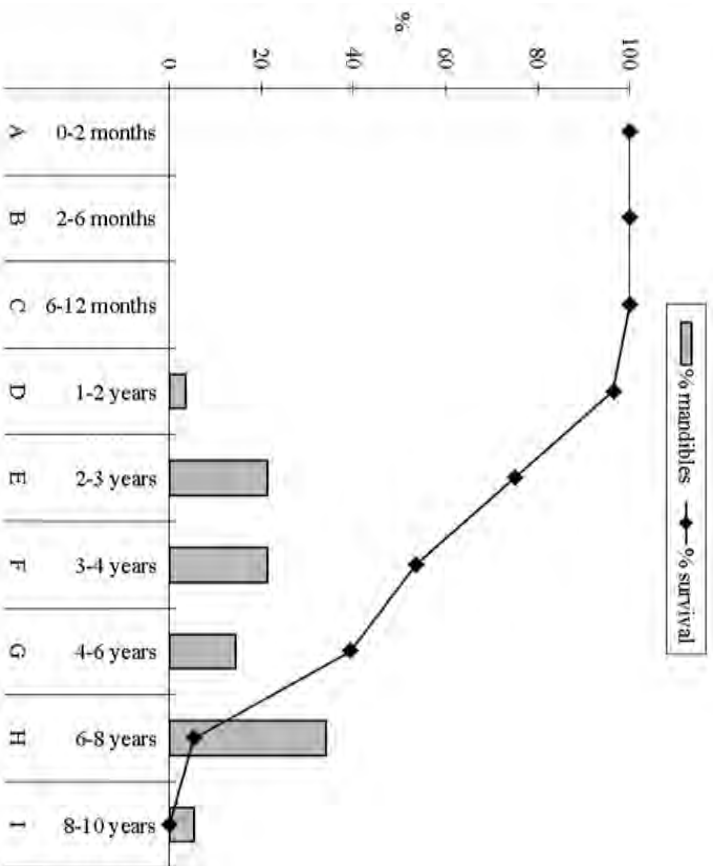


Fig. 9 Phase 3 sheep/goat: mortality profile base on mandibles retaining 3+ teeth with recordable wear. Mandibular wear stages (or MWS) and age categories after Payne (1973).

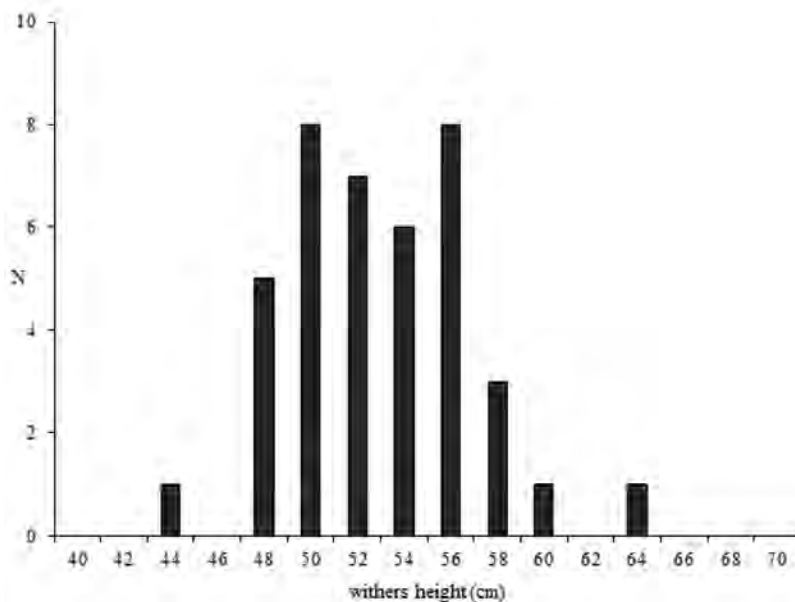


Fig. 10 Period 3 sheep/goat: withers (or shoulder) height estimates (in cm) based on greatest length measurements of metacarpals and metatarsals. Estimates based on conversion factors of Teichert (see Von den Driesch and Boessneck 1974).

category are likely to have been culled from flocks primarily managed for wool. The younger animals aged between one to three years represent animals culled at the optimum age for prime meat.

Withers (or shoulder) height estimates for sheep/goat are based on the greatest length measurements of twenty metacarpals and the equivalent number of metatarsals from pit 186 (Fig. 10). These animals were between 0.44m and 0.64m at the withers, with an average height of 0.53m. The data shows a normal distribution pattern around the mean indicating that the sample is broadly representative of the population, and because these particular skeletal elements are sexually dimorphic, it also indicates that the sample includes bones from both sexes.

Fine knife cuts were observed on a small number (approximately 10%) of metacarpals and metatarsals. The location of these marks, on the dorsal side of the proximal end just below the articular surface, indicates that the feet were disarticulated at the ankle joint by applying pressure and cutting through the ligaments and other soft tissues with a sharp knife during the skinning process. Circular holes were also observed through the middle of the proximal articular surface of a small number of bones (approximately 4%). These

holes are deliberate and were probably drilled through the bone in order to attach something that could be used to aid the stretching of the skin during the leather making process.

The assemblage also includes a wide variety of other species, including cattle, pig, horse, dog, fallow deer, hare, and a range of birds and fishes. The cattle and pig bone assemblages appear to represent mixed waste from a number of different sources, including primary butchery and domestic refuse. Small numbers of cattle skulls, horn cores and foot bones are present in some of the pit assemblage, and could potentially indicate that cattle hides were occasionally processed at the site; however, tawing, which is the technique generally applied to sheep/goat skins, is a very different process to the heavy tanning process used on cattle hides. Furthermore, the two techniques were usually carried out separately if only to comply with regulations designed to protect the interests of individual trade guilds.

The horse bone assemblage includes a small number of mandible fragments and long bones. Measurements taken on one of the bones provided a withers height estimate of 12.3 hands, which is equivalent to a small pony.

The assemblage also includes a relatively large

number of dog bones from a minimum of nine individuals. These occur as part skeletons and groups of associated bones. The dogs range in size from 0.48m to 0.78m (mean value 0.65m), and their skulls have pronounced sagittal crests indicative of animals with strong jaw muscles. There is no indication on any other the bones that these animals were exploited for their pelts, however it is not uncommon to find such evidence at tawing sites of this date.

Fallow deer and hare are only represented by one bone fragment each, and probably represent occasional additions to the meat diet. However, fallow deer is represented by a fragment of metatarsal, and this element could have arrived at the site attached to a hide.

The bird bone assemblage accounts for only 0.5% NISP but includes five different species. Most of the bones are from domestic poultry (e.g. chicken, duck and goose), and the rest are from birds that are likely to have been common scavengers within the town (e.g. raven and crow).

Marine and freshwater fish was also eaten, and form a minor component of the assemblage. At least six different species have been identified, the most common of which is whiting. Other identified fish species include mackerel, ling, cod, hake and eel. All six of these species have been identified from other urban centres in the South-West region, including both Taunton (Wheeler 1984, 193-4) and Exeter (Wilkinson 1979, 74-81).

A single human finger bone was also identified from the assemblage. It was recovered from pit 186 and is a second phalanx from the fourth or fifth digit. The presence of this bone could indicate the presence of disturbed burials near the site.

Period 4: 17th century

The Period 4 assemblage comprises 225 bone fragments, a little over 60% of which are identifiable to species. Cattle and sheep/goat bones are common, and as in previous periods, the sheep/goat bone assemblage is characterised by tawing waste, while the cattle bone assemblage is more mixed. However there are two small concentrations of cattle horn cores from layer 120 and ditch 207, and this could potentially represent evidence for horn-working, albeit on a small scale. Less common species include pig, horse, dog, domestic fowl, duck, and both red and fallow deer.

Most of the horse bones are from ditch 207, they include several near complete long bones from at least two different animals, one of which is a pony

with an estimated withers height of 12.1 hands. An ankylosed horse spine was also recovered from the ditch. The affected sections include the thoracic and lumbar regions of the spine which have entirely fused together as a result of new bone formation. The new bone has a 'candlewax' like appearance and covers the entire ventral surface of the centra and the spinous processes. The inter-vertebral spaces do not appear to have been affected as there are no signs of any changes on the articular surfaces of the centra. The precise cause of this condition is uncertain, however the most likely cause is trauma from repeated loading and strain.

The dog bones were recovered from layer 120, and ditches 107 and 207. The remains from 120 include a nearly complete skull with a pronounced sagittal crest. The other bones include a mandible and several long bones, all of which are from medium to large sized breeds. Measurements taken on a complete ulna from ditch 207 provided a withers height estimate of 0.72m.

Red deer is represented by a metatarsal from layer 102, and fallow deer by a small piece of antler from ditch 107. The boundary of the Abbey deer park lies to the west of Bishops Close, and it has previously been suggested that locals from the town may have been tempted to poach on Abbey land (Wessex Archaeology 2011), although in this instance it is more likely that deerskins were also being processed on the site. Similarly, off-cuts from antler-working have previously been recovered from an adjacent site (Hollinrake & Hollinrake 2001a, 21).

Period 5 – 19th century

Animal bone was recovered from robber trench 109, and pond 138. The assemblage is larger than that from Period 4 but includes fewer identifiable bone fragments. Indeed only 21% of fragments are identifiable to species, and the majority of these belong to cattle. Once again the cattle bone assemblage is a mixture of waste from different sources. Less common species include sheep/goat, pig, horse, and dog.

Conclusions

Concentrations of leather making waste have been identified from a number of features and deposits on the site. The industry appears to have started on a fairly small-scale during late 14th–15th century (Period 2), and continued until the 17th century (Period 4). The heyday for this industry however, appears to have been during the late 15th to early

16th century (Period 3), when large numbers of sheep/goat skins were being processed at the site. The evidence suggests that dog pelts, and possibly cattle and horse hides were also being processed at the site during this period.

The bone waste deposited at Fairfield Gardens is characteristic of tawing. This process is technically different from tanning, and is mainly reserved for sheep, goat, pig and calf skins. During this process the skins are usually limed, dehaired, washed and trampled in a barrel with oil or alum to produce light coloured (or white) leather. Unlike workers in the heavy tanning industry tawyers also processed the skins of casualty animals (e.g. knackered horses). Further details about the various tanning processes can be found in Albarella (2003) and Shaw (1996).

Discussion

Documentary, pictorial, ethnographic and archaeological evidence indicate that the extremities of the skeleton were left within the skin when it was sold on to the tanner or tawyer (Thomas 1981, 162; Serjeantson 1989; Armitage 1990, 84; Cherry 1991, 295; Shaw 1996, 107). The precise reasons for this practice are unclear, although various plausible suggestions have been put forward. Serjeantson (1989, 139-40) has suggested that tanners could establish the age of the animal from the horns, and would pay a higher price for the skins/hides of younger animals because they produced finer quality leather and a greater return than the hides from more mature animals. She also suggests that the foot bones might have been used to produce neat's-foot oil, which can be used to dress the finished leather. An alternative suggestion is that the horns and feet might simply have been left attached to the skin because they can be used during the tanning process to hang and stretch hides or skins (Yeomans 2007, 111). Whatever the reason behind this practice, it would seem from the spatial organisation of related trades within urban areas (e.g. horn- and bone-workers; see Yeomans 2005; 2007, 2008) that at least some of the by-products from the tanning industry were sold on in order to turn an extra profit from the waste material.

Deposits of waste from tawing and tanning industries have been recorded from a number of towns and cities in Britain (Albarella 2003, appendices 1-2), including Glastonbury (Currie & Rushton 2004; Hollinrake & Hollinrake 2004; Wessex Archaeology 2011). The archaeological evidence from Fairfield Gardens supports what is

known about this area of the town from documentary sources (see archaeological background above).

Architectural Stone

Dr Cheryl Green

A small fragment of blue lias architectural stone (Fig. 11) was recovered from 17th-century ditch fill 216. The rounded top surface of the stone is finely carved comprising a central short furled leaf surrounded by a single order of zigzag ornament and an outer order of beading ornament, the orders separated by half-rolls.

The motifs on the fragment are represented on capitals which form part of a group of mid-12th-century blue lias architectural stone from Glastonbury Abbey. In particular, the fragment is almost identical to the two short furled leaves with zigzag ornament on the face of a complete capital (S519) displayed in Glastonbury Abbey visitor centre. The capitals employ different combinations from a pallet of motifs and therefore the presence of beading on the fragment represents a variation in design. Recent research has confirmed that this important group of blue lias carvings came from the richly ornamented cloister constructed by Abbot Henry de Blois (1126–1171), also the Bishop of Winchester and a great patron of art (Baxter forthcoming). The cloister was damaged or destroyed during the Great Fire of 1184 and most of the pieces recovered during the antiquarian excavations had been re-used within the foundations of the new monastery which was rebuilt from the late 12th century. There can be no doubt that the fragment came from one of the elaborately carved



Fig. 11 Fragment of 12th-century architectural stone from context 216

capitals which supported the arcading around the cloister walk and represents an important addition to the blue lias group.

Clay tobacco pipe, metal objects, shell,
and Other Finds
Cai Mason

Other finds comprise 199 marine shells, 93 metal objects, 23 fragments of clay tobacco pipe, six roof slates, one piece of struck flint, one piece of slag, one shard of glass, and a crab claw.

Clay tobacco pipe

The clay tobacco pipe assemblage comprises 18 pipe stems and five pipe bowls. All of the pipes date from the mid-17th to early 18th century. Three unmarked bowls dating from the period *c* 1650–70 were recovered from contexts 102, 106 and 120. A stem from ditch fill 106 is marked TM incuse on the shaft. A pipe bowl from ditch fill 106, which is marked GB incuse on the heel, can be identified as a product of George Butt, who produced pipes in Stratton on Fosse between 1650 and at least 1675, before moving to Shepton Mallet, where he died in 1710 (Lewcun 2009, 47).

A pipe bowl from robber trench fill 108 is marked with a partially legible mark that reads CHA[R] incuse on the heel. A pipe with an identical, but more complete mark from Bridgewater that reads 'CHAR PRITCHET' (Charles Prichet) has been dated to the period *c* 1690–1720 (Burnett 2013).

Metal objects

Iron

Most of the iron objects are square-headed nails, the majority of which were recovered from ash lenses in early 16th-century pit fill 184. Most of the nails are probably derived from burnt structural timbers. Context 184 also produced a small bone-handled whittle-tang knife (sf 2), a hafted implement (sf 3), a rowel spur (sf 5), half a horseshoe (sf 32), three small iron hoops (sf 8, 14 & 28; all probably chain links), and 14 small unidentifiable lumps of iron (sf 12, 15-24 & 29-31).

The whittle-tang knife (sf 2), which was broken into three pieces, was 133mm long and 18mm wide with a straight pointed blade with an iron plate at the head of the blade, which fronts a simple polished bone handle (probably a sheep/goat metapodial). Similar knives from Winchester (type D) have been

dated to the 10th–18th century, with a *floruit* in the 13th century (Goodall 1990, 835-60). Small find 3 is a 390mm long pointed tube, which tapers from 40mm wide at the haft end to 7mm at the point. The function of this object remains unclear, but it is clearly a hafted implement of some sort. The rowel spur (sf 6) has six points (2 broken) and measures 60mm in diameter. Rowel spurs were introduced to England in the 13th century, but only came into widespread use in the 14th century; this spur probably dates from the 15th or 16th century. Spurs were widely recognized as recognized symbols or rank and would not have been available to the lower strata of society. The horseshoe is a late medieval type. It has two nails holes (one with a nail in it), is 5mm thick, and measures 95mm long by 22mm at its widest part (the front), and tapers to a point at the rear.

A small scale-tang knife handle with a copper alloy end cap (sf 9) was recovered from late medieval ditch fill 156. The handle is a 47mm long, 15mm wide and up to 10mm thick. The tang is pierced by three copper alloy rivets that would have attached a wooden handle (some mineralised wood survived). The handle has a bifurcate copper alloy end cap, each branch of which is sub-oval in section and terminates in an angled, hoof-like moulding. A deep, V-shaped groove separates the two sides of the cap, with a horizontal groove marking the base. Similar end caps are illustrated in Read (2001, fig. 56, nos. 650 – 51), for which he suggests a 16th century date (*ibid*, 82). All other identifiable iron finds are nails.

Copper alloy

The copper alloy objects comprise a 14th–15th-century copper alloy French Tournai Jetton (sf 4) from early 16th-century pit fill 184, and a broken late medieval strap end (sf 27) from late 17th-century soil layer 102.

Jettons were used as markers on lined counting boards that functioned in a similar way to abacuses. They were also used as a money substitute in games. The strap end comprised two small 22mm by 12mm wide rectangular copper alloy plates joined together by four rivets.

Lead

The lead objects comprise: a piece of window came (sf 6) from early 16th-century pit fill 184, a cylindrical weight (sf 10) from late 14th–15th century pit fill 127, and a triangular strip (sf 26) from late 17th-century ditch fill 216.

The window came (sf 6) is 6mm thick and surrounds the decayed remains of a 60mm by 45mm wide rectangular glass quarry. During the medieval period glazed windows were so expensive that it was generally only found in ecclesiastical buildings and wealthy aristocratic dwellings, but by the 16th century they were beginning to be used in more modest buildings. Glazed windows were however still far from common, and they are unlikely to have been fitted to a humble lawyer's dwelling, which suggests that this object was probably imported onto the site from elsewhere in the town, perhaps as a piece of glazing attached to a broken window frame intended for use as firewood.

The cylindrical weight (sf 10) is 55mm long by 30mm wide, has a tapered 9–12mm wide circular hole in the centre and weights 292g (10.3 ounces); the weight is probably medieval.

The triangular strip of lead (sf 26) is 52mm long, up to 12 mm wide, up to 2mm thick, and is sharpened to a point at one end. This object was probably used for making marks on hard materials such as stone, wood or possibly leather.

Marine shell

Marine shell was found in contexts dating from the late 14th century onwards, but was most common in late 15th–16th-century features. Most of the shells were oysters (70.3%), with mussel (26.6%), cockles (2.5%) and a whelk (0.5%) making up the remainder. All of the shells are likely to be derived from food waste.

Other finds

The other finds comprise six fragments of roof slate from 13th-century or later contexts, a piece of Neolithic–Bronze Age struck flint from 12th-century ditch fill 179, a shard of undiagnostic post-medieval bottle glass from layer 105, a lump of white lime mortar from 12th-century ditch fill 214, and a piece of slag and a crab claw from early 16th-century pit fill 184.

One of the roof slates recovered from pit fill 184 is covered in crude scribbled patterns on both sides

(sf 7). It is difficult to interpret the function – if any – of this object; in the absence of any obvious utilitarian function it may simply be a result of someone, possibly a child, decided to ‘doodle’ a pattern on it.

The crab claw is large and probably part of an edible or brown crab (*cancer pagurus*). It is likely to be derived from food waste, although it could have had a secondary function as an awl.

Environmental analysis

Elizabeth Pearson

Methodology

A single 20 litre sample from early 16th-century pit fill 184 was selected for assessment. The sample was processed by flotation using a Siraf tank. The flot was collected on a 300m sieve and the residue retained on a 1mm mesh. This allows for the recovery of items such as small animal bones, molluscs and seeds.

The residue was scanned by eye and the abundance of each category of environmental remains estimated. A magnet was also used to test for the presence of hammer scale. The flot was scanned using a low power MEIJI stereo light microscope and plant remains identified using modern reference collections maintained by Worcestershire Archaeology, and a seed identification manual (Cappers *et al* 2012). Nomenclature for the plant remains follows the *New Flora of the British Isles*, 3rd edition (Stace 2010).

Mollusc remains were identified using a MEIJI stereo light microscope and identification guides (Kerney & Cameron 1979; Beedham 1972).

Results

The results are summarised in Tables 8–9. The sample contained a large quantity of animal bone waste from tawing activities on the site (see animal bone above).

Plant remains (Table 9) included moderately abundant elderberry pips (*Sambucus nigra*), a

TABLE 8 – SUMMARY OF ENVIRONMENTAL REMAINS (ABT = ABUNDANT, MOD = MODERATE, OCC = OCCASIONAL)

Context	large mammal	small mammal	fish	mollusc	charcoal	waterlogged plant	phosphate concretions	Comment
104	abt	occ	mod	mod	abt	mod-abt	mod	occ pot, Fe obj, mod slate, abt stone & mortar

TABLE 9 – PLANT REMAINS FROM CONTEXT 104 (KEY. HABITAT: A= CULTIVATED GROUND, B= DISTURBED GROUND, C= WOODLANDS, HEDGEROWS, SCRUB ETC., D = GRASSLANDS, MEADOWS AND HEATHLAND, E = AQUATIC/WET HABITATS, F = CULTIVAR. QUANTITY: += 1 – 10, ++ = 11- 50, +++ = 51 -100, ++++ = 101+)

Latin name	Family	Common name	Habitat	104
Waterlogged plant remains				
<i>Rubuscfidaeus</i>	Rosaceae	raspberry	CD	+
<i>Rubussp</i>	Rosaceae	raspberry/bramble/dewberry	BC	+
<i>Sambucusnigra</i>	Caprifoliaceae	elderberry	BC	++/+++
Charred plant remains				
<i>Hordeumvulgare</i> grain (hulled)	Poaceae	barley	F	+
<i>Quercusrobur/petraea</i> wood	Fagaceae	oak	C	+
non-oak wood				+

single seed of wild raspberry (*Rubus idaeus*) and occasional indeterminate raspberry/bramble/dewberry (*Rubus* sp). The elderberry may relate to the tawing industry, as elderberries (in combination with *walwort* or ground elder) were used to dye leather a blue/azure colour or green, depending on the recipe (Charlotte 1996). Occasional small roundwood charcoal fragments were present which appeared to be of consistent size, several fragments having 6 to 7 annual growth rings. This included oak and non-oak species, and was probably used as fuel for hearths on the site.

Molluscs were abundant, including species common on shaded grassland (or grassland with scrub), and occasional species were characteristic of stagnant water (Table 10). A small to moderately abundant fish bone assemblage and occasional mussel (*Mytilus edulis*) and oyster shells were also present. Concretions were noted which may be phosphate concretions resulting from an input of cess waste or sheep dung. The latter was used in dyeing leather green with elderberry and ground elder (Charlotte 1996). Alternatively, simply the presence of a large quantity of calcareous bone waste and lime can result in phosphate-like concretions.

TABLE 10 – MOLLUSC SPECIES FROM CONTEXT 104

Species	habitat
<i>Valloniasp</i>	grassland
<i>Discus rotundatus</i>	shade, woodland, leaf litter
<i>Rupillamuscorum</i>	dry grassland and sand dunes
<i>Clausiliasp</i>	shaded places, woodland
<i>Cochlicopasp</i>	catholic (varied habitats)
<i>Anisusleucostoma</i>	streams, ditches, marshes

Discussion

In addition to the tawing waste, the sample may contain waste relating to dyeing leather (in the form of the elderberry seeds). However, it is not possible to determine if elderberry seeds were used for this process, as they could equally derive from vegetation surrounding the feature, particularly as the molluscan remains indicate shaded grassland, or grassland and scrub vegetation. Cess waste is also a possible component, from which elderberry seeds could also have been introduced.

Mussel and oyster shell could have been used in various craftworking activities. However, as only occasional mussel and oyster shells were identified, these are more likely to derive from general food waste, as is common on urban sites of this date.

Fish bone also suggests a food waste input into this deposit.

DISCUSSION

Pre-12th century

The evidence for pre-12th century activity at Fairfield Gardens is restricted residual finds from later features. The early material includes a piece of Neolithic–Bronze Age struck flint and a small quantity of Romano-British and late Saxon pottery. Although there was clearly some early activity in the surrounding area, the quantities recovered from this site are too small to be considered as evidence of occupation during these periods. A likely source of the Romano-British material is an occupation site within the Abbey precinct; the late Saxon finds could be derived from the Abbey or its putative extra-mural settlement.

Period 1: 12th century

It is unclear exactly when the area to the west of the market was first developed, but previous archaeological investigations have identified activity in a number of locations by the 12th–13th century.

The earliest features at Fairfield Gardens were two ditches (178 & 213). The easternmost of the two contained a relatively large quantity of late 11th–13th century ceramics (including some late 12th century material), whilst there were hardly any finds in the western ditch. This suggests that there was probably occupation close to the eastern edge of the site by this date, but that the area to the west of ditch 213 was probably agricultural land.

Period 2: 13th–15th century

During the 13th–14th-century a major N–S boundary ditch (143/155/217) was dug near the eastern edge of the site, possibly along the line of an existing 12th-century boundary. The up-cast soil was used to form a wide bank (110/231) on the west side of the ditch. Period 2 finds were relatively common to the east of the bank, but became increasingly sparse to the west of it. There was also only one Period 2 feature (a probable horticultural bedding trench) west of the bank, all of which suggests that this feature probably defined the western extent of occupation prior to the mid-15th century.

Features to the east of the ditch and bank include an undated, but probably medieval, possible fence

line, and two large late 14th–15th-century cut features. The earlier of the two could be a large pit, a very large ditch terminus or possibly a pond. The later feature was a large flat-bottomed pit that contained a small quantity of tawing waste. The date and location of the pit corresponds well with records of a glover named Robert Wylkins who rented a property near the junction of modern Benedict Street and St Benedict's Close between 1425 and 1439.

Period 3: Late 15th–early 16th century

The earliest significant development to the west of bank 110/231 dates the second half of the 15th century. During this period a second N–S boundary ditch (210) was dug at the western end of the site. This ditch appears to have defined the western edge of a 30m wide plot, which is approximately twice as wide as the medieval plots to the east of the site.

The development of the area west of bank 110 may have been part of a planned expansion of the town, which, by the mid-16th century, probably been extended as far west as the junction between modern Benedict Street and Fairfield Gardens.

It is unclear if this plot defined by ditches 143 and 210 extended as far north as Benedict Street, or if it was a separate parcel to the south of properties along the street front. If the latter were the case then it would suggest that the property boundaries of Nos. 33-49 Benedict Street probably date from the late medieval period, whereas the former would imply that they are post-medieval.

During the period *c* 1450–1550, the most of the site appears to have been occupied by a tawyer. Features related to this activity include an extensive spread of lime, three liming pits, an extensive dump of tawing waste, and a large pit filled with a mixture of domestic refuse and tawing waste. The liming pits would have been used to un-hair hides prior to treating them with oil and alum to produce light coloured (or white) leather for use in delicate products such as gloves, purses and book binding (Vest 1999, 67; Boyer 2013, 377). It is unclear if the large pit was dug specifically for the disposal of refuse, or if it had originally had another function, such as a receptacle for water used to soak and/or wash hides. The lime spread did not extend any further south than the liming pits, which suggests that the working area was accessed from the north.

The tawing industry at Fairfield Gardens appears to have been focussed on the production of light leather made from sheep and goat skins. Many of these skins are likely to have been made into gloves,

but the Abbey may also have provided a market for more specialist products such as fine leather for book binding. There may also have been a market for parchment, the production of which involved many of the same processes (such as un-hairing in lime pits) as tawing: as a result it can sometime be impossible to distinguish between archaeological remains of the two crafts.

A small number of cattle horn cores were recovered from Period 3 and 4 features. This could indicate that small scale horn working was being carried out on the site, or it may simply reflect a general background of tannery waste in the Benedict Street area.

Documentary and archaeological evidence gained from previous excavations (Currie & Rushton 2004; Hart 2006; Hollinrake & Hollinrake 1993, 93 & 2001b, 147-48 & Wessex Archaeology 2011) shows that Glastonbury's leather making industry was concentrated along the south side of Benedict Street and the west side of Magdalene Street. This area amounts to approximately 10% of the built up area in the late medieval town, which suggests that a significant proportion of the population was involved in the industry. This is consistent with data from other medieval towns which show that at least 8–10% of the population in most urban centres were employed by the leather industry, and the numbers in some places – such as West Country towns that supplied a national market – are likely to have been considerably higher (Clarkson 1966, 18, 38).

The location of the industry in this part of the town is likely to have been deliberate; the area has ready access to water (vital to the production of leather) and, perhaps more importantly, it lies on the edge of the town and downhill from the Abbey. As a result, any noxious liquid or other by-products could be channelled into the effluent-filled ditches that would have flowed downhill from the built up area to the east.

Glove-making and tawing were very low status occupations (*ibid.*, 27-28), and it is likely that many of the town's poorest residents lived in this part of the town. Leather making would have made the area foul smelling, especially during the warmer months, whilst the ready availability of offcuts from hides and discarded bones is likely to have caused significant problems with vermin. The general unsavoury nature of the area is further emphasised by the medieval name of St Benedict's Close (*Gropecombe Lane*), which is indicative of an area used for prostitution.

All of the features associated with the tawing

industry at Fairfield Gardens were backfilled in the mid-16th century and there was a marked hiatus in activity on the site until the second half of the 17th century.

The suppression of Glastonbury Abbey in 1539 had a major impact on the town's economy, and it is tempting to view the discontinuity at Fairfield Gardens as a direct consequence of Dissolution. However, whilst this event would undoubtedly have affected businesses that relied on trade with, and generated by the Abbey, the extent to which local leather makers were impacted is unclear.

Periods 4–5: 17th–19th centuries

Some of the medieval ditches were partially re-cut in the 17th century, but within a few decades they had all been deliberately backfilled, in what appears to have been a major re-organisation of local property boundaries. The northern half of the site was then covered with an extensive deposit of dumped soil. The site then appears to have reverted to agricultural or horticultural use.

CONCLUSIONS

The excavation at Fairfield Garden adds to a growing body of documentary and archaeological evidence for Glastonbury's medieval and early post-medieval leather making industry, and provides some new information as to the date and nature of medieval development along the south side of Benedict Street.

The evidence suggests that the boundary uncovered near the eastern edge of the site defined the western extent of the town between the late 12th and 15th centuries. The regularity of the plots to the east of the site suggest that this was a planned development, probably undertaken as part of the Abbey's re-structuring of the town after 1184. The subsequent expansion of the town up to the junction between modern Fairfield Gardens and Benedict Street probably occurred in the second half of the 15th century.

The tawing industry at Fairfield Gardens appears to have been established in the late 14th–15th century and continued up until the mid-16th century. Leather making in other nearby locations probably continued until at least the 17th century.

Future investigations will undoubtedly uncover further evidence of the industry, which may help to resolve questions such as: the nature of any 13th-century or earlier leather making in the town; the

effects the Dissolution on the industry; and the date and reasons for its departure from the town centre.

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APPENDIX: Chemical analysis (ICPS) of the aquamanile *Michael Hughes*

The sherd was analysed using ICP-atomic emission spectrometry (ICP-AES) and ICP-mass spectrometry (ICP-MS) for a total of 47 elements. It was sampled with a 2 mm solid tungsten carbide drill and the resulting powder analysed at Royal Holloway, Department of Earth Sciences, University of London. The results were compared against a database of analyses of Saintonge ceramics recovered from a shipwreck in Tresco Channel, Isles of Scilly (Hughes 2011). The Tresco data were consistent with earlier ICP and X-ray fluorescence (XRF) analyses assembled by Vince (2011). The aquamanile and Tresco analyses were combined and interpreted with principal components analysis, a multivariate statistics technique which considers simultaneously the concentrations of many elements. Details of the analytical and statistical procedures have been given elsewhere (e.g. Hughes 2008).

The Tresco pottery was split into two groups with high and low concentrations of potassium, magnesium, and other elements (Hughes 2011, 41), and the aquamanile fitted very consistently with the low potassium group which was interpreted as a higher quality clay containing much pure white

(kaolinitic) clay, including quartz. This confirms the identification of the aquamanile as a Saintonge ware. It was chemically closest to three sherds from Tresco: one in a pink fabric, a jug with red painted slip bands and a horn (Hughes 2011: RL17, 7 and 13 respectively). The high potassium group was interpreted as having a lower percentage of white clay but higher percentages of other clay minerals and mica. The earlier analyses suggested that heavier wares (jugs, mortars and pégaux) were made in the high potassium/ magnesium group, i.e. with more mica inclusions, whereas the polychromes and more delicate items were made in the low potassium clay with more kaolinite and less mica.

Analysis results (ICP sample no.RP35): in percentages as the oxide – aluminium 20.4; iron 1.88; magnesium 0.24; calcium 0.45; sodium 0.16; potassium 1.26; titanium 1.44; phosphorus 0.34; manganese 0.0080. In parts per million as the element – cobalt 41.1; chromium 107; copper 18.7; lithium 69.0; nickel 18.2; scandium 13.3; strontium 109.5; vanadium 96.2; yttrium 34.2; zinc 26.9; barium 320; arsenic 5.7; rubidium 82.5; zirconium* 362; niobium 27.0; molybdenum 0.7; cadmium 0.1; antimony 0.9; caesium 10.7; thallium 0.8; lead 135; bismuth 0.4; thorium 9.46; uranium 3.00. Rare earth elements in ppm: lanthanum 36.7; cerium 69.8; praseodymium 7.55; neodymium 29.9; samarium 4.69; europium 0.93; gadolinium 3.43; terbium 0.66; dysprosium 2.77; holmium 0.56; erbium 1.82; thulium 0.38; ytterbium 2.44; and lutetium 0.34. *The zirconium figure is unreliable due to incomplete dissolution of minerals containing this element (principally zircon).

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