

THE CLOISTER EXCAVATIONS OF GLASTONBURY ABBEY

BACKGROUND

Monastic cloisters are unprecedented in Europe before the late 8th century (Rahtz 2003, 115). The schematic or blueprint of St Gall, Switzerland, dated AD 819-826, shows the cloister on the south side of the church, although it is not known whether this was ever built. Extensive re-modelling at Glastonbury Abbey has been attributed to Abbot Dunstan, either during his abbacy (c 944-957) or as a consequence of on-going patronage while in the position of Archbishop of Canterbury (960-88). The new layout is thought to be one of the earliest expressions of the new monastic ideal as reflected in the St Gall plan. Excavations to the north of the pre-Conquest church of St Augustine's Abbey, Canterbury, uncovered evidence for a cloister with east and west ranges, although the north side was disturbed by later buildings. This arrangement dates from the 10th century, and was equated with Dunstan's reforms which are likely to have been based upon his re-modelling at Glastonbury (ibid).

Contrary to both the plan of St Gall and St Augustine's Abbey, excavations have indicated that the earliest cloister at Glastonbury was located to the south of the cemetery and therefore was detached from the monastic church. The cloister was thought to comprise an eastern range discovered beneath the 12th century west cloister walk and traces of a south and west range (Radford 1981, 124). This would have enclosed a courtyard measuring 55m by 36m, with the south cemetery wall forming the northern boundary (ibid,125). The archaeological evidence for 'Dunstan's cloister' is therefore dealt with in the West Cloister part of this report and in the Abbots' Range report.

The east wall of the late Saxon cemetery was located c 1.22m east of the medieval west cloister walk. However, at least one grave has been found further east (Rahtz 2003, 110) showing that the pre-Dunstan cemetery extended a considerable way into the medieval cloister (see Cemetery report). Evidence of a post-pit building and a further possible structure interpreted as a 'wattle' oratory were recorded in the medieval west cloister and were also associated with the pre-Dunstan cemetery (ibid). The space between the cemetery and the vallum monasterii which crossed the chapter house to the east was used for craft working. Remains of furnaces or ovens associated with glass production were excavated within the cloister garth and the east cloister walk. The glass-working was dated by Radford to the 9th or 10th century (Radford 1981, 118). It has frequently been attributed to Dunstan on the basis that he was skilled in craft techniques and that the monastic reform and associated re-building would have required the manufacture of glass (Rahtz 2003, 117). The date and form of the furnaces have been reassessed as part of this project and have been found to be considerably earlier.

To the south of the nave, possible traces of a cloister associated with the first Norman church begun by Abbot Turstin (1078-1100) have purportedly been found in the later medieval cloister. He was succeeded by Abbot Herlewin (1101-20), who replaced Turstin's incomplete church with a larger edifice. However, it was Abbot Henry de Blois (1126-71) who developed and completed the 12th century monastery including the cloister, as recorded by the 13th century abbey historian Adam of Domerham:

'...he adorned the place with very fine buildings, a kingly palace called the castle, a bell-tower, chapter house, cloister, lavatory, refectory, dormitory, infirmary with its chapel, a fine outer gate of squared stones, a large malthouse and stables, completing these from the foundations upwards'. (Domerham 2, 316).

Finely carved blue lias capitals and columns found during excavations throughout the abbey complex have been attributed to the cloister of Henry de Blois (see report *The Romanesque carved stones*). Following the fire of 1184, repair and rebuilding would have been necessary although the bell tower, thought to have been discovered within the cloister garth, and the contemporary abbots' hall are said to have survived. The 13th century cloister was larger than its 12th century predecessor; excavations have revealed that although the north and west sides of both phases were identical, the south and east sides of the 12th century cloister ran along the centre of the later walks (Radford 1981, 131). Consequently, evidence of the north wall of the 12th century refectory and the east wall of the 12th century east cloister walk were identified running along the south and east cloister walks respectively. This siting of the 13th century east cloister walk, chapter house and dormitory on the eastern side of the 12th-century phase were part of an overall shift eastwards following the 1184 fire and presumably before the new church was first occupied by Christmas 1213 (Radford 1958, 168).

The cloisters are believed to have been re-built by Abbot Chinnock (1374-1420), who renewed the earlier (wooden?) cloister with an elaborate stone structure (Sampson 2004, 31) during the early 15th century (see report *The Worked Stone at Glastonbury Abbey*). The plan appears to have remained the same and has been compared to Wells (Bond 1920, 67). The cloister walk was paved with glazed tiles and the windows were richly painted (ibid). The two rows of shallow square 'sinkings' against the south aisle wall held the rafters or gutter beams of the earlier wooden cloister roof, with the lower range supporting the rafters almost 2.74m above the cloister floor (ibid, 68). Above are the 'skew-backed corbels' which formed the apex of the flying buttresses carrying the thrust of the nave vaulting outwards over the cloisters (ibid).

This report covers the scope of the historic excavations within the cloister walks and the cloister garth, including research objectives where specified, preceeding detailed analysis of Radford's excavation records in relation to the earlier excavations. The archaeological evidence for burials and possible structures located beneath the medieval cloister and previously associated with the pre-Dunstan cemetery is re-evaluated. An overview of the glass-working evidence and contextualization of the furnace structures in relation to the medieval cloister provide the necessary background to the specialist report (see report *Saxon Glassmaking at Glastonbury Abbey*). Evidence for Dunstan's east cemetery wall and east range will be discussed together with further possible structures in the cloister garth. The 12th century cloister will be considered in terms of size, layout and specific features such as the postulated bell tower. The extent of the 1184 fire will be evaluated followed by archaeological evidence for episodes of repair, re-building, enhancement and ultimately post-Dissolution destruction.

Historical Excavations

Bond

In 1909 Bond began uncovering the plan of the north and east cloister walks. Excavations along the south side of the nave disclosed paving slabs for the north cloister walk (see A on Cloister excavations plan) and the in situ bases of the moulded piers of Abbot Chinnock's cloister (Bond 1910, 62). The position of the west wall of the south transept was established together with a wall face measuring c 1.52m long located c 7.31m south of the nave (ibid, 63) (see B on Cloister excavations plan). Alongside was a stone water channel (see C on Cloister excavations plan) with some cover stones directly beneath the level of the cloister pavement (ibid). A further three stone-lined water channels (see C on Cloister excavations plan) were found in the east cloister walk with their cover-stones at the same level as the remains of the cloister paving (ibid, 69). One of these channels exited into the cloister garth on the north side of the porch or small office found in the 6th bay from the north where a well was also identified (ibid, 71). The outer wall foundations of the east cloister walk were found to be complete (ibid, 68) with a heavy stone wall at the eastern end of the south cloister walk interpreted as a dividing wall (ibid, 71).

The cloister pavement was represented by a light brown mortar or a thin layer of stone and although no glazed tiles were found in situ there were numerous fragments in the overlying debris (ibid, 69). It was noted that a thin layer of dirt covered the mortar bed, and above this were broken remnants of window glass overlain by a rubble layer containing numerous 15th century architectural fragments (ibid). The glazed tiles from the cloister were remarkable for their number and variety (ibid, 75). Within the cloister garth, a 2.44m deep trial trench described as being opposite the slope encountered a Roman tile imbedded in the thick black clay; two fragments of ware nearby had a 'crystalline glaze of brilliant blue-green tint' (ibid). The British Museum identified the wares as glazed pottery thought to be of Egyptian or Syrian origin, but in light of Radford's excavations they are reminiscent of other crucibles discovered in the locality and associated with Saxon glass-working (see Discussion).

In 1910-11 Bond continued work in the east walk and part of the south walk of the cloister (Bond 1911, 74). These excavations extended southwards into the refectory which became the main focus over fifteen months of excavation. The published plan of the refectory sub-vault also shows the southern area of the cloister (ibid, pl 2). A drain with remnants of stone capping is shown running southwards along the west cloister walk (see D on Cloister excavations plan), extending through an east-west foundation near the west end of the south cloister walk (see F on Cloister excavations plan) and continuing through the extremely thick north-west corner of the refectory where it meets the other drains shown in the vault (see plan). A further stone-capped drain was shown running westwards from the main north-south drain with a further short diagonal stone-capped drain (see E on Cloister excavations plan). The plan also appears to show a further drain extending northwards against the outer wall of the west cloister walk. The east-west foundation (see F on Cloister excavations plan) measured c 6m long and 0.9m wide and is shown terminating c 0.6m before the outer wall of the west cloister walk, with a southern return at the eastern end leading to the doorway into the vault. On the basis of the position against the inner wall of the cloister Bond interpreted this as the possible remains of a lavatorium which he thought was corroborated by the presence of the high-level water-drain (ibid, 83).

Further east along the south cloister walk was a short segment of foundation which was not aligned with the postulated lavatorium and was much thicker at about 1.52m (see G on Cloister excavations plan). The label states 'date and purpose unknown' however Radford's excavations and the

geophysical survey indicate that this was the north wall of the 12th century refectory (see Discussion). Bond's published plan also shows older foundations in between the 2nd and 3rd inner buttresses from the south end of the west cloister walk, which in plan suggest the north-east corner of a structure (ibid, pl 2) (see H on Cloister excavations plan). These remains were explored further during Radford's excavations, the evidence indicating they belonged to Dunstan's east range (see Discussion).

In the south-east corner of the cloister Bond discovered a stone-capped drain aligned approximately east-west with a stone-lined drain heading south towards the east end end of the refectory (see I on Cloister excavations plan). This continued eastwards in between the chapter house and the dormitory however the westward trajectory through the cloister garth was lost. In 2000 an archaeological investigation located the well/ water tank shown on Bond's plan in exactly the same position as shown on the 1910 plan (Hollinrake and Hollinrake 2000). Bond's trench was thought to have been narrow, probably less than 1m wide, and it was suggested that the trench may have been specifically sited to follow the stone-lined conduit which in part had been replaced by a modern drain pipe (ibid, 12). A subsequent excavation proved that this was a water tank rather than a well although the date was not established (Hollinrake and Hollinrake 2007).

Radford

Radford's first excavations at Glastonbury Abbey in 1951 and 1952 focused on the area of the west cloister walk and the cemetery, together with the abbots' hall and abbots' lodging areas to the south-west. The purpose of these excavations was initially to record and consolidate the abandoned excavations of 1939 which had remained open since the war. However, the overall objectives of the 1951-1954 seasons was to explore the deeper levels where Saxon and possibly earlier remains might be expected (Radford 1955, 21) and to establish the depth and sequence of the archaeology. Investigations in the west cloister area from 1951-2 recorded the remains that had been left exposed and in 1952 two new trenches were excavated ('Cloister Trench nearest Church' and 'St Michael's Chapel to Cloister'), with the hope of tracing the Saxon east range up to the Saxon church and exploring the cemetery area to the west (A508).

In 1954 a large area 'CLW' was opened within the medieval west cloister walk, which was extended northwards in 1955 ('West Cloister Trench'). These trenches disclosed two series of post-pits beneath the intact mortar bedding for Henry de Blois' west cloister walk, the earliest of which were purported to have been associated with an early wattled structure within the ancient cemetery (Radford 1955, 21-22). These trenches also revealed further possible evidence for Dunstan's east range and for the cloister built by Henry de Blois in the mid-1100's on similar lines to the later medieval cloister. In the 1954 season two further trenches aligned east-west were excavated within the cloister garth ('CLW between 2nd and 3rd buttresses' and 'CLW between 5th and 6th buttresses').

Explorations of the south cloister area began in 1952, with a small trench in the south-east corner of the cloister walk ('SE corner of Cloister'). In 1954 a north-south aligned trench ('CLS') was excavated between the refectory and the cloister, crossing the south cloister walk, with a further small trench ('CLSE') at the eastern end of the south cloister walk. In 1959 a small trench ('CLS1') was excavated in the south-east corner of the cloister walk, with a north-south trench ('CLS2') to the west of CLS extending across the south cloister walk into the cloister garth and a north-south trench ('CLS3') on

the east side of 'CLS' within the cloister garth. It was hoped that these explorations would disclose an area of early timber buildings undisturbed by later structures, further pre-Conquest industrial remains and evidence for the 12th century cloister plan (A508). These trenches not only established the position of the 12th century south cloister walk and refectory but also indicated the presence of a 12th century lavatorium projecting from the south cloister walk.

In 1955 a trial trench was opened from east-west across the cloister garth ('CLE-W') with a short north extension opposite the second buttress from the east against the medieval north cloister walk. The first Saxon glass furnace (labelled glass furnace one) was encountered towards the eastern end of this trench, a discovery which was entirely unexpected (Radford 1956, 69). The 1955 'CLE-W' trench also located the Norman east cloister walk and what was believed to be the first evidence for a Norman cloister garden in England (ibid, 72).

The 1956 trenches were designed to further explore the glass furnace area and the 12th century cloister, with some remains assigned to Turstin (Radford 1958, 165). This was achieved through the partial re-opening of the 'CLE-W' trench. A further east-west trench ('CL1') was opened 1.15m to the south between the east cloister walk and the approximate centre of the cloister garth, including the areas between the two main trenches ('CL1 Ext 2'). Further glass furnace remains were disclosed together with another furnace (labelled glass furnace three) towards the centre of the cloister garth. A trench was opened westwards from the north-eastern corner of the cloister garth ('CL2') to establish the northern limit of the first glass furnace. This trench was extended to the north ('CL2 Ext 1') and south ('CL2 Ext 2') connecting with the CLE-W trench, revealing the structural sequence for the medieval cloister walks and flying buttresses for the nave south aisle. A north-south aligned trench ('CL3') was opened at the western end of 'CL1' extending as far northwards as the north cloister walk exposing substantial structural remains. A small L-shaped trench ('CL1 Ext 1') was opened to the south of 'CL1' near the east cloister walk in an attempt to locate remains of the Romanesque cloister.

Work continued on the glass furnaces and cloister excavations during the 1957 season. Part of the 'CL1' trench was re-opened together with a southern extension ('CL1 Ext 3') to investigate furnace three more thoroughly. A small rectangular trench was opened near the 'CL1 Ext 1' trench and a long trench ('CL11') was opened from east-west across the southern part of the cloister garth. The position of the early 12th century east range and chapter house were established with the west wall running along the line of the east walk of the later cloister (Radford 1960, 253).

In 1956 a trench was opened within the north cloister walk ('North Cloister Walk') to search for cloister pavements and a return wall for Turstin's supposed south transept; this was re-opened and possibly extended in 1957 ('CL12'). A narrow strip was uncovered along the western side of the east cloister walk (1956, CLE), between the north end and the third buttress from the north. In 1957 the east cloister walk was explored with four trenches, labelled respectively from the north as 'CLE2', 'CLE3', 'CLE1' and 'CLE4'. More furnace remains (labelled glass furnace four) were disclosed in 'CLE1' and the trench extended southwards to explore the remains more extensively.

THE SOUTH CLOISTER EXCAVATIONS

METHODOLOGY

The Results section of this report provides a technical stratigraphic account based on the sections, plans, photographs, sketches and notes for each trench.. All contexts have been included on a stratigraphic matrix [M:467] however it was not possible to deduce relationships for all contexts. The individual sections, plans and the overall site plan (see pdf) should be referred to particularly during the Discussion section where the evidence from the trenches is synthesized. Stratified finds are included per context and unstratified finds are summarised per trench, although finds numbers are only provided where there is no context (finds with contexts can be accessed through the context record).

The photographic record for the south cloister area comprises two images which are important for understanding relationships and form; these are incorporated within the Discussion. The level of recording between the six trenches is variable - the 1952 'South-East Corner of Cloister' trench was only drawn in section; the 1954 trenches ('CLS' and CLSE') were only recorded as single multi-phase plans; the 1959 trenches 'CLS2' and 'CLS3' were recorded both in section and with a single multi-phase plan while 'CLS1' was planned in outline with no section drawing. Owing to problems in the setting out diagram for the 1954 trenches it has only been possible to approximately place these within the south cloister walk. Details of the trenches appear in both Radford's and the volunteer's site notebooks; these notes and sketches have been critically used to construct this report. The results of these excavations were summarised in Radford's 1955 and 1960 published reports with the 1981 interim report adding further interpretation.

As far as possible, the interpretative element of these records have been removed, although original labels have been left on the drawings primarily to retain terms of reference between the drawings and the notes. The phased Discussion section provides a critical appraisal of the archaeology from a modern perspective incorporating new dating and spatial evidence from specialist finds reports, the recent geophysical survey (GSB Prospection) and the parchmark survey (Hollinrake & Hollinrake 1989). Together with a re-evaluation of both the original recorded and published interpretations, features have been attributed to the earliest possible phase. The Conclusion provides an overview of the archaeology, an assessment of the success of the historic excavations and suggestions for future areas of research.

RESULTS

1952, South-East Corner of Cloister

[L:1636] [L:1693] [E:8]. A robber trench [C:750] [C:751] was above a large foundation [C:760] with a supposed Saxon pavement [C:762] beneath. On the eastern side of the foundation was a layer of clay [C:761] with four sherds of pottery dated 1100-1250 [F:BF750] in the surface, thought to have been a selective sample (see Pottery report). This was overlain by a layer of plaster chips [C:758] [C:759]; above this a series of layers were all cut by the robber trench [C:751]. These layers comprised an alternating series of soil, plaster and soil, pebbles and mortar rubble with soil at the top ([C:752], [C:753], [C:754], [C:755], [C:756] & [C:757]).

1954, CLS

[L:1632] [L:1693]. From south to north, a narrow wall [C:2150] was aligned east-west near the southern end of the trench measuring 0.75m wide followed by an area of paving [C:2151] measuring

c 2m wide. A robber trench [C:2152] [C:2153] crossed the centre of the south cloister walk from east-west and on the northern side of this was a remnant of paving [C:2154] before reaching the robber trench [C:2155] [C:2156] for the inner cloister wall. The two areas of paving [C:2151] [C:2154] were at the same depth (see photograph [I:18718]). To the north of this was a paving slab [C:2157], the outline of a foundation [C:2158] and a remnant of a possible wall [C:2159] crossing the trench from south-east to north-west.

1954, CLSE

[L:1633] [L:1693]. In the southern area of the trench was an area of paving [C:2180] with a robber trench [C:2181] [C:2182] crossing the centre of the south cloister walk from east-west. At the northern end of the trench was a wall [C:2183] and two layers of mortar [C:2184] [C:2185].

1959, CLS1

[L:1666] [L:1693]. A robber trench [C:5550] [C:5551] crossed the trench from north-south cutting through a black clay layer [C:5552]. The excavation notes reveal that a layer of yellow mortar layer was present in this trench overlying traces of burning and the fill [C:5550] of the robber trench [C:5551]. This mortar was probably the same as the mortar layer [C:4065] in the nearby CLE1 trench.

Unstratified finds comprised four sherds of pottery dated 950-1100 [F:BF5600]; twenty-three sherds of pottery dated 1250-1450 [F:BF5601] [F:BF5602] [F:BF5604] and three sherds dated 1250-1500 [F:BF5603].

1959, CLS2

[L:1667] [L:1693] [E:62]. At the southern end of the trench was a 'tumbled wall' [C:5621] labelled as the 12th century refectory wall. To the north was an area of paving [C:5620] followed by a wall [C:5622]; both these features were also labelled as 12th century. The supposed 12th century inner cloister wall [C:5622] was shown cutting through an earlier layer of re-deposited clay [C:5611] which in turn overlay the natural clay [C:5623].

Within the area of the cloister garth a large feature was recorded as the 12th century lavatorium measuring c 4.5m from north-south; this comprised of south walls [C:5618], paving [C:5619], a mortar bed [C:5613] and a north wall [C:5617]. The mortar bed [C:5613] was covered by a layer of mortar spalls [C:5612] probably associated with demolition. On the north side of the north wall [C:5617] was a thick layer of lias spalls [C:5614], containing pottery dated 950-1100 and some loose stones [C:5615] which are labelled on the sketch plan as having been thrown in (see sketch [I:18775]).

At the southern end of the trench the supposed 12th century refectory wall [C:5621], cloister walk [C:5620] and the inner cloister wall [C:5622] were covered by a deep layer of debris [C:5606]. In the northern area of the trench the supposed 12th century lavatory was overlain by a very deep layer of loose spalls, stones and rubbish [C:5609] containing pottery dated 950-1100. The deep layer [C:5609] was covered by a mortar mixing floor [C:5608] labelled 13th century which extended across the northern half of the trench, although at the north end both layers and the soil layer [C:5607] above containing pottery dated from 1250 were cut through by a 'late' drain [C:5616]. In the southern half of the trench a modern disturbance layer [C:5603] overlay a deeper debris layer

[C:5606]; this extended northwards above the soil [C:5607] and covered the drain backfill [C:5604] at the north end.

Unstratified finds comprised one sherd dated after 1250 [F:BF5607] and two sherds dated after 950 [F:BF5609].

1959, CLS3

[L:1668] [L:1693] [E:61]. The modern topsoil [C:5500] yielded a stone carving of a figures hand and a fragment of a blue lias capital with stiff-leaf volutes thought to have come from the Lady Chapel (see The worked stone report). This overlay a soil layer [C:5512] containing pottery (one sherd dated after 950 and two sherds dated 1250-1450, two fragments of glazed roof tile and three pieces of fired clay relating to the Saxon glass furnaces. This covered a dirty clay layer [C:5517] which contained twelve sherds of pottery dated 950-1100, three sherds dated after 950 and none fragments of corroded iron. The brown mortar mixing floor recorded in CLS2 was also noted for CLS3 as overlying this soil [C:5517] although this was not recorded in section. At the southern end of the trench were two adjacent buttresses, the higher one [C:5507] recorded as 15th century while the lower buttress [C:5508] on its north side was recorded as 13th century. One sherd of pottery dated to after 1250 [F:BF5513] was found within the 'soft fill in disturbance in foundation' which corresponds with the 13th century date.

The cut and backfill of a later drain [C:5501] [C:5502] are recorded in section above the 13th century buttress. To the north of this was a foundation [C:5510] and mortar deposit [C:5509] thought to have been associated with the 15th century library steps. These appear to have cut through a further mortar layer [C:5511], the supposed 13th century layer [C:5512] beneath and the underlying supposed 12th century layer [C:5517]. In the yellow clay (not recorded in section) beneath the redeposited furnace material were three sherds of Roman pottery [F:BF5501] [F:BF5506] and one sherd of Iron Age pottery [F:BF5506]. The latter overlay re-deposited clay [C:5519] containing one abraded sherd of Roman pottery and a layer [C:5518] containing glass furnace fragments and four sherds of Roman pottery. The section shows two post-pits ([C:5513] [C:5514] and [C:5515] [C:5516]) cut from the surface of the supposed 12th century layer [C:5517], with a further post-pits [C:5526] shown in plan. At the north end of the trench was an east-west alignment of stones [C:5505] overlain by a thin layer of mortar [C:5503]. The cut which these stones appear to have lain within seems to have cut through the supposed 13th century layer [C:5512].

Unstratified finds comprised one sherd of Roman pottery [F:BF5508]; twelve sherds dated 950-1100 [F:BF5507] [F:BF5512]; two sherds dated 950-1200 [F:BF5502]; six lumps of burnt clay some with molten glass adhering [F:SF5504]; three pieces of glass slag [F:SF5506] and a piece of fired clay [F:SF5510] thought to have been associated with the Saxon glass furnaces.

THE WEST CLOISTER EXCAVATIONS OF GLASTONBURY ABBEY

METHODOLOGY

The Results section of this report provides a technical stratigraphic account based on the sections, plans, photographs, sketches and notes for each trench.. All contexts have been included on a stratigraphic matrix [[M:468] however it was not possible to deduce relationships for all contexts. The individual sections, plans and the overall site plan (see pdf) should be referred to particularly

during the Discussion section where the evidence from the trenches is synthesized. Stratified finds are included per context and unstratified finds are summarised per trench, although finds numbers are only provided where there is no context (finds with contexts can be accessed through the context record).

The official photographic record for the west cloister area between 1951 and 1955 includes eight images; these are incorporated within the Discussion. In 1951, the remains that had been left exposed at the southern end of the west cloister walk were roughly planned. The two 1952 trenches were drawn as single multi-phase plans and sections, although unusually both sides of the northernmost trench were drawn. Only the eastern end of these trenches covered the west cloister area therefore the western ends are dealt with in the cemetery report. Unfortunately, no sections were drawn of the 1954 and 1955 'CLW' trenches, although a single multi-phase plan survives for each year. Nevertheless, clues for some stratigraphic relationships can be ascertained from the sections of the 1952 'Cloister Trench nearest Church' which transected the 1954 'CLW' and from the 1952 'St Michael's Chapel to Cloister' trench located immediately to the south of the 1954 'CLW'. Both of the 1954 trenches within the cloister garth were recorded in a single multi-phase plan and section, however the trenches were drawn by someone other than Radford and exhibit a poor understanding of stratigraphy. While an attempt has been made in this report to establish the important archaeology in these two trenches it has not been possible to make sense of all the features. Finally, the western end of the 1955 'CLE-W' trench across the cloister is included here although the greater length of this trench is covered in the Cloister Garth report. Drawn by Radford in a single multi-phase plan and section, this is the most well-recorded trench from the west cloister group.

The rather sketchy nature of the 1951 and 1952 drawings and the scarcity of the accompanying notes contrasts to the more thorough recording of subsequent years. Details of the 1954 and 1955 trenches appear in both Radford's and the volunteer site notebooks; these notes and sketches have been critically used to construct this report. The results of these excavations were summarised in Radford's 1955 and 1956 published reports with the 1981 interim report adding further interpretation; these are referred to in the Discussion together with evidence from the recent geophysical survey.

As far as possible, the interpretative element of these records have been removed, although original labels have been left on the drawings primarily to retain terms of reference between the drawings and the notes. The phased Discussion section provides a critical appraisal of the archaeology from a modern perspective incorporating new dating and spatial evidence from specialist finds reports, the recent geophysical survey (GSB Propection) and the parchmark survey (Hollinrake & Hollinrake 1989). Together with a re-evaluation of both the original recorded and published interpretations, features have been attributed to the earliest possible phase. The Conclusion provides an overview of the archaeology, an assessment of the success of the historic excavations and suggestions for future areas of research.

RESULTS

1951 West Cloister Walk

[L:1688]. The excavation notes for 1951 describe two Saxon walls in the south-west corner of the cloister. One wall [C:900] was aligned north-south within the later cloister garden and measured 0.73m wide; the other wall [C:901] was aligned east-west at the southern end of the west cloister walk and measured 0.95m wide. Both walls were constructed of Tor burrs bonded with a dark cream, hard mortar; the north-south wall [C:900] had an eastern offset of 0.03m and the east-west wall [C:901] had a north and south offset of 0.08m.

A foundation [C:902] labelled as 13th century cut through the west side of the north-south wall [C:900]. On the eastern side of this wall [C:900] was a 0.41m deposit of coarse plaster [C:903] overlying the cover stones of a drain. A site notebook states the plaster [C:903] formed the underbed of a pavement with a surface located 0.53m above the drain cover. The drain [C:904], constructed of small slabs, is described as bifurcating in the south-west angle of the cloister and cutting both walls which were subsequently made good using Tor burrs set in a light, soft, fine mortar. The course of the drain was not planned, however an excavation photograph appears to show the drain on the south side of the north-south wall [C:900]. The latter was not shown in plan but the relationships are shown in a sketch [I:18620].

1952 West Cloister Walk

[L:1686]. Two areas of mortar [C:689] were planned in the south-west corner of the cloister walk and labelled as mid-12th century.

1952 Cloister trench nearest church east end

[L:1640] [E:33] [E:34]. This trench unusually had a section drawing of both the north and south sides. An historic excavation trench [C:552] [C:553] at the eastern end of the trench was labelled as Bond. This trench truncated a robber trench [C:575] [C:576] which was aligned north-south and was on the line of the inner wall of the west cloister. This robber trench cut through a soil and rubble layer [C:574] within the cloister garden to the east and was overlain on the south side by a rubble layer [C:581], possibly associated with post-Dissolution demolition as it directly underlay the topsoil [C:580]. In both sections, beneath the soil and rubble layer [C:574] was a clay layer [C:577] which was also cut by a robber trench [C:576]. The western side of Bligh Bond's trench [C:553] and the robber trench [C:576] cut through a deep layer of consolidated soil and clay [C:564] labelled in section as the 14th century floor level. This was cut by a robber trench [C:561] [C:562] on the line of the west wall of the west cloister walk; in situ masonry [C:588] was recorded at the base of the trench.

The deep soil and clay layer [C:564] overlay mortar bedding [C:565] which sealed the fill [C:568] of a north-south drain [C:569] measuring 0.58m wide. On the south side of the trench the mortar bedding also covered a small clay deposit [C:587] which in turn overlay a slab [C:586]. Three further slabs were recorded nearby in plan and are assumed to be part of the same feature. On the eastern side of the slab was a further deposit of black clay [C:585], and to the east a layer of clay [C:584] extending as far as drain [C:569]; the top of this clay was at the surface of the drain and was also overlain by mortar [C:565], however relationships between the drain and the clay are uncertain. The clay [C:584] covered a further layer [C:589] of clay, mortar and soil with bones. On the north side of the trench the mortar bedding [C:565] overlay a further small deposit of mortar [C:566] on the west side of the drain [C:569]. Both this deposit and a further deposit of mortar [C:567] on the east side of

the drain were probably associated with its construction. Also beneath the mortar bedding [C:565] on the north side of the trench was a layer of disturbed soil and clay [C:570] described as turning into natural clay. A line is drawn in the middle of this layer and labelled as the level of the Saxon paving slabs located 0.3m out (i.e. south) from the section. The clay [C:570] was at the same level as the top of drain [C:569] and is possibly the same as [C:584] on the south side of the trench.

On the south side of the trench, the clay [C:577] sealed a post-pit [C:582] [C:583] recorded at a depth of c 0.9m below the surface of the trench and measuring 0.27m diameter. At a similar depth of c 0.8m on the north side of the trench, beneath clay layer [C:570], was a further post-pit [C:572] [C:573] measuring 0.35m diameter. The only surviving finds from this trench, comprising pottery dated 1100-1250 and 1250-1450 plus two pieces of wall plaster, were linked to post-pit [C:573] although this context seems unlikely (see Discussion). The dimensions of these two post-pits are similar (0.27m and 0.35m wide) and it seems likely that they were contemporary.

1952 St Michael's Chapel to Cloister east end

[L:1686] [E:35]. A wall [C:679] labelled as mid-12th century masonry was recorded on the north side of the trench from just below the surface. Measuring 0.66m wide and 0.85m deep the wall was constructed mostly of re-used lias. A possible east-west aligned wall is shown to the south of this measuring 0.3m wide (no context has been given as this is very uncertain). On the eastern side of this, and aligned with the mid-12th century wall [C:679], was a further wall [C:688] drawn in plan measuring 0.57m wide; this was traced beyond the south side of the trench for 0.9m or 2.15m. On the west side of the mid-12th century wall [C:679] the remains of a Tor burr foundation [C:680] were recorded at the base of the trench. This appears to have run from north-south along the line of the outer wall of the latest west cloister walk and was cut by a robber trench [C:652] [C:653]. This was cut to the west by a Bligh Bond excavation trench [C:650] [C:651] with three blocks of stacked ashlar shown in the backfill and one possibly in situ stone [C:680] in the base.

On the eastern side of the mid-12th century wall [C:679] was a clay layer [C:681] at the base of the trench. This was overlain by mortar bedding [C:687]. In section, three square stones [C:685] are drawn above the mortar bedding [C:687] with the area labelled as 'bench' on the plan although the stones were not actually drawn. To the east of this, and partially overlying the mortar bedding [C:687], was a pavement [C:669] comprising three slabs in section with the western side planned in detail crossing the trench from north-south. Further east and at a marginally higher level was a stone-lined drain [C:670] which crossed the trench from north-south and measured 0.43m wide. There appears to have been a construction cut [C:691] for the drain on the eastern side cutting through clay layer [C:686]. Following construction of the drain the cut [C:691] may have been backfilled with the loose clay [C:673]. There was also a small deposit of clay [C:674] between the drain [C:670] and the pavement [C:669]. The drain [C:670] had a lower fill of silt [C:672] while the upper part of the drain was filled with mortar and stones [C:671].

An extensive layer [C:684] covered stones [C:685], a pavement [C:669], a clay deposit [C:674] and the western wall of the drain [C:670]. A deep clay make-up layer [C:668] then covered the entire width of the west cloister walk; this was possibly a continuation of the 14th century layer [C:564] in the other 1952 trench (see above). The overlying layers also covered the width of the west cloister walk starting with a deposit of soil [C:667], overlain by a thin layer of builders rubbish [C:666], and finally a thin layer [C:665] which also overlapped the fill [C:552] of the robber trench [C:553] and the

supposed mid-12th century wall [C:679] to the west. All these layers within the west cloister were cut by a large robber trench [C:655] to the east with a loose fill [C:654] of dark soil and stones. This was labelled as being in the location of a (inner) cloister buttress of c 1200 or the 14th century.

To the east, the robber trench [C:655] for the cloister buttress cut through a series of layers located within the cloister garden. These comprised a clay layer [C:686] at the base of the trench, an overlying deep layer of earth, mortar and stones [C:677], a dark soil and stone layer [C:676] and finally a loose layer [C:675] which in section sloped up to the level of the modern turf. A foundation [C:678] with grey mortar crossed the eastern end and base of the trench from north-south. This is likely to have cut the clay [C:686], although relationships are uncertain, and was overlain by the mortar and stones layer [C:677].

In addition, Radford's site notebook describes three or four wooden coffins lying side-by-side in the west cloister walk aligned east-west. These were not explored but the tops of the coffins were described as being level with the top of the Norman underbedding. The whole group was covered with 0.3m of solid mortar.

1954 CLW

[L:1634]. The large stone-lined drain [C:2062] labelled as Norman ran north-south along the eastern edge of the west cloister walk; externally this measured c 0.55m wide with the central drain measuring c 0.33m wide. This had been silted-up [C:2084] and contained a strip of lead (possibly from a window), fragments of an iron nail and pottery dated 1250-1450. Stratigraphically the top of the drain was recorded at the same level as the supposed mid-12th century paving [C:2085] surviving as a large area across the centre of the trench. A single paving slab [C:2069] may belong to the same phase. Four sherds [F:BF1143] dated 1200-1300 were found in hollows within the Norman floor together with a fragment of an iron nail [F:SF1112]. Green glazed pottery [F:BF1152] (not reassessed) and two iron nails [F:SF1116] were recovered from the fill amongst the slabs of the mid-12th century floor.

Beneath the paving, the mortar bedding [C:2086] was intact across the west cloister walk and sealed all the features beneath. A number of finds were described as being beneath the mid-12th century paving and therefore were probably within this mortar bedding. These comprised two mammal bone fragments, four iron nails, one Roman pottery sherd (not reassessed) and forty-one sherds of pottery dated 1100-1250. Radford's finds inventory noted that the Norman bedding [C:2086] also covered a grave fill. Although this feature was not drawn on the plan, mention of the recovery of a coin of Edward the Confessor from the same grave in 1952 reveals this was one of the graves exposed in the 1952 St Michael's Chapel to Cloister trench (see above). The pottery retrieved from this feature in 1954 comprised two Roman sherds [F:BF1120] [F:BF1168] and two sherds dated 950-1100 [F:BF1168].

Two series of post-pits were sealed beneath the intact mortar bedding [C:2086]. The earlier series comprised two small post-pits, one [C:2072] measuring 0.23m diameter and the other [C:2080] measuring 0.34m diameter. The latter contained charcoal (recently radiocarbon dated to AD 760-890), one sherd of Iron Age pottery, worked stone, fragments of plaster, two fragments of iron and twelve fragments of animal bone.

The later series comprised three larger post-pits. The most northerly post-pit [C:2075] measured 0.67m wide and contained a stone post-pad [C:2073] in the base beneath the fill [C:2074], which yielded two sherds of pottery dated 950-1100, three fragments of floor tile with mortar, four fragments of stone, and eleven nails and nail fragments. The central post-pit [C:2077] [C:2078] measured 0.85m wide and also contained a broken post-pad [C:2076], as did the southern post-pit [C:2081] [C:2082] which measured 0.86m wide. The fills of both these features contained large quantities of animal bone (323 fragments), hence the excavator's term 'bone-hole'. Post-pit [2078] also contained one sherd of post-Roman imported pottery (LRA1) dated 450-600; one late prehistoric sherd; eight Roman sherds; two thick red earthenware tile fragments; a fragment of Blue Lias plus other worked stone; charcoal; two fragments of an iron strip with nails; a further nail; a fragment of lead sheet and six fragments of wall plaster. The southern post-pit [2082] also contained two sherds of pottery dated 950-1100; six iron nail fragments; 23g of ?copper alloy slag (quite dense so possibly an ingot fragment) and stone (one of which is fire reddened). In addition, a pierced lead disc [F:SF1105] and a further thirty-nine fragments of animal bone [F:BF1130] were recovered from one of these three 'bone-hole' features.

At the southern end of the trench a wall [C:2083] was partially exposed and the trench extended southwards to expose the south face which revealed an east-west orientation. Interestingly, this was in the same location as the paving [C:669] and wall [C:688] in the 1952 trench; the 1954 plan indicates that the paving was subsequently reinterpreted as a wall.

A number of finds had been given a context description yet in the absence of a section drawing it has not been possible to attribute them to an established context. The following are described as coming from the Saxon floor level at a depth of 0.76m: four fragments of animal bone [F:BF1128] and oyster shell [F:BF1170]; one Roman tile [F:BF1138]; pottery [F:BF1139] including one sherd of samian; three Roman and two prehistoric sherds and four fragments of plaster [F:BF1154]. Below this level (or floor) but not sealed were 134 fragments of animal bone [F:BF1136]; a bone pen [F:SF1121]; charcoal [F:BF1166]; three iron nail fragments [F:SF1120]; CBM [F:BF1167]; Roman pottery [F:BF1100] and two sherds of pottery dating from 950 [F:BF1112]. Crucially, eleven sherds of glazed pottery [F:BF1118] dated 1100-1250 were found beneath the 'Saxon floor' level. This evidence along with the recorded depth of the Norman paving and bedding at a similar depth indicate that the 'Saxon floor' was in fact the Norman floor level. There were also 105 fragments of animal bone recovered from a bore hole beneath the 12th century floor level.

Finds from the west side of the Norman drain at a depth of c 0.71m included forty-two fragments of animal bone [F:BF1101]; one mortar fragment [F:BF1103]; an oyster shell [F:SF1100] possibly used as a paint palette; one Roman tile fragment [F:BF1104]; six nail fragments [F:SF1101] and pottery [F:BF1165] (not reassessed). A copper alloy strap mount [F:SF1102] was also recovered from this horizon, however this has now been dated to the 13th to 14th century which provides a terminus ante quem of 1200 for this group of finds and means that they cannot have been sealed beneath the Norman level as previously thought. A further 131 fragments of animal bone [F:BF1121] were found on the west side of the drain at a depth of 0.91m, also presumably below the Norman floor. Some finds are described as being in the clay below the Saxon shale floor: one sherd of Roman pottery [F:BF1109]; three sherds of pottery dated 950-1100 [F:BF1110] and seventeen fragments of animal bone [F:BF1131]. Also beneath the shale floor were two fragments of wall plaster [F:BF1107] and stone [F:BF1108]. There is no other mention in the records of a 'Saxon shale floor' and once again

this is likely to refer to a Norman layer. One sherd of pottery [F:BF1106] dated 1300 to 1400 came from a post-fire layer at a depth of 0.71m. In the nearby 1952 trench [E:35] this is the re-deposited clay [C:668] overlying the supposed Norman pavement [C:669]. Finally, two Edward the Confessor coins discovered during the west cloister excavations were stolen from the abbey in 1974 and probably came from the disturbed graves from the early cemeteries (Metcalf and Minnitt 1981).

1955 West cloister trench

[L:1645]. This trench was a northern extension of the 1954 CLW trench. Two large stones were recorded in the north-east corner of the trench as the remains of Dunstan's east cemetery wall [C:2055]. These were found at a depth of 0.94m and at the base of the wall trench was a post-pit [C:2057] [C:2058] measuring 0.31m wide. This was recorded to a depth of 0.51m below the base of the wall trench and was carefully lined with stones. The wall [C:2055] had been predominantly robbed [C:2042] which was traced to the south end of the trench and northwards into 1955 CLE-W. On the western side of the robber trench [C:2042] was a large rectangular disturbance [C:2059] [C:2060] below the 13th century inner cloister wall measuring 1.39m north-south and 1.41m east-west. The pottery attributed to this feature comprises one Iron Age sherd, two sherds of post-Roman imported pottery (LRA1) dated 450-600 and one sherd dated 950-1350. There was also a buttress foundation [C:2061] beneath the 13th century inner cloister wall with one sherd of Ham Green pottery [F:BF2088] dated 1130-1250 found on top and a lump of melted copper alloy waste.

Continuing northwards from 1954 CLW was the stone-lined drain [C:2062], the supposed mid-12th century paving [C:2085] and associated mortar underbed [C:2086]. Three sherds of pottery [F:BF2075] & [F:BF2077] dating from 950 may have come from beneath the mortar underbed. Two green glazed fragments [F:BF2076] & [F:BF2078] dated 1250-1450 were recorded as coming from beneath a mortar floor, although this may have been the supposed 13th century mortar floor located at a higher level. The silt fill [C:2084] of the drain contained three sherds of pottery dated 1100-1250, nine sherds dated 1250-1300, part of a lead window came and fragments of an iron nail. The paving is recorded as being at a depth of 1.04m beneath the modern turf line. Two stones [C:2070] are drawn in plan, one of which is on edge, and appear to overlie the paving [C:2085].

Two small post-pits were recorded in this trench, measuring 0.18m [C:2063] [C:2064] and 0.26m [C:2067] [C:2068] in diameter. Between the two small post-holes and on the same alignment was a large scaffold-pit [C:2065] [C:2066] measuring 1.0m in diameter and containing pottery dated 1100-1250, a lead ?plumbob and a bronze lump originally recorded as a cupboard handle.

A number of finds had been given a context description yet in the absence of a section drawing it has not been possible to attribute these to a context. On the eastern side of the drain, finds from the 'dark soil' at a depth of 1.3m comprised a stone moulding [F:AF2000], a clay tile [F:BF2061] and a fragment of a Douling column [F:AF2001]. Pottery [F:BF2098] dated 1100-1250 also came from the 'dark soil' although no depth is given. On the eastern side of the drain was a sherd of Roman pottery [F:BF2064]. Encaustic floor tile [F:BF2070] came from near the Norman drain, along with pottery dated 950-1200 [F:BF2089] & [F:BF2090], 950-1100 [F:BF2091] & [F:BF2092] and 1100-1250 [F:BF2093]. A bronze lace end [F:SF2027] came from the western edge of the drain at a depth of 1.14m. A Nuremberg type jetton, 1553-1584 [F:SF2031] was found to the east of the drain at a depth of 1.27m and a piece of worked bone [F:SF2045] was also found to the east of the drain. Pottery dated 950-1100 [F:BF2086], 950-1350 [F:BF2087], 1250-1400 [F:BF2085] and post-1500 [F:BF2084]

came from a clay layer. Iron slag [F:SF2048] was recorded in a brown clay layer at a depth of 0.76m. A pottery sherd [F:BF2074] dated 1250-1450 came from a stony layer. Some pottery sherds were recorded as coming from beneath a mortar floor; one [F:BF2077] dated after 950, and two [F:BF2076] & [F:BF2078] both dated 1250-1450.

1955 CLE-W west end

[L:1646] [E:37] The earliest features at the west end of the trench comprised a small post-pit [C:2044] [C:2045] and a mortar floor [C:2046] at the surface of the post-pit. The post-pit and floor were overlain by a layer of soil, clay and stones [C:2043] containing one Late Iron Age or Early Roman coarseware rim; one sherd dated 950-1100; eleven sherds dated 1100-1250 and one sherd dated 1130-1250. This was cut to the east by robber trench [C:2041] [C:2042] which continued from the CLW trench to the south. This yielded a medieval black glass bead (probably rosary or paternoster), a fragment of a glass vessel (not reassessed) and six pottery sherds dated 1100-1250. At the base of the robber trench were four in situ stones [C:2055]. Both the robber trench fill [C:2041] and the soil, clay and stone layer [C:2043] were overlain by a make-up layer [C:2040] which continued eastwards above clay, soil and stone layer [C:2048] containing one Roman tile (not reassessed). Both this layer [C:2048] and the clay layer beneath [C:2050] were cut to the west by the robber trench [C:2042]. At the west end of the trench the mortar floor [C:2046], the soil, clay and stone layer [C:2043] and the make-up layer [C:2040] were cut by robber trench [C:2038] [C:2039]. Two in situ foundation stones [C:2054] remained against the northern edge of the trench. The uppermost layer in the trench comprised rubble and demolition material [C:2002] extending as far as the modern robber trench [C:2001] [C:2002] which directly overlay and cut into the robber trench fill [C:2038].

1954 CLW between 2nd and 3rd buttresses

[L:1635] [E:36] A volunteer site notebook notes that this trench was dug to look for evidence of a possible Saxon chapter house. Radford did not include this trench in his own site notes making it very difficult to interpret the records. At the base of the western end of the trench was a layer of mortar [C:1209] at a depth of c 0.5m below the modern turf. This was described on the finds envelopes as both a mortar layer beneath the floor and as a mortar mixing layer; fragments of this flooring were retained. The finds from this layer included one sherd of pottery dated 1250-1450 and a corroded bronze object; finds which have not been reassessed include twenty-six sherds of a medieval cooking pot with combed body decoration and glaze; a stone mouldin and glass. The mortar [C:1209] had several paving stones in situ [C:1210] and overlay a single stone [C:1216]. A number of finds were beneath this mortar within a soft grave fill [C:1214]; this feature was not drawn although this could be the roughly rectangular area drawn in plan and labelled as a 'ramp' [C:1213]. Finds which have not been reassessed comprise ten sherds of a tripod pitcher with combed decoration; a Douling stone mullion; glass and plaster (probably from a floor). In addition, two nails and one nail fragment were recovered.

Further east another layer of mortar [C:1204] labelled as a mortar floor was located at a slightly higher level than the mortar layer [C:1209] to the west. This overlay a possible make-up layer of clay [C:1206]. To the east of this was a foundation [C:1205] aligned north-south with a further wall [C:1215] possibly in the south-east corner of the trench described as possibly running east from the foundation [C:1205]. A small clay deposit [C:1203] overlay part of the mortar floor [C:1205], which

was covered by an extensive deposit [C:1202] containing one fragment of painted plaster. This layer also covered possible the wall [C:1215], foundation [C:1205], mortar floor [C:1204] and fill [C:1207] to the west. This was overlain by an extensive deposit of light clay [C:1201] containing pottery dated 1300 to 1400, covered by topsoil [C:1200] with pottery dated 1480-1560.

In the centre of the trench, the extensive layer [C:1202] and probably the clay layer [C:1206] overlay fill [C:1207] which was labelled as a 'rubbly tip' containing stones and one piece of wall plaster. This appears to have been the fill of a robber trench [C:1211] which would have cut a rubble clay 'fill' [C:1208] at the western end of the trench containing six sherds of pottery dated to between 1100 and 1250. The latter overlay the mortar [C:1209] and contained several medium sized stones.

1954 CLW between 5th and 6th buttresses

[I:1631] [E:9] There were three post-pits recorded in this trench, with the two on the south side recorded in plan and section. The western post-pit [C:1426] measured 0.56m wide and was filled with clay packing [C:1421] while the eastern post-pit [C:1425] was located 0.74m to the east (see plan rather than section), measured 0.43m wide and was back-filled with clay packing [C:1419] surrounding the 0.13m wide post-hole [C:1420]. A further rectangular post-pit [C:1427] [C:1428] was planned 0.68m to the north of post-pit [C:1425] on the northern side of the trench and measured 0.24m from east-west and 0.13m from north-south.

The eastern post-pit [C:1419] appears to have been sealed by a pink mortar layer [C:1414] and a small deposit of clay [C:1416]. It is unclear whether the former was under or over a thick iron stained clay layer [C:1417] which also sealed the post-pit and the western post-pit [C:1426]. Three sherds of pottery were recovered from this clay dating to between 950 and 1100. The clay was 0.4m thick and contained one slab labelled as in situ. At the western end of the trench the clay [C:1417] was overlain by yellow mortar [C:1415] which was at the same level as the pink mortar [C:1414] to the east. Both mortar layers were overlain by a thick layer of earth [C:1407] containing clay and small stones, with one sherd of pottery dated 1100 to 1250.

At the eastern end of the trench was a further deposit of mortar [C:1413] at a slightly higher level than the pink mortar layer [C:1414] and yellow mortar layer [C:1415] to the west. This overlay a re-deposited clay layer [C:1418] tentatively linked to pottery dated from 950 and a copper alloy pin. A foundation trench was thought to have been cut from the level of the lower plaster level [C:1413]; two large stones [C:1424] remained in situ in the base of the trench although the majority of the feature was removed by a robber trench [C:1410]. This robber trench was described as cutting from the level of the upper plaster level [C:1411] labelled as 'Herlewin' which was separated from the lower plaster level [C:1413] by a thick layer of re-deposited clay [C:1412].

The robber trench [C:1410] contained a primary fill [C:1409] with one sherd of prehistoric pottery, three sherds of pottery dated 900 to 1100 and three sherds dated 1100 to 1250. A secondary fill [C:1408] was sealed by a series of layers ([C:1404], [C:1405] and [C:1406]) described by Radford as post-fire (1184) clay deposits. To the west, two of these layers ([C:1405] and [C:1406]) appear to have been cut by a robber trench [C:1423] which may also have cut layer [C:1407] below. The robber trench was filled by an extensive layer [C:1402] of dark soil containing small stones and mortar (including a lens of yellowish soil [C:1403]), which extended eastwards across the presumed post-fire

deposits. At the western end of the trench all this was cut by a Bligh Bond excavation trench [C:1400] [C:1401].

THE CLOISTER GARTH

METHODOLOGY

The Results section of this report provides a technical stratigraphic account based on the sections, plans, photographs, sketches and notes for each trench.. All contexts have been included on a stratigraphic matrix [M:474] however it was not possible to deduce relationships for all contexts. The individual sections, plans and the overall site plan (see pdf) should be referred to particularly during the Discussion section where the evidence from the trenches is synthesized. Stratified finds are included per context and unstratified finds are summarised per trench, although finds numbers are only provided where there is no context (finds with contexts can be accessed through the context record).

The official photographic record for these trenches consists of seventeen images; many of these are incorporated within the Discussion. There is also one further official photograph taken in 1955 which has now been linked to the excavation of glass furnace one in the CLE-W trench. The 1955 CLE-W trench, the 1955 CLE-W north extension trench, the 1956 CL1 trench, the 1956 CL2 trench, the 1956 CL3 trench, the 1957 CL1 trench and the 1957 CL1 Extension 1 trench were recorded in section and as single multi-context plans. In addition, eight large scale section drawings were made of furnaces one and two. The 1956 CLE-W trench, the 1956 CL1 Ext 1 trench, the 1956 CL1 Ext 2, the 1956 CL2 Ext 1 and the 1956 CL2 Ext 2 trench were recorded only as single-multi-context plans. The 1957 CL1 Extension 3 trench was recorded as a single multi-context plan with two large scale sections across glass furnace three.

Details of these trenches appear in both Radford's and the volunteer site notebooks with sketches and in detailed trench write-ups; these notes, sketches and write-ups have been critically used to construct this report. Some of the results of these excavations were summarised in Radford's 1956 and 1958 reports while the 1981 interim report added further descriptions and interpretation. The western end of the 1955 CLE-W trench is dealt with in the west cloister report because the features relate to the west cloister walk. The records and finds associated with the Saxon glass furnaces form a separate specialist report therefore only those elements of the furnaces that are visible within the main excavation trenches are included here.

As far as possible, the interpretative element of these records have been removed, although original labels have been left on the drawings primarily to retain terms of reference between the drawings and the notes. The phased Discussion section provides a critical appraisal of the archaeology from a modern perspective incorporating new dating and spatial evidence from specialist finds reports, the recent geophysical survey (GSB Propection) and the parchmark survey (Hollinrake & Hollinrake 1989). Together with a re-evaluation of both the original recorded and published interpretations, features have been attributed to the earliest possible phase. The Conclusion provides an overview of the archaeology, an assessment of the success of the historic excavations and suggestions for future areas of research.

RESULTS

1955, CLE-W

[L:1646] [E:37]. The uppermost layers in the trench are associated with demolition and modern levelling. At the eastern end of the trench was a thick, undulating layer of mortar and rubble [C:2003] which overlay a loose 'fill' [C:2006] containing five sherds of pottery dated 950-1100 and a possible piece of worked bone. This directly covered the partially robbed Tor burr foundation [C:2025] aligned north-south at the eastern end of the trench, the wall trench for which contained a fragment of supposedly Saxon window glass (not reassessed). The mortar and rubble layer [C:2003] covered a small clay and mortar deposit [C:2011] above the medieval layers sealing glass furnace one, although most of these layers and the eastern edge of the furnace deposits appear to have been partially truncated by the mortar and rubble [C:2003]. To the west, this deposit [C:2003] overlapped an extensive undulating layer of loose soil and mortar [C:2004] which continued as the uppermost layer for c 10m westwards. This overlapped a further layer [C:2005], presumably also from demolition or levelling, for a further 3.6m before continuing as a further loose rubble layer for 12.89m westward. This was cut by a modern (excavation?) trench [C:2000] [C:2001] for the inner wall of the west cloister walk. The soil and mortar layer [C:2004] overlay a small deposit of disturbed loose soil and rubble [C:2009].

The debris layers [C:2002] [C:2005] sealed a wide robber trench [C:2008] just west of the centre of the cloister garth measuring 6.00m wide and 1.47m deep, backfilled with earth, rubbish and stones [C:2007]. The pottery provides a terminus ante quem of 1470 and comprised one sherd of late prehistoric pottery, forty-six sherds of pottery dated 950-1100, five sherds dated 950-1200; one sherd dated 1250-1450; one sherd dated 1470-1560 and one sherd dated post-1450. Additional finds included two occurrences of two lead comes twisted together, one of which possibly retained a Dissolution-period workman's tool impression (see The Lead Came). Two fragments of floor tile are possibly group 4 (c 1272-1280). There were also four fragments of painted wall plaster, and a fragment of coloured glass with red paint.

Directly below the debris layers [C:2004] [C:2009] was an extensive layer of soil and clay [C:2010] which extended westwards from the disturbance above glass furnace one for a distance of c 12m. This layer contained two sherds dated post-1450. Directly beneath this layer, and beneath the clay and mortar deposit [C:2011] to the east, was a thin deposit of builders rubbish comprising mortar and Douling stone chips for a distance of 14.07m wide (including a post-Dissolution truncation of 1.96m) and measuring 0.06m deep. This contained two sherds of pottery dated 1250-1400 and overlay a soil and clay deposit [C:2016] at the base of the trench which contained one sherd of prehistoric pottery and two sherds of pottery dated after 1450. Further west the builders rubbish [C:2012] overlay three thin lias slabs [C:2028] along the base of the trench and embedded in the clay surface measuring 0.59m wide. In plan only two stones are shown against the south section with another stone immediately to the north. To the west of these stones was a layer of dirty clay [C:2027] - this probably continued on the eastern side of the stones where the layer appears to overlap the stones. The latter contained twelve sherds of pottery dated 950-1100, the context information for which states they came from a 12th century cultivated soil.

In the same area two offset stones [C:2026] overlay the stone chippings layer [C:2012]. To the west of this was a 'loose fill' [C:2017] which may have been associated with the stones, with a possible continuation of the debris layer [C:2032] to the west. The loose fill [C:2017] covered the mortar

and earth fill [C:2030] of a robber trench [C:2029] above the remains of a wall foundation [C:2031]. This measured 0.75m wide and in plan appears to comprise seven stones. A sketch plan [I:18753] labels one of these stones as 'Dunstan's stone' which clearly overlay the feet of skeleton thirteen [F:SK13]. The sketch shows small stones forming a wall or paving to the north of this stone (not shown on the trench plan) and a Tor burr (foundation [C:2036]) 0.89m to the west. The foundation [C:2031] probably cut through the clay layer [C:2033] sealing the layer [C:2035] containing the skeleton [F:SK13]. The remainder of the skeleton was presumably cut to the west by the construction trench [C:2056] for the large structure. This comprised remnants of Tor burr foundations at the eastern end of the trench [C:2036] and in the centre of the trench [C:2037]. The latter was more substantial comprising eight ?in situ stones and two further scattered stones.

On the western side of the robber trench [C:2008], the demolition rubble [C:2002] sealed a soil layer [C:2048] which may have been a continuation of the post-1450 layer [C:2010] to the east. This covered a layer of clay, soil, stones and mortar debris containing one fragment of Roman tile (not re-examined). To the west this was cut by a robber trench [C:2041] [C:2042] for Dunstan's east cemetery wall (see West Cloister report) containing a glass bead, two fragments of a glass vessel and six sherds of pottery dated 1100-1250. The robber trench [C:2042] cut through a clay layer [C:2050] beneath the debris layer [C:2048]. This debris layer covered a single slab [C:2049] in section, although in plan this is shown as seven paving slabs and several smaller fragments. To the east of the slab [C:2049] was a clay layer [C:2018] which is probably the same as a more deeply excavated clay layer [C:2034] further to the east.

The stone chippings layer [C:2012] covered the soils [C:2051][C:2052] on either side of the supposed 12th century kerb [C:2023] (see below), and overlay the eastern edge of the uppermost tile, ash and clay layer [C:2019] associated with glass furnace one. On the eastern side of the kerb, the soil [C:2051] contained five redeposited glass furnace fragments, pottery dated 950-1100 and 950-1200m. On the western side of the kerb, the soil layer [C:2052] contained three fragments of glass associated with the glass furnace, five sherds of pottery dated 950-1100, and six pieces of fired clay. Both deposits overlay the uppermost layer of tile, ash and clay [C:2019] associated with glass furnace one, while the western deposit [C:2052] also covered a destruction layer [C:2022] from the demolition of the glass furnace (see below). The kerb [C:2023] comprised three upright kerb stones aligned north-south, the stone recorded in section measuring 0.45m high with two further stones crossing the southern edge of the trench. In section, the kerb is shown cutting through the debris deposits overlying glass furnace one ([C:2019], [C:2020], [C:2021] and [C:2053]).

On the western side of glass furnace one, the chippings layer [C:2012] sealed a disturbed rubbish and soil layer [C:2013] which also filled a north-south aligned robber trench [C:2014] measuring 0.89m wide. Finds from this context consist of an antler rod, possibly a waste off-cut or a gaming piece; one sherd of middle/ late Iron age and one sherd of late prehistoric pottery, thirty-six sherds of pottery dated 950-1100; one fragment of Roman tile; two fragments of Group Four floor tile dated c 1272-1280; a copper alloy hooked tag (most common in the 9th to 11th centuries); and a fragment of a folded bronze sheet. In plan, the robber trench [C:2014] turns westwards along the northern side of the trench with the remains of some foundation stones [C:2104] possibly in situ. The clay subsoil [C:2015] which the robber trench cuts through contained a possible Roman pottery sherd (although not reassessed), pottery dated 950-1100 and 950-1200; and one piece of slag (not reassessed).

Finds that were either unstratified or could not be linked to a context with reasonable confidence (and were unrelated to the glass furnace sequences) comprised one sherd of later Roman pottery [F:BF2065]; one sherd of 'early medieval coarseware spout' [F:BF3064] (not reassessed); thirteen sherds of pottery [F:BF3065] dated 950-1150; six sherds of pottery [F:BF3079] dated 950-1100; a copper alloy hooked tag [F:SF2033] dating from the 7th to 11th centuries but most common in the 9th to 11th centuries; an incomplete copper alloy object in the form of a stylised animal head [F:SF2059]; and a copper alloy brooch pin with a Romanesque dragon head suggested as 12th century in date [F:SF2060].

Glass furnace one

Directly beneath the supposed mid 12th century cloister garden soil [C:2052], and cut by the robber trench [C:2014] associated with a late Saxon building, was a deposit of dirty clay with stones [C:2022]. Located immediately west of glass furnace one, this overlies the entrance stone [C:2053] of the furnace and overlapped one of the furnace debris layers [C:2020]. This deposit [C:2022] contained fragments of the glass furnace structure and items related to glass working, with a number of items collected from the furnace mouth [F:SF2015] [F:BF2003]. It also contained three supposedly Saxon sherds (not reassessed); twenty pottery sherds dated 950-1100 and six fragments of corroded copper alloy.

Immediately to the east of this deposit, and possibly abutting it, was a layer of tile, ash and dark clay [C:2019] measuring 0.13m deep and sloping gently downwards from west to east. This formed the uppermost layer of the glass furnace one sequence as represented in section 37. This contained sixty-three fragments of fired clay from the furnace structure (possibly including Roman tile) and glass working debris, some showing signs of vitrification including a small sherd of a glass making crucible with a layer of glass attached to the outer and inner surface. In addition, there was one fragment of a glass vessel, two fragments of glass waste, four fragments of Roman tile, five pottery sherds dated 950-1100. Two charcoal samples have now been radiocarbon dated to 650-780 and 761-882. This overlies a dirty clay layer [C:2020] measuring 0.09m deep, and also sloping gently downwards from west to east. This contained three fragments of Roman tile and five fragments of furnace structure.

The lowest furnace debris layer was a tile and stone layer [C:2021] measuring 0.04m deep and also sloping gently downwards from west to east. This contained the largest quantity of finds; seven fragments of glass waste; five faunal remains (domestic goose, duck, domestic fowl, ?domestic fowl/pheasant), stone (no details); twelve fragments of fired clay, one piece with molten glass adhering; thirteen pieces of clay/stone/mortar; one piece of furnace waste with a vitrified surface; one fragment of glass, possibly part of a moil; one fragment of 'Saxon' window glass; three fragments of Roman tile; 35g of iron smithing slag and possibly a nail.

Beneath the lowest debris layer [C:2021] and to the east of glass furnace one was a clay layer [C:2024]. Although this was located outside of the horse-shoe plan of glass furnace one, the clay appeared to contain three small pieces of glass waste found at the edge of the furnace. A small scrap of pottery [F:BF2051] dated post 16th/17th century was found inside the clay filling of glass furnace one but this must be intrusive.

At the base of the section, beneath the furnace debris layers, was the entrance stone [C:2053] of the furnace and, to the west, the outer kerb [C:2047]. In plan the outer kerb is shown as a horseshoe-shape with some in situ stones and the entrance orientated towards the south-west-west.

1955, CLE-W North Extension

[L:1646] [E:10]. A thick layer of loose demolition rubble [C:2100] extended throughout the trench, from which a William III (1650-1702) coin was collected. This covered a small humped deposit [C:2101] possibly of loose clay and a layer of clay and soil [C:2105] at the northern end of the trench, immediately south of the medieval north cloister walk. The humped deposit was directly above a foundation represented by a large in situ 'black' lias stone [C:2106] located c 0.8m south of the medieval north cloister, measuring 0.7m wide in plan and crossing the entire width of the trench. To the south of this foundation, and overlapped by the humped deposit [C:2101], was a layer of clay [C:2102] at the base of the trench. At the southern end of the trench the clay [C:2102] abutted an upright slab [C:2103] which was leaning against a foundation [C:2104] with the lower part embedded in the natural clay [C:2107]. The foundation [C:2104] was on the south side of the natural clay [C:2107] and crossed the trench from east to west, with remnants continuing along the northern edge of the CLE-W trench although most of the foundation had been robbed [C:2014].

1956, CL1

[L:1650] [E:49] [E:51]. The modern topsoil [C:3100], containing one fragment of a moulding with orange and gold paint, sealed a modern rubble layer [C:3101] and a modern excavation trench [C:3103], the fill [C:3102] of which contained 19th century pottery although this was not retained. This cut through a deep rubble deposit [C:3106] on the north side of the trench (probably a tree throw as very irregular). At the western end of the section the topsoil sealed a robber trench [C:3104] [C:3105]. In the south section, this robber trench [C:3105] appears to have cut through another disturbance [C:3127] filled with 'modern debris' [C:3126].

At the eastern end of the trench the north section transected a buttress [C:3107] for the late medieval cloister. This comprised one course of squared stones and was constructed above a substantial foundation [C:3108] comprising four distinct courses. The two upper layers comprised a single course of upright rectangular stones covered by a single course of thin slabs. The two lower courses were offset to the west by 0.46m and comprised a course of small stones or spalls set in clay below one course of rectangular stones. The lower courses appear to have abutted an earlier foundation [C:3122] of rough stones which extended from north-south through the trench, although this had been extensively robbed. The foundations [C:3107] [C:3108] at the eastern end of the trench were constructed within a clay layer [C:3123] which in the south section overlay a further clay layer [C:3144]. A label on the section states that this contained Saxon glass working material however no finds have been attributed to this layer.

Below the modern rubble layer [C:3101], and cut by the Bligh Bond trench [C:3103], the robber trench [C:3105] and the modern disturbance [C:3127], was a layer [C:3109] of soil and clay throughout the entire length of the trench. In section 56 this was described as redeposited clay with fragments of brick/tile. It contained eighteen sherds of 'Saxon' pottery (not redated), a bronze metal disc (not reassessed) and one iron nail fragment. In the north section this is shown covering an upright kerb stone [C:3110] and in the south section the location of a robbed kerb stone [C:3128]

[C:3129] - these two features were directly opposite each other. In the south section the robbed kerb [C:3129] cut through a layer of mortar [C:3112] with 'irregular Doulling spalls in the base'. This contained one sherd of prehistoric pottery and two sherds of pottery dated 1100-1250. This layer appears to have continued westwards [C:3113] (yielding one sherd of prehistoric pottery) above a small deposit of spalls [C:3130] (possibly part of the same layer). In the north section the spalls layer is very tenuous and may be a part of the layer [C:3116] below.

At the western end of the north section, immediately east of the large robber trench [C:3105] and at a similar depth to the mortar spalls layers [C:3113], was a layer of mortar 'droppings' [C:3115] overlain by a gravel layer [C:3114]. In the north section both mortar layers [C:3112] [C:3113] are overlain by an extensive soil [C:3111] containing charcoal and labelled in section as redeposited kiln material. Furnace material retrieved from this layer comprised ten large and several smaller pieces of grey fired clay with copper alloy fragments and nine pieces of bubbly fired clay with vitrified surfaces.

The mortar and spalls layers covered an extensive soil layer [C:3116] containing some spalls. This yielded some finds associated with the glass furnaces: two fragments of fired clay; one piece of vitrified clay with a glassy surface; one fragment of green blue glass; one fragment of green-blue window glass; two fragments of fuel ash slag; one fragment of fayalitic slag with wood/charcoal impressions and four pieces of non-diagnostic ironworking slag. Other finds from this layer comprised eight fragments of oak charcoal; one sherd of prehistoric pottery; ten sherds of pottery dated 950-1100; one intrusive sherd dated to the 15th to 16th centuries; one small piece of plaster; a Roman coin dated 330-335; single-sheet tweezers (probably medieval) and a lead clip (not reassessed). There was also a lace chape dated to 1500-1699. At the same level but on the eastern side of the robbed kerb [C:3129] is a further layer of clay and soil [C:3141] containing six sherds of pottery dated 950-1100 and material associated with the glass furnaces comprising two fragments of fired clay and one piece of copper alloy slag.

In the south section, the soil and clay layer [C:3116] appears to have filled a robber trench [C:3150] with the shallow, tenuous remains of a foundation comprising a few mortared stones [C:3149] in the base. Almost directly opposite, in the north section, was a further tenuous foundation [C:3120] comprising a few mortared stones and one large lias slab and directly beneath the Doulling spalls layer [C:3112]. To the east of this was a layer of clay [C:3121], which contained large fragments of stone and pieces of tile and half a broken spout from a Saxon spouted bowl (not identified in the finds assemblages) overlying the foundation [C:3122] for a 12th century buttress. The shallow robber trench [C:3150] cut through a deep deposit of soil, debris and contaminated clay [C:3142] with tip lines sloping downwards from east to west. Situated to the east of glass furnace two, this contained two sherds of pottery dated to after 950, sixty-eight sherds dated 950-1100, and five fragments of glass associated with the glass furnace. To the east was a small soil deposit [C:3143] on the western side of the 12th century foundation [C:3122]. Although relationships are uncertain, the context information for a sherd of prehistoric pottery [F:BF3266] which appears to have come from this deposit, suggests this may have been the backfill of the construction trench for foundation [C:3122]. Both this soil deposit [C:3143] and the soil, debris and clay layer [C:3142] overlay the dark clay [C:3123] beneath foundation [C:3122] which in turn covered the clay [C:3144] at the base of the trench. The latter supposedly contained Saxon glass furnace material, although no finds have been attributed to this layer.

The soil and clay layer [C:3116] also overlay a clay layer [C:3119] at the base of the trench, and a clay deposit [C:3154] sealing a Tor burr foundation [C:3118] aligned north-south and measuring c 0.69m wide. In the south section the foundation was overlapped by a single, flat stone [C:3151]. On the western side of this was a layer of lias spalls [C:3136]; this layer and the single stone [C:3151] were beneath soil layer [C:3116] and overlay a soil layer [C:3138] which according to a label on the section overlay the clay (no context). To the west of the spalls layer [C:3136], but c 0.3m deeper, was a substantial foundation of Tor burrs [C:3137] aligned north-south and measuring 1.8m wide. To the east of the foundation was a possible post-hole [C:3124] [C:3125] extending from the south section and measuring 0.72m wide from east-west. On the western side of the foundation, and probably later, was a clay layer [C:3135] beneath the paving [C:3134]. This was overlain by a clay layer [C:3133], below a 'fallen stone' [C:3132], below a further layer [C:3131], beneath a soil layer [C:3153], all of which were cut by the robber trench [C:3105].

Finds that were either unstratified or could not be linked to a context with reasonable confidence (and were unrelated to the glass furnace sequences) comprise one sherd of Iron Age pottery, two sherds of Roman pottery, four sherds of pottery dated 950-1200, two sherds of pottery dated after 950 (UGSD), and eighty-nine sherds of pottery dated 950-1100.

Glass furnace one/ two

The southern half of what was thought to have formed glass furnace one/ two was exposed in plan, although new analysis indicates this may have been part of furnace one and that a furnace two may not have existed (see Saxon glassworking at Glastonbury). The north section was not excavated (or drawn) to a sufficient depth to expose any furnace remains. However, the south section bisected the remains at the southern edge and to the east of the planned location of the furnace. The soil, debris and clay layer [C:3142] covered a thin layer of burnt clay [C:3145] (?decayed daub) and debris. This debris comprised eight fragments of fired clay (including four pieces which fitted together), five pieces of fuel ash slag, a large piece of glass cullet/waste (partly melted), a small fragment of a glass crucible and a piece of glass reticella rod. The burnt layer [C:3145] overlay the mortar floor [C:3146] of the furnace, sloping upwards from east to west and described as being cut [C:3148] into the subsoil. Two fragments of copper sheeting and 6g of fuel ash slag were supposedly found on this mortar layer. The mortar also contained two pieces of fired clay (one heavily burnt) and one very small sherd of Iron Age pottery. In the centre of the trench, to the east of glass furnace two, was an ash pit [C:3152] measuring c 0.52m diameter.

Glass furnace three

The remains of furnace three were discovered c 5m west of glass furnace one/two against the south section. The recorded remains were confined to a small circular pit filled with clay [C:3139] lying within a hollow with gently sloping sides. The eastern edge of this layer overlapped a layer of soil and debris [C:3140]. The section states that the deposits in this area were not dug to the base to preserve the furnace remains which were fully excavated in 1957. The notes state that there was a 'hard dished floor' and that there were no certain remains of glass or other waste. Both the soil and debris [C:3140] and the furnace deposit [C:3139] overlay a clay layer [C:3117]. On the western side of the furnace remains the clay [C:3117] appeared to have been cut through by the wall foundation [C:3118].

1956, CLE-W

[L:1650] Part of the 1955 CLE-W trench was re-opened in 1956 above glass furnace one. The furnace material, including Roman tile, is dealt with in the specialist report, however the other finds are summarized here. They comprised one sherd of Roman pottery within the furnace structure and two sherds of pottery dated to after 950 in the grey clay under the fallen blue lias block at the furnace entrance.

1956, CL1 Extension 1

[L:1650] A small L-shaped trench was opened to the south of CL1 with the purpose of finding the return of the 12th century south transept wall. However, the only recorded feature was a continuation of the north-south foundation [C:3122] from CL1 along the eastern edge of the trench. Notes indicate that the mortar layer [C:3112] containing Douling spalls was also present in this trench.

Unstratified finds comprised one Roman pottery sherd [F:BF3145]; two sherds of pottery [F:BF3251] [F:BF3252] dated after 950; twenty-nine sherds of pottery [F:BF3265] dated 950-1100 and twelve sherds of pottery [F:BF3189] dated 1130-1250. Finds associated with the glass furnaces comprised four fragments of the glass furnace structure [F:BF3105]; seventeen fragments of fired clay [F:SF3187] (some with molten glass adhering) and one Roman tile [F:BF3203] from the glass furnace structure.

1956, CL1 Extension 2

[L:1650] This small rectangular trench connected the 1956 CL1 trench with the 1955 CLE-W trench, part of which was re-opened in 1956. The extension was located at the junction between glass furnaces one and one/ two and numerous finds associated with the furnaces were recovered. The glass furnace material, including Roman tile, is dealt with in the specialist report, however the other finds are summarized here. They comprised three Iron Age pottery sherds, eight sherds of Roman pottery, one samian sherd (no longer in assemblage), fourteen sherds of pottery dated after 950, 213 pottery sherds dated 950-1100, forty-six pottery sherds dated 950-1200, one pottery sherd dated after 1100, twenty-one sherds dated 1130-1250, two fragments of roof tile, one flue vent and one iron nail.

1956, CL2 with Extensions 1 and 2

[L:1650] [E:23] [E:50]. The modern topsoil [C:3000], containing one residual fragment of Roman tile with fused glass fragments, is shown in section sealing the 1955 CLE-W North Extension trench [C:3001] [C:3002]. Below was an extensive layer of rubble and stones [C:3003] up to 0.57m deep across the entire width of section 50 and the western part of section 23, although in the latter it appears to continue as [C:3013] on the eastern side of the 1955 trench. The latter supposedly contained lead cames however these have not been identified in the assemblage.

The rubble layers [C:3003] [C:3013] sealed or overlapped a series of debris deposits, some of which may have been robber trench fills although, as Radford noted, below the modern disturbed layer

there was no apparent strata. On the western side of the 1955 trench, in the north section only, there was a 'loose fill' [C:3006]. To the west there were three possible robber fills. The eastern 'hard fill' [C:3007] overlay a dark clay and spalls layer [C:3008] which covered a buttress foundation [C:3044] and an east-west foundation [C:3029]. The western 'hard fill' [C:3010] overlay a buttress foundation [C:3028] and to the west lay against a deep layer of earth and clay spalls [C:3011] [C:3012]. In the centre was a looser fill [C:3009] above a buttress [C:3056].

The eastern part of the deep earth and clay spalls layer [C:3011] lay against the buttress foundation [C:3028], while the western part [C:3012] was cut by the robber trench [C:3005] for a flying buttress. Beneath the possible robber fill [C:3012] was a series of thin deposits comprising grey clay [C:3025], above a thin, sloping layer of mortar [C:3026] containing one sherd of Roman pottery, above earthy clay [C:3027] with one large spall in between.

The rubble layer [C:3003] and the topsoil [C:3000] also covered a series of robber trenches and foundations relating to the three major architectural phases identifiable for the cloister. At the western end of the trench was a robber trench [C:3005] for a flying buttress filled with disturbed rubble [C:3004]. This was located on the eastern side of the fourth cloister buttress from the east and was the western of the three flying buttresses recorded in this trench. The middle flying buttress [C:3041] was located as a foundation in the base of the 1955 trench [C:3002], with the foundation of the eastern flying buttress [C:3019] at the eastern end of the cloister (see below). Near the centre of the trench, on the eastern side of the 1955 trench [C:3002], was another robber trench [C:3015] filled with mixed clay and blue lias spalls [C:3014]. In plan this extended from the north side of the trench by 0.08m. The robber trench [C:3015] cut through a layer of dark clay with small stones [C:3017] which contained two scraps of undated pottery and thirty-two sherds of pottery dated 950-1100 (specifically labelled as a good 'Late Saxon' group) although the context for the latter is uncertain (in disturbed clay). This overlay a buttress foundation [C:3018] measuring 0.74m wide, located c 1.4m east of the possible buttress robber trench [C:3015]. On the basis of the measurements this contained two sherds of pottery dated 950-1100 although the context description states they were from rubble flooring.

Near the western end of the trench, beneath the various robber fills and demolition layers described above, was a buttress [C:3056] measuring 0.61m wide. This was constructed above a slightly wider foundation [C:3028] of rubble or lias measuring 0.83m wide. In between this foundation and the next buttress to the east, was an east-west aligned foundation [C:3029] of rubble and broken ashlar blocks set in black clay. In plan this was shown running east-west along the northern edge of the trench (thought to be a carrel foundation). This appears to have enclosed an earlier buttress foundation [C:3044] measuring 0.71m wide.

Near the eastern end of the trench was the foundation [C:3019] for the eastern flying buttress measuring 1.2m wide. This overlay and possibly encased an earlier foundation [C:3059] which was slightly wider at 1.53m. The 12th century core of the foundations are labelled in section as mortar and rubble, while the 12th century foundation was faced with large Blue lias blocks. In extension 1 a narrow wall [C:3045] measuring 0.39m wide is shown in plan running east-west in between the flying buttress [C:3019] and the 13th century buttress foundation [C:3018], overlapping the projecting edge of the 12th century north-south foundation [C:3059]. The plan also shows the flying buttress [C:3019] beneath the inner wall [C:3051] of the north cloister walk, with the paving [C:3050]

within the north-east corner of the cloister garden. Extension 2 shows the flying buttress [C:3019] overlapping the north-west corner of the first buttress [C:3034] from the north against the inner wall of the east cloister walk. This in turn is shown overlying the eastern edge of the earlier foundation [C:3059] and was constructed above a foundation [C:3035] containing a fragment of a flue vent and overlying the clay [C:3036]. This foundation [C:3035] is shown in plan below another foundation [C:3047] which in turn was overlain by paving [C:3046] labelled as 15th century.

On the western side of the flying buttress [C:3019] was a small deposit of earth, rubble and mortar [C:3016] (possible construction trench) which contained two sherds of pottery dated 1300-1450, while on the eastern side of the earlier foundation [C:3059] was a small deposit of redeposited clay and spalls [C:3020]. This overlapped a layer of mortar, plaster and small stones [C:3021] to the west of the east cloister walk, containing thirteen sherds of pottery dated 950-1100 and one sherd of pottery dated after 1250. This overlay a dark redeposited clay [C:3022] containing seventy-one sherds of pottery dated 950-1100 plus one intrusive sherd dated to the 15th to 16th century. This overlapped an ash and charcoal deposit [C:3023], which supposedly contained a fragment of green-glazed pottery (not identified in the assemblage) above the natural clay [C:3024].

The sequence on the south side of the trench to the west of the flying buttress [C:3019] and 12th century foundation [C:3059], was completely different to that recorded in the north section. Directly beneath the modern rubble [C:3003] was an extensive layer of soil and clay [C:3030] with some Douling spalls and a fragment of a flue vent. This sealed a beamslot foundation [C:3037] orientated north-south and directly opposite the buttress foundation [C:3018] in the north section. The soil and clay [C:3030] also covered a layer of dark clay [C:3040] containing a fragment of a very slender square sectioned Saxon glass rod in the base of the trench and a foundation [C:3037] aligned north-south with a beam slot running longitudinally. It also appeared to fill a robber trench [C:3042] with the remains of a foundation [C:3043] aligned north-south in the base. Although this is only recorded in section as a single stone the plan shows a wall measuring 0.42m wide and extending across the trench from north-south. The photographic record ([I:18754] appears to show the rubble wall before it was removed - it comprised small pieces of random rubble aligned north-south.

To the west the robber trench [C:3042] cut through a clay deposit [C:3038] above some stones [C:3039] in the base of the trench labelled as furnace, while on the east side it cut through a series of deposits comprising clay [C:3031], above another layer [C:3032], above a soil layer [C:3033]. The small deposit of clay [C:3038] contained one fragment of fired clay and two small fragments of blue Saxon glass.

Finds that were either unstratified or could not be linked to a context with reasonable confidence from the main trench comprised twenty-two sherds of pottery dated 950-1100 ([F:BF3015], [F:BF3016], [F:BF3017], [F:BF3019], [F:BF3020] [F:BF3018] [F:BF3076]). There was also one sherd of prehistoric pottery [F:BF3021]; one fragment of wall plaster [F:BF3080]; a fragment of glass slag [F:SF3003] and a copper alloy fitting [F:SF3051]. Extension 1 yielded two sherds of Roman pottery [F:BF3004] [F:BF3004] and one sherd of pottery [F:BF3075] dated after 950. Although there were finds with contextual information available from the extension trenches, without a section drawing these could not be identified. A fragment of a moulding [F:AF3001] came from the clay layer and two sherds of Roman pottery [F:BF3003] were beneath a mortar floor, however most finds came from a

yellow mortar floor. These comprised seventeen sherds dated 950-1100; two sherds [F:BF3071] [F:BF3075] dated after 950 and one sherd [F:BF3068] dated 1130-1250.

1956, CL3

[L:1650] [E:52]. The modern topsoil [C:3200] overlay a modern levelling layer [C:3201] from which a green-glazed pottery spout was noted (not retained) and four shards of a glass vessel were recovered (not reassessed). This overlay a small mortar deposit [C:3207] and a mortar and rubble destruction layer [C:3202] in the northern half of the trench. The section drawing shows this layer merging with [C:3201] indicating they are broadly contemporary. This layer covered the mortar rubble fill [C:3204] of the robber trench [C:3205] above the structural remains and overlapping another clay fill layer [C:3206] at its southern extent. To the south the modern levelling [C:3201] covered an extensive, deep soil layer [C:3208] with mortar lumps and containing a lump of glass furnace debris; a scroll moulding of Doultling stone described as pink possibly from burning; one part of a small Blue Lias capital; one sherd of Roman pottery; two sherds of pottery dated 1250-1450 and four fragments of a blue glass vessel (not reassessed).

At the northern end of the trench the mortar and rubble layer [C:3202] covered a deep layer of soil with mortar [C:3216] containing 70g of fuel ash slag. This covered a deep clay layer [C:3217] containing 5% small rubble pieces and containing a black lens [C:3218] of crushed slate and a deposit of black earth [C:3219]. The deep clay layer [C:3217] contained a large fragment of iron slag (not retained), an oyster shell palette (not linked to an object in the assemblage), and a bone scale handle dated to the 15th to 16th centuries. Beneath the clay [C:3217] was a robber trench [C:3222] [C:3223] aligned with the inner wall of the north cloister walk. This cut through a layer of clay [C:3220] with 'rust-red' clay patches possibly possible contained slag (not retained); this layer covered the natural clay [C:3221].

Beneath the post-Dissolution demolition layers and a clay layer [C:3209] at the southern end of the trench, were a complex of substantial structural remains. A foundation [C:3212] crossed the trench from east-west comprising a single course of stone (predominantly of Tor burrs) measuring 2.16m wide. Twelve sherds of pottery dated 950-1100 appear to have been recovered from this foundation, although this is based on measurements and is not supported by a description of the provenance. To the south, this foundation cut through a wall [C:3225] and foundation [C:3226] running along the western side of the trench. The remnant of walling [C:3225] comprised three courses of lias with a combined length of 1.85m and depth of 0.43m. The lowest course of lias slabs projected by 0.08m, overlain by another course of slabs above which two ashlar blocks survived. The foundation [C:3226] beneath was of roughly coursed Tor burrs. Beneath the clay [C:3214] underlying the foundations [C:3226] was a low-level paved area [C:3215] comprising small slabs of lias.

At the same level as the lowest course of the wall [C:3225] were remnants of lias paving slabs [C:3210] extending southwards intermittantly over a distance of 3.45m. These overlay a clay bedding layer [C:3214] and overlapped the northern end of foundation [C3211] excavated into the clay [C:3213] containing a skull. This foundation ran along the western side of the trench and was composed predominantly of Tor burrs set in mortar to a height of two courses. The southern edge of this foundation was not reached and it is not shown crossing the trench from east-west although the presence of a dotted line on the plan suggests this may have been the case. Running obliquely along

the eastern side of the trench was another Tor burr foundation [C:3137] aligned north-south; this was recorded in full in the 1956 CL1 trench with a remnant in the 1955 CLE-W trench [C:2036].

Finally, a robbed buttress foundation [C:3224] filled with soil containing some stone and debris was recorded in plan in the north-east corner of the trench. This extended westwards from the eastern edge of the trench by 0.35m and measured 2.12m from north-south. The relationship of this buttress to the east-west foundation [C:3212] is unclear.

Finds that were either unstratified or could not be linked to a context with reasonable confidence comprised a reused Roman tile associated with the glass furnaces and a small fragment of Roman samian ware (not identified within assemblage).

1957, CL1

[L:1652] [E:57] [E:58]. Part of the 1956 CL1 trench was re-opened in 1957 to examine glass furnace three. In plan the furnace resembled a figure of eight - only the northern half was exposed in the main trench while the southern half (the stoke-hole) was recorded in Extension 3. The north section is approximately the same as that recorded in 1956, with the topsoil [C:3100] overlying the soil and clay layer [C:3109] containing eight sherds of pottery dated 950-1200; one sherd of Roman pottery; seven sherds of pottery dated 1450-1580 and one fragment of window glass. This covered the soil layer [C:3116] which yielded twenty-eight sherds of pottery dated 950-1100, one sherd dated to after 950 and a lead came. This covered an extensive layer of redeposited clay [C:3119] at the base of the trench from which were recovered fifteen sherds of pottery dated 950-1100; two sherds dated after 950 (this context is very secure as the stone from which the find was above can be seen in section) and two further Saxon rim sherds (not reassessed) from a large storage jar (originally identified as a Tuyere OFFA SHERD). As excavations were carried deeper in 1957, the supposed Saxon wall [C:3118] to the west of the furnace is shown within a construction trench [C:4121] cutting through the redeposited clay [C:3119] and backfilled with clay [C:4120]. The backfill [C:4120] contained a sherd of samian ware, while a sherd of pottery dated to after 950 was probably from this fill. A sherd of Roman pottery was found beneath the wall [C:3118].

The south section shows considerably more detail from what was recorded in 1956 owing to the more extensive excavations of glass furnace three. However, there were also some non-furnace deposits including two small features [C:4101] [C:4103] of similar shape and dimensions at the eastern end of the trench. These cut through the soil layer [C:3116] and both contained a stony fill [C:4100] [C:4102] the former yielding one sherd of pottery dated to after 950. Also, above the glass furnace was a robber trench [C:4105] aligned north-south and measuring 0.78m wide and 0.28m with an earth fill [C:4104] containing seven sherds of pottery dated 950-1100, six sherds dated after 950 and one intrusive 17th century sherd (the 1956 trench shows modern disturbance [C:3126] in this area). This cut into the redeposited clay [C:4110] sealing the glass furnace and to the west a clay layer [C:4109] which covered the lower-level foundation [C:3118] to the west. The redeposited clay [C:4110] contained two sherds of prehistoric pottery; five sherds of Roman pottery; three sherds dated after 950; five pottery sherds dated 950-1100; a strip of lead came and a fragment of clear glass.

On the western side of the low-level wall [C:3118] the stratigraphy bears very little resemblance to what is shown in the 1956 trench. Directly above the wall, and beneath the soil and clay layer

[C:3109], was a 'stony fill of disturbance' [C:4106] [C:4107] containing two sherds of pottery dated 950-1100, one Roman pottery sherd and one cut L-shaped sheet of iron, possibly waste. This is not drawn on the original section 51 opened in 1956 and therefore may be associated with excavation disturbance. At the western end of the trench below the soil layer [C:3116] was a layer [C:4108] containing pottery dated 950-1100; one sherd dated after 950 and one prehistoric sherd. This is only separated from the soil layer [C:3116] above by a dotted line labelled 'slight colour change in soil'.

A sherd of green-glazed pottery was noted as coming from the robber trench [C:3104] in the north-west corner of the trench, however this pottery was not reassessed and in 1957 the section drawing did not extend as far as the feature.

Glass furnace three

The upper deposit of the furnace comprised a thin layer of reddened clay [C:4111] measuring 0.04m thick, overlying an ash layer [C:4113] of the same thickness. This covered the primary furnace deposit [C:4113] of clay with red furnace material and ash measuring 1.55m wide and 0.25m deep; this contained one sherd of Roman pottery and two fragments of copper alloy sheets. These deposits lay within a bowl set within a clay layer [C:3117] above the natural clay. The construction cut [C:4121] for wall [C:3118] cut through the clay layer [C:3117] beneath the glass furnace.

1957, CL1 Extension 1

[L:1651] [E:56] Beneath the modern topsoil [C:3000] at the southern end of the trench was a small feature [C:4115] with a vertical north edge, backfilled with mortar and earth [C:4114]. This cut through an irregular modern deposit [C:4117] beneath the topsoil and overlying the soil and clay layer [C:3109] recorded in the main CL1 trench. As in the main trench this overlay a thin mortar layer [C:3112], however instead of covering furnace remains this overlay a 0.61m deep layer of 'redeposited humus' or clay [C:4118]. This contained one sherd of prehistoric pottery, sixteen sherds of Roman pottery, one sherd of pottery dated after 950, ten sherds of Saxon pottery (not reassessed), one fragment of Group Four tile dating from c 1272, and one fragment of fired clay. Some of these finds identify this layer as a 'kitchen midden spill' containing animal bone (not retained). This covered three upright slabs and one flat stone [C:4119] at the southern end of the trench. In plan these are aligned with the kerb stones in the 1955 CLE-W trench [C:2023] and the 1956 CL1 trench [C:3110] identified as the Norman kerb. These were imbedded in the natural clay [C:4116].

This trial trench produced no evidence of a further glass furnace with the exception of the fired clay from the clay layer [C:4118] (see above) and an unstratified Roman tile [F:BF4158]. The tile had been re-used in the furnace structure and was very similar to another fragment [F:BF4004] found in CL12. Finds that were either unstratified or could not be linked to a context with reasonable confidence comprised twelve small fragments [F:SF4110] of corroded copper alloy and four nail fragments with one cut waste strip of lead [F:SF4114].

1957, CL1 Extension 3

[L:1652] [E:15] [E:16] The southern half of glass furnace three was uncovered in extension 3 to the south of CL1 together with the stoke-hole. The furnace is dealt with in a separate specialist report, however the extension also exposed an area of in situ walling [C:4122] above the glass furnace

aligned with the robber trench [C:4104] recorded in the main 1957 CL1 trench. This was aligned slightly eastwards of north-south and the photographic record shows a wall measuring c 0.31m wide constructed of what appears to be Blue lias in a clay matrix.

With the exception of finds associated with the glass furnace, there were a number of unstratified finds or finds that could not be securely linked to a context. These comprised two sherds dated after 950 [F:BF4137]; thirteen sherds of pottery dated 950-1100 [F:BF4135] [F:BF4145] [F:BF4146] [F:BF4148]; ten sherds dated 1450-1580 [F:BF4147]; a ridge tile dated 1250-1500 [F:BF4149]; a glazed tile [F:BF4150]; 38g of copper alloy slag [F:SF4112] and an iron nail [F:SF4113].

1957, CL11

[L:1655]. The plan notes the presence of a foundation and the excavation notes state that the trench was wholly occupied by a robber trench. In the absence of an outline or any further details no context number has been given. Recent discussion with Peter Poyntz-Wright who worked in this trench suggests that the supposed foundation is more likely to have been a rubble spread (pers comm, November 2011). The foundation [C:3122] or robber trench for the 12th century inner wall of the east cloister walk is shown in plan at the eastern end of the trench.

The finds from this trench comprised a fragment of limewashed wall plaster [F:BF4077], three fragments of iron (an iron ring' and nails) [F:BF4012], an iron fitting [F:SF4028] (not reassessed) and the base of a small blue glass bottle [F:SF4059]. The excavation notes list more finds recovered from this trench which are no longer identifiable in the assemblage; these include Early English architectural fragments and a collection of carved Romanesque capitals and other stones displaying fire damage.

THE NORTH AND EAST CLOISTER EXCAVATIONS OF GLASTONBURY ABBEY

METHODOLOGY

The Results section of this report provides a technical stratigraphic account based on the sections, plans, photographs, sketches and notes for each trench.. All contexts have been included on a stratigraphic matrix [M:475] however it was not possible to deduce relationships for all contexts. The individual sections, plans and the overall site plan (see pdf) should be referred to particularly during the Discussion section where the evidence from the trenches is synthesized. Stratified finds are included per context and unstratified finds are summarised per trench, although finds numbers are only provided where there is no context (finds with contexts can be accessed through the context record).

The official photographic record for these trenches consists of three images; these are incorporated within the Discussion. These are supplemented by photographs taken by volunteer excavators. The 1957 'CLE1', the 1957 'CLE1 South Extension' and the 1957 'CLE2' trenches were recorded in section and as a single multi-context plan. The 1956 'North Cloister Walk' Trench, the 1956 'CLE' trench, the 1957 'CLE3' and 1957 'CLE4' trenches were recorded only as single multi-context plans. The 1956 'North Cloister Walk' Trench was re-opened as 1957 'CL12' - although there was no new plan a section was drawn. Details of these trenches appear in both Radford's and the volunteer site notebooks with sketches and in detailed trench write-ups; these notes, sketches and write-ups have been critically used to construct this report. Some of the results of these excavations were

summarised in Radford's 1958 report while the 1981 interim report added further descriptions and interpretation. Full analysis of the Saxon glass furnaces, three of which were discovered within the cloister garth in 1955 and 1956 with further explorations in 1957, are dealt with in a separate report (Saxon glassworking at Glastonbury). Glass furnace four was discovered beneath the medieval east cloister walk and is briefly covered here in relation to the overlying deposits and features. This draws on the records made by Professor Donald Harden who oversaw these excavations.

As far as possible, the interpretative element of these records have been removed, although original labels have been left on the drawings primarily to retain terms of reference between the drawings and the notes. The phased Discussion section provides a critical appraisal of the archaeology from a modern perspective incorporating new dating and spatial evidence from specialist finds reports, the recent geophysical survey (GSB Propection) and the parchmark survey (Hollinrake & Hollinrake 1989). Together with a re-evaluation of both the original recorded and published interpretations, features have been attributed to the earliest possible phase. The Conclusion provides an overview of the archaeology, an assessment of the success of the historic excavations and suggestions for future areas of research.

RESULTS

1956, North Cloister Walk Trench

[L:1650] . A foundation [C:3054] was recorded in plan running parallel to the south nave wall and projecting by 0.67m. The photographic record [I:18557] appears to show small rubble set in clay running along the northern side of the trench. Overlying this foundation were several large stones [C:3055] thought to be paving slabs recorded in plan at intervals against the south side of the nave. The foundation [C:3054] cut through two earlier walls spaced 0.9m apart and aligned north-south. The western wall [C:3052] measured 0.59m wide while the eastern wall [C:3053] measured 1.02m wide.

The trench contained a single find; sealed beneath the 12th century floor (probably paving [C:3055]) within a mixed clay was a bone point [F:SF3130] possible dating to the Saxo-Norman period.

1956, CLE

[L:1650] A narrow trench was opened along the western edge of the east cloister walk from the north-east corner of the cloister garth and extending as far as the third inner buttress from the north. This exposed remnants of paving [C:3057] in two small areas and a line of paving slabs on the western side of the east cloister walk. The plan indicates these were bedded on mortar [C:3058]. The trench also uncovered a jumble of rubble foundations which could not be explored without an extension which was deemed impracticable for 1956. However, a buttress [C:3048] was recorded beneath one area of paving [C:3057]. At the southern end of the trench was a further buttress [C:3049] against the inner edge of the west wall.

1957, CL12

[E:24]. The modern topsoil [C:4000] overlay a deep, undulating layer of yellow mortar [C:4001] containing small to medium sized stones some of which were worked. The finds from this layer comprised a cast copper alloy ring with attached hook (possibly used to hang tapestries/curtains), a black jet bead, one fragment of encaustic floor tile with white slip and green glaze decoration, two sherds dated after 950 (UGSCal), one sherd of pottery dated after 1500, one further medieval sherd (not reassessed) and one 18th century pottery sherd. This covered a deep layer of grey clay [C:4002] with yellow streaks (indicative of deep clay) and containing traces of the glass furnaces.

The clay [C:4002] sealed two robber trenches aligned north-south; only the very top of the western trench [C:4004] was exposed, measuring c 1.22m wide and backfilled with clay [C:4003] containing mortar flecks. A minute fragment of turquoise glass was probably from this fill, the context information for which indicates that the fill consisted of burnt clay and mortar. To the east was a partially robbed foundation [C:4005] (described as the upper course), comprising small to medium sized stones and measuring 1.38m wide. The foundation projected southwards from beneath the foundation [C:4012] of the nave south aisle and also underlay the 13th century flagstone flooring [C:4011]. A piece of carved stone with a scaffolding (?) hole drilled in it was found lying on top of the foundation. The foundation [C:4005] contained a fragment of Roman tile and a sherd of undated pottery. On the eastern side of the construction cut [C:4006] was a clay layer [C:4008] and on the western side another clay layer [C:4007] which was also cut to the east by the robber trench [C:4004]. The latter was overlain by a thin band of mortar droppings (no context as not drawn) from which extremely decayed fragments of window glass were retrieved.

The notes describe a robber trench [C:4009] [C:4010] running east-west along the northern half of the trench (see 1956 plan), although some in situ masonry [C:4012] survived at the north-western end of the trench. Two large lias slabs [C:4011] were keyed in to the ashlar of the 13th century nave south aisle wall and overlay the earlier foundation.

Unstratified finds comprised nine sherds of pottery dated 950-1100 ([F:BF4013] [F:BF4015] [F:BF4017] [F:BF4016]), one sherd of possible late Saxon glazed ware [F:BF4014] and small lump of glass [F:SF4027] embedded in the edge of the clay.

1957, CLE1

[L:1657] [E:60] [E:83] [E:84]. The modern topsoil [C:4050], which in section 83 contained a line of dispersed mortar, abutted a Douling stone [C:4064] with a worn surface overlying a layer of mortar [C:4073]. This covered a deep layer of clay, mortar, earth with a few large lias stones [C:4051] disturbed by modern robbery, which in turn covered the remains of paving comprising three lias stones [C:4066] at the western end of the trench above a layer of mortar bedding [C:4065]. A number of finds associated with glassworking came from a cobbled surface which, according to the excavation notes, was below the clay levelling of the drain [C:4080] located in the centre of the trench and above the dirty clay layer [C:4057] beneath the mortar bedding [C:4065]. The depth measurements for these finds (comprising a thick flake of brown glass, two further lumps of glass, a fragment of a crucible and a fragment of a clay mould) support this provenance.

The deep layer of dirty clay [C:4057] with stones, debris, clay and daub fragments yielded a fragment of clear window glass and three pieces of glass waste. In the centre of the trench this was cut by a robber trench [C:4069] with a primary fill [C:4068], sealed by a thin layer of broken fragments of burnt clay [C:4067]. This was at the same level as a mortar spalls layer [C:4074] to the east of the robber trench, although in the original drawing (section 83) the mortar layer is not shown and instead the redeposited furnace layer [C:4067] extends further eastwards.

The robber trench [C:4069] cut through the uppermost fill [C:4070] of glass furnace four, comprising small stones, fragments of burnt clay and ash. This filled a bowl-shaped depression and covered a layer of similar furnace debris [C:4075] comprising soil with small fragments of burnt clay and ash measuring 0.09m thick. This lay within a burnt clay lining [C:4071] within a concave, shallow depression. This cut [C:4090] through the dark clay [C:4062] with burnt red clay and embedded fragments of furnace material and glass fragments (specifically four pieces of fired clay and six fragments of glass and crucible/slag), and what appears to have been the natural clay [C:4072] beneath.

The trench plan shows the stone-lined drain [C:4080] crossing the centre of the trench from east-west before turning at the west end towards the south-south-west. Two fragments of iron sheeting, one with a partial rivet hole, were recovered from the silt [C:4089] filling the drain. Immediately north of the drain was a scaffold-hole [C:4081] [C:4082] measuring 0.65m in diameter. A further scaffold-hole [C:4076] [C:4077] was located almost opposite on the other side of the drain and of similar dimensions. The scaffold-holes are shown cutting through the outline of the furnace deposits, although the plan is very unclear. It is also unclear whether the scaffold-holes were above or below the drain [C:4080] although the plan appears to show the southern feature beneath the side stones of the drain.

There were a large quantity of finds with the label 1957 CLE which must refer to the CLE1 trench. Those finds with no context information comprised one border strip of a plain glazed floor tile [F:BF4000]; one fragment of an earthenware tile [F:BF4064]; three nail fragments [F:SF4007]; one sherd of Iron Age pottery [F:BF4027]; three sherds of Roman pottery [F:BF4027] and four sherds of pottery dated 950-1100 [F:BF4066]. There were also a number of finds clearly associated with glass furnace four. These comprised four pieces of fired clay [F:BF4068] labelled as 'better bits'; a further piece of fired clay [F:BF4069] and eleven fired clay samples [F:BF4070] both labelled with 'Dr Harden wants this analysed'; two fragments of furnace structure [F:BF4071], and three pieces of fired clay [F:BF4075], one with impressions of brick/tile. There were also five pieces of glass [F:SF4030] [F:SF4033]; glass cullet [F:SF4031]; four fragments of crucible; glass slag and furnace fabric [F:SF4032]; a glassmoil [F:SF4041]; another possible glassmoil [F:SF4042] and three fragments of crucible [F:SF4043].

A number of finds came with more specific context information. A lump of fired clay with a brick/tile impression BF4076 was found in the dirty clay [C:4057] above the furnace. From the same layer a piece of fired clay [F:BF4062] was found beneath the 13th century paving slab [C:4066] and a further five pieces of fired clay [F:BF4063] were beneath the lowest mortar layer [C:4065]. Finds from the cobbled surface, originally labelled (3), above the dirty clay [C:4057] include seven pieces of fired clay [F:BF4065] [F:BF4067]; one sherd of pottery [F:BF4066] dated after 950; 74g of iron slag [F:SF4000] [F:SF4002] possibly from iron smithing and one piece of antler (not reassessed). Finds

from the sub-cobbled surface, originally marked (4), over the furnace floor comprised four pieces of fired clay [F:BF4072] and one fragment of refired Roman tile encrusted with pale green glass [F:BF4074].

More closely linked to the furnace were one piece of fired clay [F:BF4055] and two sherds of Roman pottery [F:BF4056] from the surface of the furnace; two pieces of fired clay with brick/ tile impressions [F:BF4058] [F:BF4060] and one fired clay [F:BF4061] from a layer of yellow clay and furnace material; and one piece of fired clay [F:BF4059] from a grey clay layer with furnace fragments. There was also an object originally thought to be a stamp retrieved from amongst the furnace material, originally marked (5), but the new assessment reveals this is a moulded and broken piece of grey ceramic slightly resembling a molar tooth [F:BF4021].

1957, CLE1 South Extension

[L:1657] [E:17]. The modern topsoil [C:4050] covered a layer of clay, mortar, earth and lias stones [C:4051] across the width of the trench and disturbed by modern robbery. This contained one fragment of fired clay redeposited from the glass furnaces. At the eastern end of the trench the disturbed layer covered a small feature [C:4053] with a square profile measuring 0.19m deep filled with yellow clay and mortar [C:4052]. At the western end of the trench it covered the earth, stones and mortar fill [C:4054] of a robber trench [C:4055] for a buttress or respond foundation measuring 0.55m deep. This cut through a layer of mortar bedding (labelled as 13th century mortar bedding) [C:4056] measuring 2.40m wide; notes indicate that a 15th century mortar bedding layer was encountered first but this was not drawn in section. In plan a small post-pit [C:4078] [C:4079] measuring 0.21m in diameter was located near the eastern end of the trench adjacent to the south section.

Directly beneath the mortar layer [C:4056] was a deep dirty clay [C:4057] with stones, debris, clay and daub fragments. This contained a sherd of prehistoric pottery; ten pieces of fired clay; two glass fragments and a sawn-off end of red deer antler with the tip carved into a flattened point. Some of these items are described as coming from the surface of the glass furnace. The deep clay covered a series of layers in the base of the trench thought to have been associated with glass furnace four. These comprised a deposit of yellow mortar [C:4058] containing one fragment of glass slag. Beneath was a layer of dark clay [C:4062] with burnt red clay and embedded fragments of furnace material, glass fragments and four pieces of fired clay, one of which was fused to a Roman tile. The western side of this deposit was covered by a layer of redeposited clean (i.e. natural) stiff blue clay [C:4061]. To the west of this, and presumably later, was a deposit of dirty clay [C:4060] with yellow patches and furnace material. Again on the western side of this was a further layer of redeposited clean (i.e. natural) stiff blue clay [C:4059] with disintegrated lias containing a glass moil and a fragment of the furnace structure with glass slag adhering.

Unstratified finds were confined to a piece of blue lias moulding [F:AF4050] from a superficial layer.

1957, CLE2

[L:1653] [E:59] [E:85]. The modern topsoil [C:4020] overlay a thin layer of mortar [C:4021] (not on original section drawing (section 85) so transferred from ink drawing [E:59]). At the eastern end of the trench the mortar sealed the mortary fill [C:4022] of a shallow trench [C:4023] with gently

sloping sides located on the western side of the 15th century bench. At the western end of the trench the topsoil sealed the fill [C:4030] of a robber trench [C:4031] above a foundation [C:4032]. The fill [C:4030] was identifiable from the soil layer [C:4027] to the east by the presence of more mortar. The latter contained a few medium sized stones and two fragments of blue glass (one complete triangular window piece and one fragment of ?vessel or distorted window glass) and three sherds of pottery dated 950-1100. This underlay the mortar layer [C:4021] and overlapped the solid foundation [C:4032] which was constructed of smallish stones of lias and Tor burrs set in soft yellow mortar, the base of which was not reached. The plan shows this foundation aligned north-south but with what appears to be an eastern return across the southern half of the trench. The foundation [C:4032] was on the immediate east side of the later lias foundation of the west wall of the east cloister walk, although relationships cannot be ascertained from the section.

The foundation [C:4032] was built into a layer of dark clay [C:4033] which, according to context information for a find [F:BF4006], appears to have overlain the deep yellow (i.e. natural) clay. Three sherds of Roman pottery appear to have been recovered from the horizon between the natural clay and the dark clay [C:4033]. A sherd dated after 950 came from below the base of the section, presumably from the dark clay [C:4033]. A robber trench [C:4029] aligned north-south was cut into this clay [C:4033] and backfilled with small stones, earth and some mortar [C:4028]. The surface of the clay [C:4033] and the fill [C:4028] of this trench were level, and a few stones laid flat on the clay suggest the base for a pavement but this unfortunately had left no trace. To the east this was cut through by a construction trench [C:4026] which also cut through the make-up layer [C:4027]. This had a primary fill of dense mortar droppings [C:4025] covered by a layer of soil [C:4024] which was cut by the construction trench [C:4023] for the wall bench above.

Finds that were either unstratified or could not be linked to a context with reasonable confidence comprised seven sherds of Roman pottery [F:BF4006] [F:BF4008] [F:BF4009] [F:BF4025]; twenty-seven sherds dated 950-1100 [F:BF4007] [F:BF4026]; one sherd dated after 1250 [F:BF4024]; a fragment of encaustic floor tile with white slip decoration [F:BF4028]; a nail fragment [F:SF4009], a clay crucible fragment [F:SF4019] and an incomplete medieval or post-medieval whetstone [F:SF4020].

1957, CLE3

[L:1654]. This trench exposed a continuation of the north-south robber trench [C:4028] [C:4029] from the CLE2 trench within the 13th century east cloister walk. To the east was a buttress foundation [C:4088] extending westwards from the east wall of the east cloister walk by 0.51m. On the western side of the trench was the south-east corner of another buttress foundation [C:4087] extending from the inner wall of the east cloister walk by 0.34m.

Finds that were either unstratified or could not be linked to a context with reasonable confidence comprised a fragment of bone (not re-assessed) [F:BF4002] from the dirty clay above a stony layer; a fragment of wall plaster [F:BF4003]; a ridge tile fragment dated after 1250 [F:BF4011]; a sherd of pottery dated after 950 [F:BF4012] from the mortar bedding; fragments of clay with molten glass attached [F:SF4058] and 5g of fuel ash slag [F:SF4060].

1957, CLE4

[L:1657]. The robber trench [C:4028] [C:4029] continued southwards through this trench, the western side represented in plan by a dotted line. A line of stones set on edge [C:4083] was planned near the eastern edge of the trench on approximately the same alignment as the robber trench. In the centre of the trench was a scaffold-hole [C:4084] [C:4085] measuring 0.83m in diameter. This was located to the north-east of a layer of cobbles [C:4086] noted as being over red clay and a furnace spread. To the north of the post-pit was furnace deposit [C:4062] which extended northwards into the south extension to CLE1 and appears to have contained the six fragments of glass and crucible [F:SF4015].

Finds associated with the glass furnaces and from the 'clay adjoining furnace debris' comprised two glass vessel fragments [F:SF4004] [F:SF4005] and four glass fragments [F:SF4037] [F:SF4038] [F:SF4039] [F:SF4040].