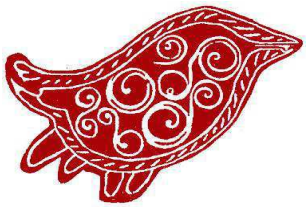

Excavation of medieval remains in Boherash townland, Glanworth, Co. Cork

By ROSE M. CLEARY
Department of Archaeology, UCC

INTRODUCTION

The excavation at Boherash was undertaken in 2004 in advance of a housing development, at the request of Cork County Council. The site is located[1] on the north side of Glanworth village to the west of the Funshion River and had been partially developed with an access road from the public road to the site. There were no surface indications of archaeological remains on the site although the location is close to a number of upstanding archaeological monuments. The site was initially test excavated[2] and archaeological features were recorded at depths of up to 1m below the modern ground surface. A full excavation was subsequently undertaken to record the archaeological features. The site was divided into six house plots for developmental purposes and the excavation concentrated in the areas of the proposed houses.

HISTORICAL BACKGROUND

The development site is located within an area of known medieval settlement (Fig. 1). Glanworth village is a designated historic town (RMP CO 027-042) with upstanding medieval buildings including the castle, abbey, church and bridge. The area around Glanworth was dominated from the seventh century onwards by the Eóganacht Glennamnach (Ó Corráin 1972). This branch of the Eóganacht declined by the ninth century and was thereafter a local kingship. Prior to Anglo-Norman settlement, the area was associated with the O'Keeffes and one provincial king, Fionguine, is recorded in the *Crichad an Chaoilli* (Power 1932, 59). Their dun or fortification was on the site of the later Roche castle.

Glanworth developed into a medieval market town (O'Brien 1993) and was strategically located on the old Fermoy-Limerick road. The modern village is dominated by the castle on the west bank of the Funshion River (Fig. 1:1). The castle is surrounded by a bawn wall with four mural turrets enclosing an irregularly-shaped area. Raymond le Gros had his caput at Glanworth in the late twelfth century and his lands passed to his relatives, the Caunteton (Condons) after his death (McCotter 1997, 64). In the fourteenth century the castle passed to the Roches who remained there until the Cromwellian confiscations (Power et al. 2000). Glanworth Abbey, known as 'Rock Abbey' is to the north-east of the excavation site (Fig. 1:2). This foundation is the Dominican Priory of the Holy Cross and historical sources give the priory foundation date as 1475 (Gwynn and Hadcock 1988). The visible remains of the priory comprise a nave and chancel with a dividing tower and are late fifteenth/sixteenth century in appearance (Power et al. 2000, 547). There are no above ground claustral buildings but these can be traced along the north face of the chancel (ibid.). Immediately south of the excavation there is a complex of structures within the graveyard surrounding an eighteenth-century church including a site designated on the Ordnance Survey maps as 'Friary (in ruins)' (Fig. 1:3). The extant remains comprise a fragment of a building in the south-east corner of the graveyard and part of a rectangular structure

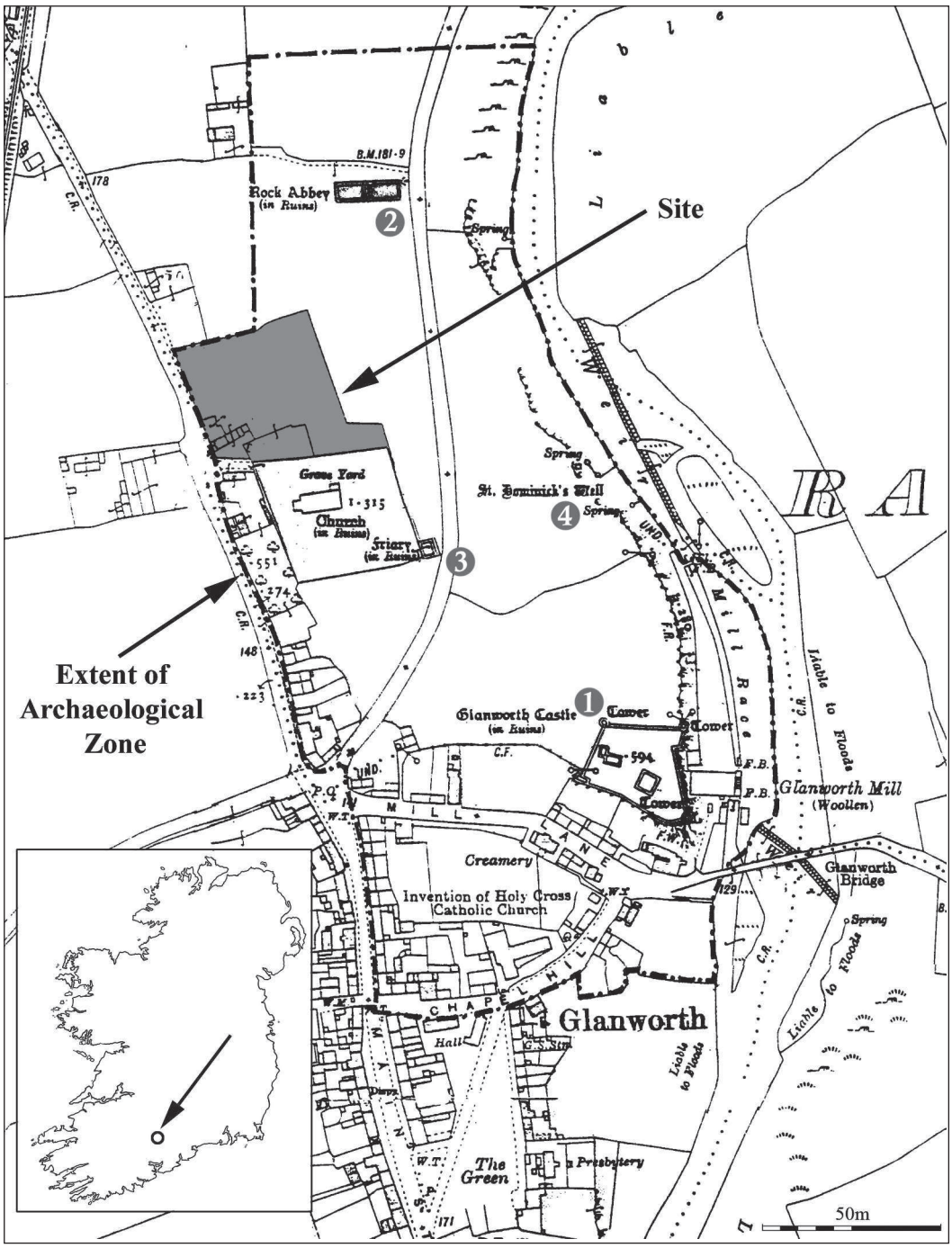

Fig. 1. Site location (after Zajac et al. 1995 Urban archaeology survey of County Cork)

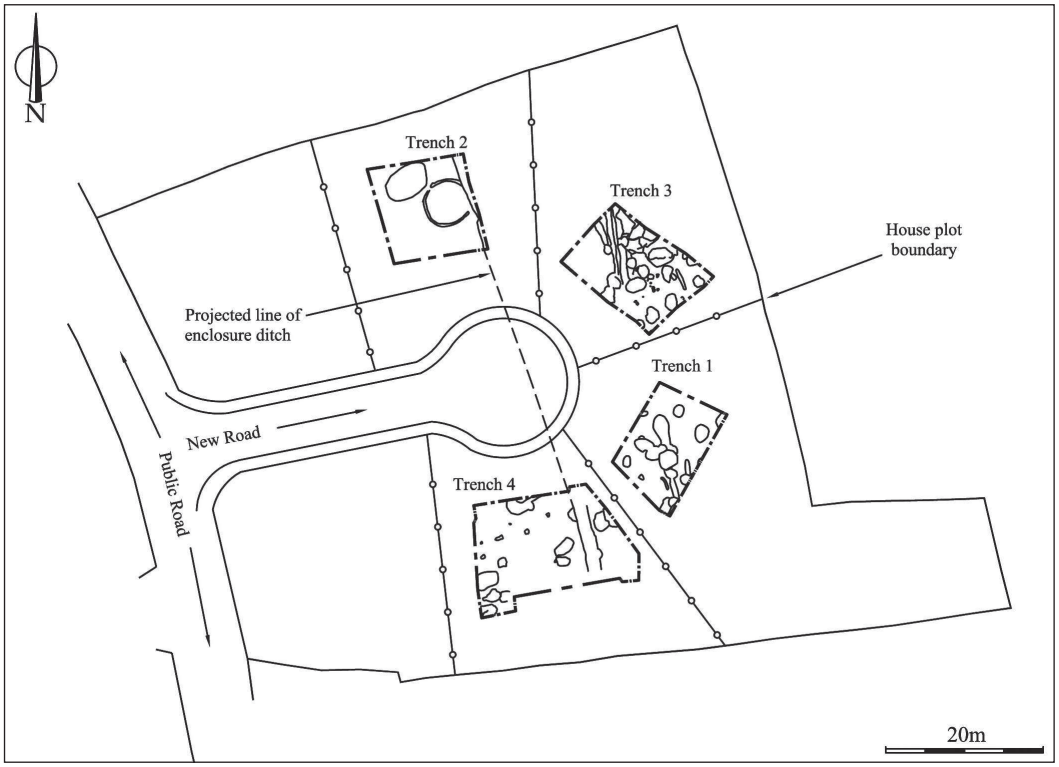

Fig. 2. Layout of excavation trenches

interpreted by Power et al. as 'likely to be part of [the] ancient parish church of Glanworth, perhaps the base of residential tower attached to church' (ibid., 556). St Dominick's Well or Tobernacruinahur Holy Well is to the east of the excavation site (Fig. 1:4).

Cartographic evidence from the 1842 edition of the Ordnance Survey map indicates that the excavation site was wooded; the trees had been removed by 1906 as they do not appear on the second edition of the Ordnance Survey map.

THE EXCAVATION

Excavation was confined to the footprint of proposed houses and designated Trenches 1-4 (Fig. 2). Most of the excavated remains were medieval in date and probably fourteenth century. The site continued in use in the post-medieval period and modern times and pits were dug, presumably for rubbish disposal. For the purposes of this report the archaeological features are presented in terms of function rather than location and the site has been divided into the following categories: medieval hut sites, medieval ditches, corn-drying kiln and medieval and post-medieval pits.

Hut Site – Trench 2 (Figs 3 and 4)

This was circular in plan with an overall diameter of 6m and an entrance feature on the south side (Figs 3 and 4; Plate 1). A C^{14} date of 1300-1365 Cal. AD[3] (605±35BP; GrA 33080) was returned from charred wheat, barley and oat cereals in a stake-hole (F68) driven into the slot trench and this places the structure in the fourteenth century. The perimeter of the hut foundation trench was defined by a slot trench

(F66) with a varying width of 0.25-0.60m and depth of *c.* 0.15m. The trench fill was charcoal-flecked silty clay (F67) with some redeposited boulder clay, animal bone, stone and a flint blade fragment. The profile was 'U'-shaped and thirteen post- and stake-holes were recorded at the base of the trench. The fills of the post- and stake-holes were similar to that of the slot trench. These post- and stake-holes were spaced at intervals of 0.30-1.00m apart and represent the structural uprights of the building. These were driven vertically into the ground and must have held sturdy upright posts that formed the superstructure of the round hut. The proximity of some post- and stake-holes (F110 and F11; F89 and F114) may indicate that some repair posts were inserted when the original timbers decayed. The post- and stake-holes varied from 0.08-0.16m[4] in diameter, averaging 0.12m and 0.06-0.26m in depth, averaging 0.10m.

A break, *c.* 0.80m wide on the south side of the slot trench suggests a door in this area. The trench also turned in slightly at this point and a substantial post-hole (F101) on the east side with an overall diameter of 0.28m and depth of 0.26m may mark a jamb post for the door. The west side had a small post-hole (F100), 0.11m in diameter and 0.06m deep at the slot trench

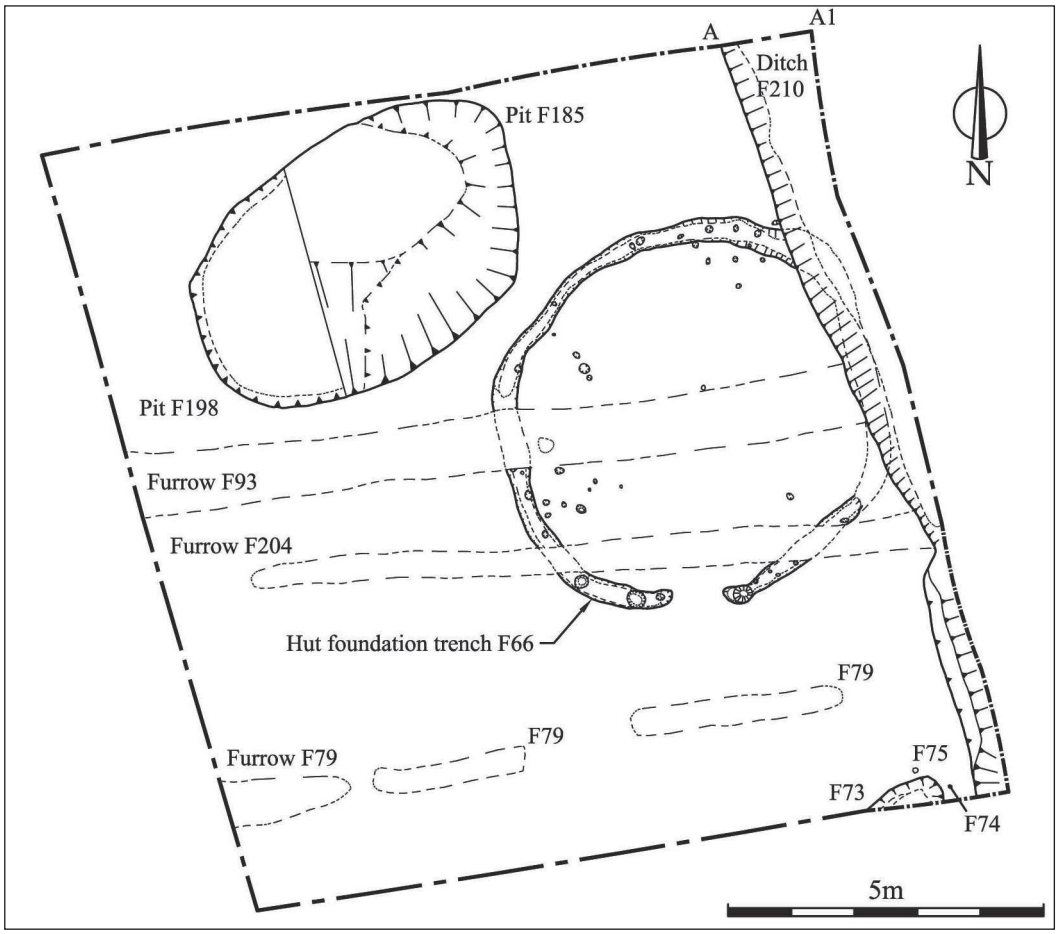

Fig. 3. Trench 2 – Overall plan

terminal and this was backed by a larger post-hole (F99) with a diameter of 0.25m and depth of 0.21m. The structural timbers at this point may also be part of the door frame.

There was no evidence for an internal hearth. A number of stake-holes within the building may be related to the structure and represent internal fittings. The stake-holes were clustered on the west and north sides. Nine stake-holes were recorded adjacent to the west circuit of the slot trench (F66). These stake-holes varied in diameter from 0.10-0.20m and 0.05-0.19m in depth. These did not form any recognisable plan and may represent a series of stakes driven at various times. Four stake-holes to the north were set in a linear pattern, 0.12-0.17m in diameter and 0.07-0.12m in depth. These may be the vestiges of an internal fitting such as a drying-rack. A third cluster of stake-holes on the north-east perimeter of the slot

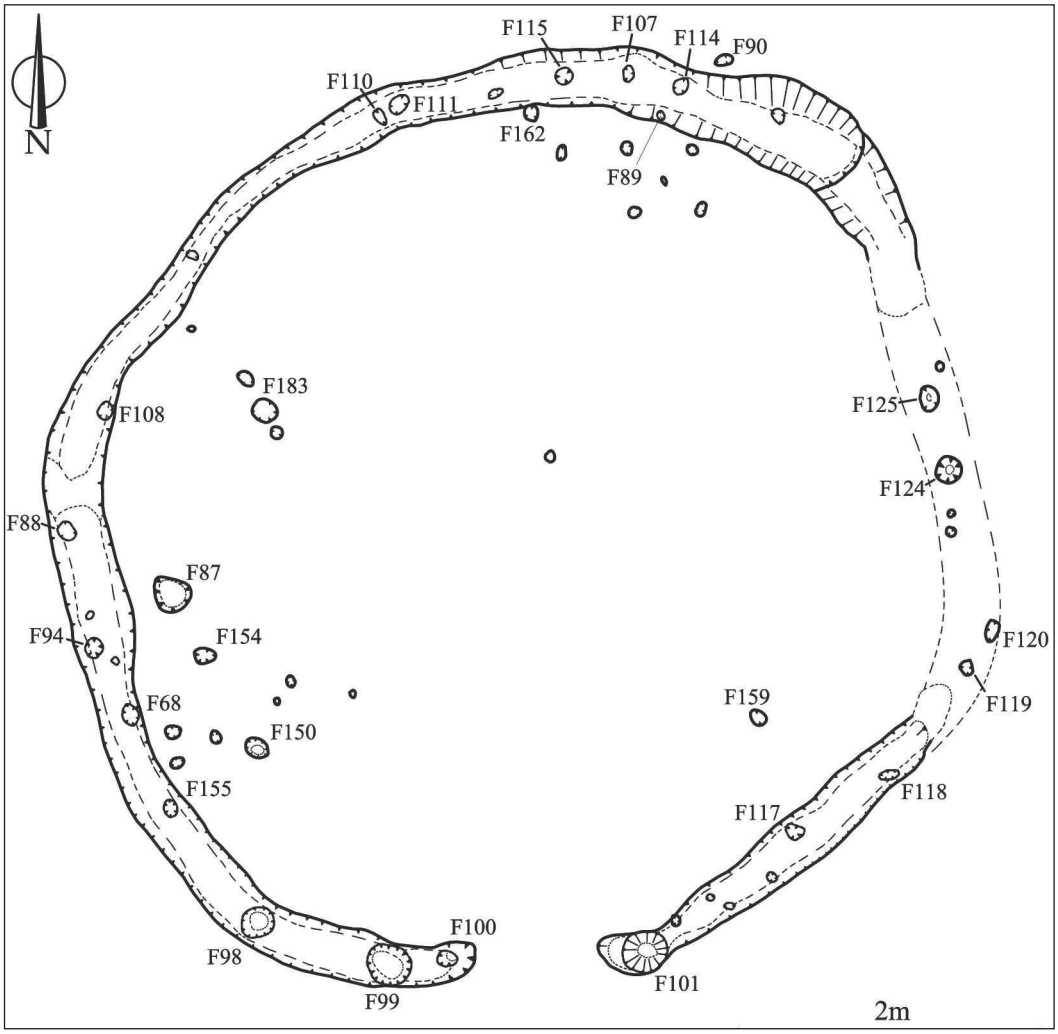

Fig. 4. Trench 2 – Plan of hut foundation trench, post- and stake-holes

Plate 1. Trench 2. Hut site slot trench foundation and post- and stake-holes

trench was random and varied in diameter from 0.11-0.14m and 0.07-0.15m in depth.

The house foundation trench (F66) was cut through on the east side by a ditch (F210) and two furrows (F93 and F204) cut across the house site.

Possible Hut Site – Trench 3 (Figs 5 and 6)

Five post-holes (F140, F180, F184, F272, and F274) in the south-east corner of Trench 3 may be part of the foundation levels of a post-built structure. The ground plan appears to be the west side of a circular building with an estimated diameter of *c.* 6m. The intervals between the stake-holes varied from 0.10m (F180 and F184) to 1.20m (F184 and F140). The post-holes had charcoal-flecked silty fills and were relatively substantial and varied from 0.09-0.29m in diameter with and average of 0.15m and were driven to depths of 0.08-0.29m with an average of 0.15m. Two stake-holes (F145 and F174) were located within the structure and may have been part of the building. A cluster of stake-holes (F178, F219, F229, F270 and F271) was also recorded outside the perimeter on the north-west side, although these may be unrelated to the structure and represent some external contemporary feature. There was no direct dating evidence for the structure. A late thirteenth-century pit (F133) and an undated pit (F143) were recorded within the structure and given the medieval date for the hut in Trench 2 (above), it is possible that the pit (F133) was contemporary with the hut.

Ditch (Figs 2, 3, 7 and 8; Plate 2)

Two sections of a N/S aligned linear ditch were recorded on the excavation in Trenches 2 and 4. The ditch (F298) in Trench 4 (Fig. 7) was excavated for a length of 12.5m and the width was 1.80m with a maximum depth of 1.00m with a rounded base (Fig. 8). The fill (F293) was brown clay and included a flint flake, animal bone, teeth, copper object and occasional pieces of charcoal. Eight pits (F279, F291, F292, F302, F307, F317, F321 and F324) were cut into the ditch (F298) and post-dated the backfilling of the ditch (Fig. 7).

The ditch (F210) in Trench 2 extended the full length of the trench (12.5m) and the maximum excavated width was 1.27m and depth of 0.92m. The fill was charcoal-flecked silty clay (F209) with some small stones. The ditch cut into the east side of the hut (F66) and was cut by two later furrows (F93 and F204). The ditch was therefore stratigraphically later than the hut. The backfilling of the ditch also appears to be fourteenth century as one pit (F291) was cut into the infilled ditch in Trench 4. The pit (F291) fill included both locally-made fourteenth-century Cork-type pottery, a fragment of a Saintonge green-glazed vessel and Merida-type pottery indicating a fourteenth-century date range. One pit (F307) also cut into the ditch had a mainly eighteenth-century ceramic assemblage and a third pit (F308) had a late eighteenth-century glass bottle fragment.

Plate 2. Trench 4. Ditch F298. Looking South

Corn Drying Kiln (Figs 9 and 10; Plate 3)

The kiln excavated in Trench 1 was keyhole-shaped in plan and on an N/S axis with the flue facing south. The overall excavated length was 4m; there was considerable disturbance on the south side due to the digging of later pits (F53, F60 and F61). The extant kiln remains comprised an arc of large limestone blocks (F25) surviving as one course and centrally placed in a large pit (F28) dug into boulder clay and below the contemporary ground surface. Part of a stone platform (F27) survived on the north-east side. A flue (F54) extended to the south and this ended at an area of burning (F55) probably representing the stoke-hole.

The pit (F28) into which the kiln was set was keyhole-shaped with a circular north end which tapered inward towards the flue on the south end. The maximum width was 2.10m (E/W) and the depth was *c.* 0.30-0.35m. The sides were vertical and the base was flat. The kiln bowl was formed by a stone setting (F25) of which only the northern side survived. The stone setting comprised five large limestone blocks with smaller stones between the interstices. These remained to a maximum height of 0.17m and

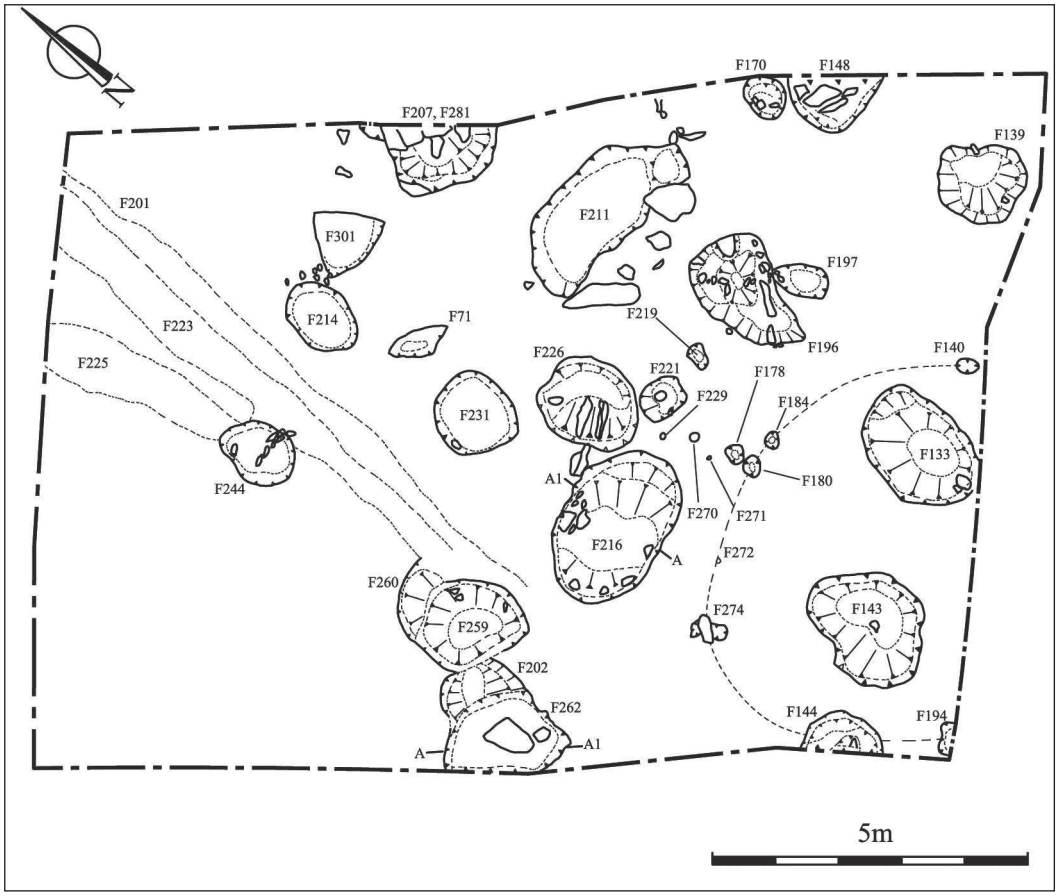

Fig. 5. Trench 3 – Overall plan

upper courses must have been robbed out of the structure. The kiln bowl was probably formed by dry-stone walling and may have stood to a height of up to 0.80m. An estimate of the internal diameter is *c.* 1.25m. The fill (F26) within the kiln bowl (F25) and flue (F54) comprised a mixture of charcoal-rich dark silty clay and included large quantities of charred cereals of mainly oat and some wheat and barley (Appendix 3). One sherd of locally made Cork-type pottery was also recovered from the fill (F26). This pottery is dated to the late thirteenth/early fourteenth century and provides a date for the abandonment of the kiln.

Part of a stone setting (F27) survived on the north-east side of the bowl. This backed the outer arc of kiln bowl (F25) and comprised tightly-packed small to medium limestone stones of varying sizes (0.17-0.25m in length × 0.10m thick) and was 0.20m deep within the pit (F28) cut to house the kiln bowl. The stones were in a mixture of oxidized clay and mid-brown silty clay. This stone setting (F27) must have functioned as a platform surrounding the kiln (F25) and like the kiln stones, was robbed out and only survived on the north-east side of the structure. The stone platform would have provided support for the kiln bowl and flue and the corn-drying floor may have rested on the platform.

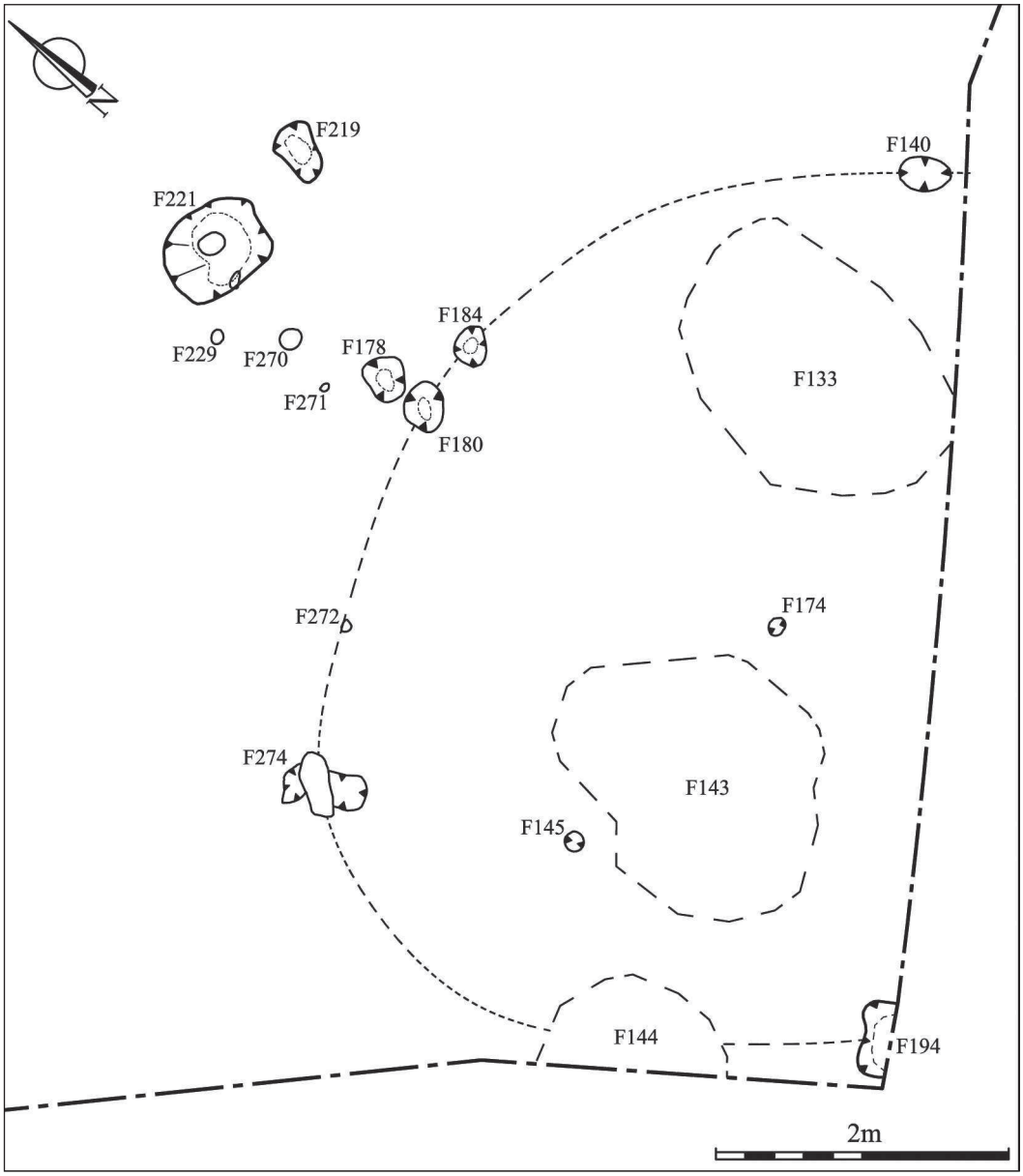

Fig. 6. Trench 3 – Plan of possible hut structure

The kiln flue (F54) extended south for a distance of 2.38m from the kiln bowl (F25). All that remained of this feature was the outline of the pit dug to house the flue and the stone setting forming the flue sides had been robbed out. The pit sides were vertical and cut to a depth of 0.25-0.30m below contemporary ground level. The pit sides tapered inward from the north end where the width was 1.25m to 1m wide at the south end. The slope at ground level was

upwards towards the south end or the mouth of the flue. The flue itself would obviously have been narrower than the pit dug to accommodate the structure and may have been covered by stone flags. The southern end was disturbed by later pits (F53, F60, and F62). The fill of the flue area (F26) was the same as in the bowl area and included charred oat, barley and wheat.

An area of burning (F55) at the southern end of the flue (F54) is interpreted as a stoking area for a fire lit to heat the sub-structure of the kiln drying area. The burnt area (F57) was a 1m (N/S) × 0.60m (E/W) spread of ash with some fire-shattered stone. The ground below this was charcoal-flecked silty clay (F57) with oxidized clay below. The hearth was presumably raked out after the kiln was used and the *in situ* remains are the vestiges of the last drying episode. A sherd of Cork-type pottery was recovered from a backfill layer (F24) over the hearth and flue areas.

MEDIEVAL PITS

The site included a number of pits found within all the Trenches (1-4) whose date range extends from the late thirteenth/fourteenth century to the post-medieval period. Many pits are undated as the finds were undiagnostic to any period. The function of the pits is obscure and there may not have been a single reason

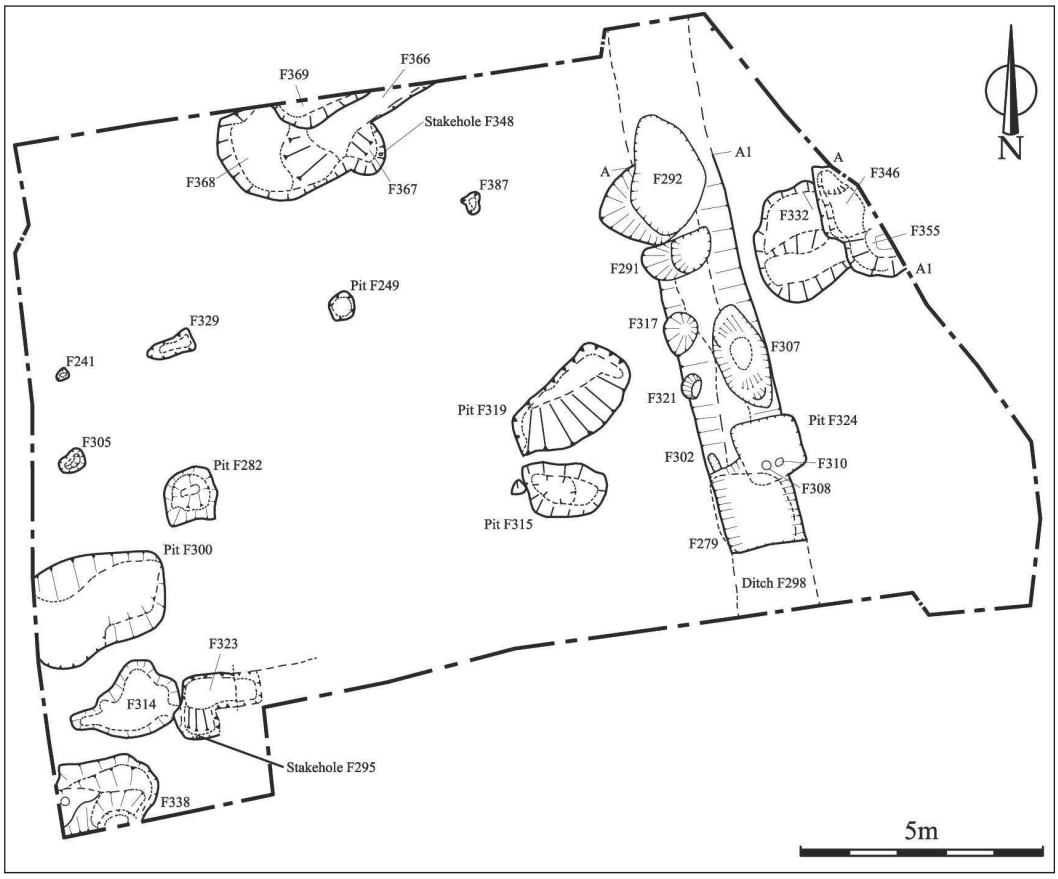

Fig. 7. Trench 4 – Overall plan

for the excavation of such a variety of pits, many of which were very large and deep. The stratigraphic relationship of the pits can only be determined where pits inter-cut and the backfill period is indicated by the recovery of datable finds, particularly the pottery. The medieval pits are described below in terms of date indicated either by datable finds or by their stratigraphic relationship. A full archive report is available on the pits and a summary is presented in this report. A representative sample of the sectional profiles is shown in Fig. 11.

Trench 1 (Figs 9 and 11)

Two pits (F11 and F21) located to the north and north-east of the corn drying kiln, were cut into the upcast from the kiln pit (F28) and may have been in contemporary use with the kiln. Both pits were sub-circular in plan with diameters of 1.48m (F11) and 2m (F21) and depths of 0.60m and 0.75m. The fills were lenses of charcoal, redeposited boulder clay and oxidized clay and occasionally fire-shattered or water rolled stones. The fill suggests dumped deposits. Both pits had Cork-type pottery and two nails, and piece of copper-alloy were recovered from F21.

A series of six inter-cutting pits (F9, F29, F53, F60, F61 and F62) was dug into the southern end of the flue (F54) and stoke area (F55) and post-dated the kiln use. Cork-type pottery in the backfill of F61 indicates a late thirteenth/fourteenth-century date for the infill of that pit. The stratigraphic sequence indicated that the earliest pit was F9 and the sequence of pits showed they were cut in turn by F29, F53, F60, F61, the latest being F62. All the pits were oval or sub-circular in plan and the diameters ranged from 0.35m (F9) to 2.90m (F53) and depths of 0.22m (F9) to 1.95m (F61). The basal fills were a mixture of charcoal-flecked silt and redeposited and oxidized boulder and two pits (F29 and F62) included dumps of burnt limestone blocks. Cork-type pottery was recovered from F49 and F62 and Saintonge and Merida-type pottery was also in the fill of F62. Other finds included a flint flake, iron slag (F29); iron nail fragments (F49 and F61); two iron whittle-tanged knives (F62) and burnt and unburnt animal bone. One fragment of human bone from F61 is the central section of the shaft of an adult tibia and as the articular ends are missing it is not possible to determine age at death. Two pits (F31 and F35) on the east side of Trench 1 were not fully excavated as they extended outside the excavation limits. Redcliffe pottery was recovered from both pits and Saintonge green-glazed and Cork-type pottery was in the fill of F35. Both

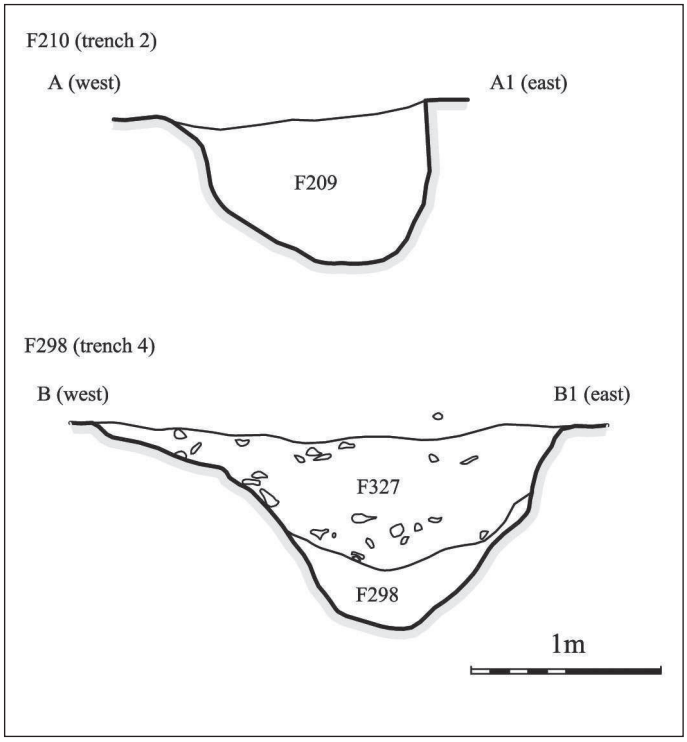

Fig. 8. Sectional profiles of ditch (F210 and F292)

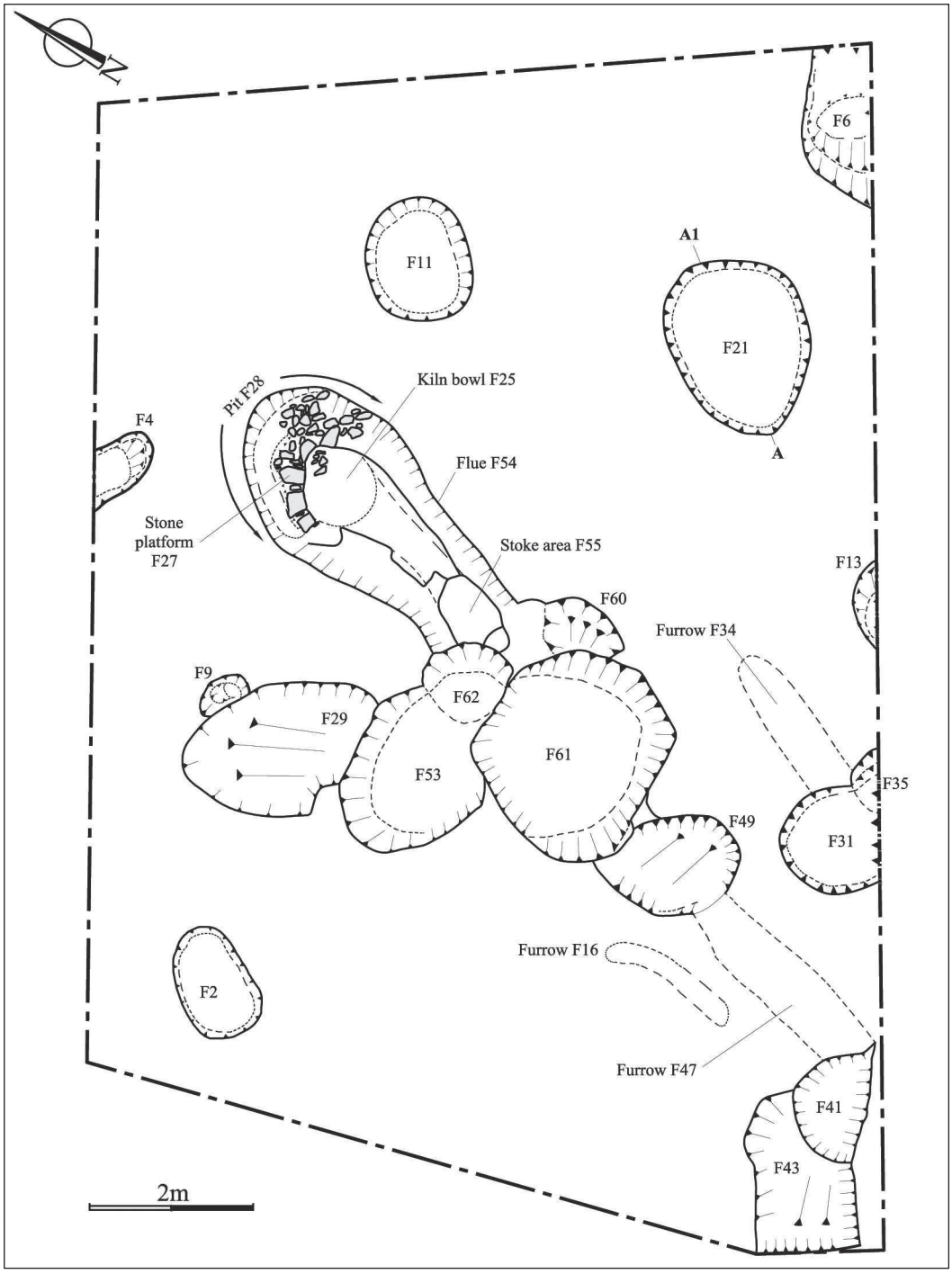

Fig. 9. Trench 1 – Overall plan

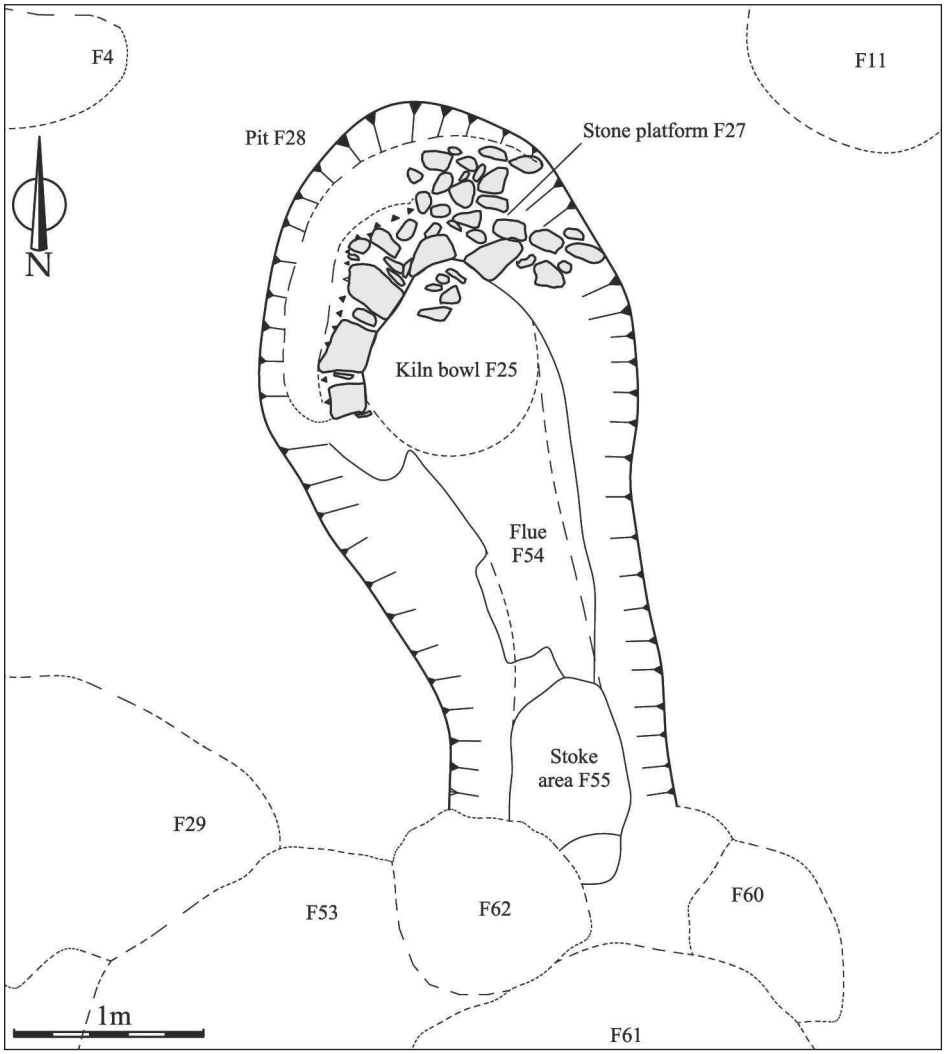

Fig. 10. Trench 1 – Detail of corn-drying kiln

pits included animal bone and other finds included a flint flake (F31), iron slag and two corroded iron objects (F35).

Trench 3 (Figs 5 and 11)

Sixteen pits in Trench 3 can be assigned a medieval date based on the recovery of medieval pottery in the fills or on the stratigraphic sequence. The pits were circular, sub-circular or oval in plan and the bases were either flat or rounded. The diameters ranged from 0.40m (F260) to 3.60m (F211) and the depths were 0.20m (F260) to 2.05m (F216). A medieval date is indicated by the ceramic finds. Cork-type pottery was recovered from the fills of F133, F196, F207, F211, F214, F216, F226, F231, F244, F259, F260 and F262; Redcliffe pottery from F226 and Merida-type pottery from F216. A quernstone in F170 also indicated a medieval date for the infill. Other artefactual remains

Plate 3. Trench 1. Corn-drying kiln (F28) and bowl (F25); later pits (F53, F60 and F61) in background. Looking South

included an unidentifiable copper-alloy object from F216, a possible copper strap-end, iron awl and whetstone fragment from F259, an iron barrel-padlock key from F260 and iron slag from F226, F231 and F244. The sequential cutting of pits also indicated a dating framework. F197 was cut by a later pit F196; F202 was truncated by later pits F259 and F262, F259 also cut into and post-dated F260 and F207 cut an earlier pit F281. The pit fills varied and some were clearly dumped deposits such as layers of ash, stone and charcoal-enriched soil in F216 while lenses of ash, burnt stone and charcoal suggested fire rake-out in F226. Animal bone was recovered in ten pits, also indicating dumped deposits.

Trench 4 (Figs 7 and 11)

Three inter-cutting pits were recorded on the east side of Trench 4. One pit (F332) had a sherd of Cork-type pottery in the fill and the infill is therefore dated to the late thirteenth/fourteenth century. The other pits were dug sequentially with F355 cutting into F332 and these were in turn cut by F346; F346 also cut into the east side of F332. A quernstone fragment from the fill of F346 suggests an infill date in the medieval period. The pits varied from irregularly-shaped (F346) to sub-circular, with diameters of 1.14-2.75m while pit (F346) was deepest at 1.80m. Cork-type pottery was recovered from F332 and a medieval stone mortar fragment and quernstone fragment from F346. The fills of F346 and F355 appeared to be dumped material and included ashy soil, burnt stone and animal bone.

A 'D'-shaped pit (F291) cut into the ditch (F298) and post-dated the ditch infill. The fill included burnt animal bone, sherds of Cork-type and Saintonge green-glazed and Merida-type pottery and an iron object.

Three features on the south-west side of the trench are probably medieval in date. The earliest pit (F314) was truncated by a pit (F323)

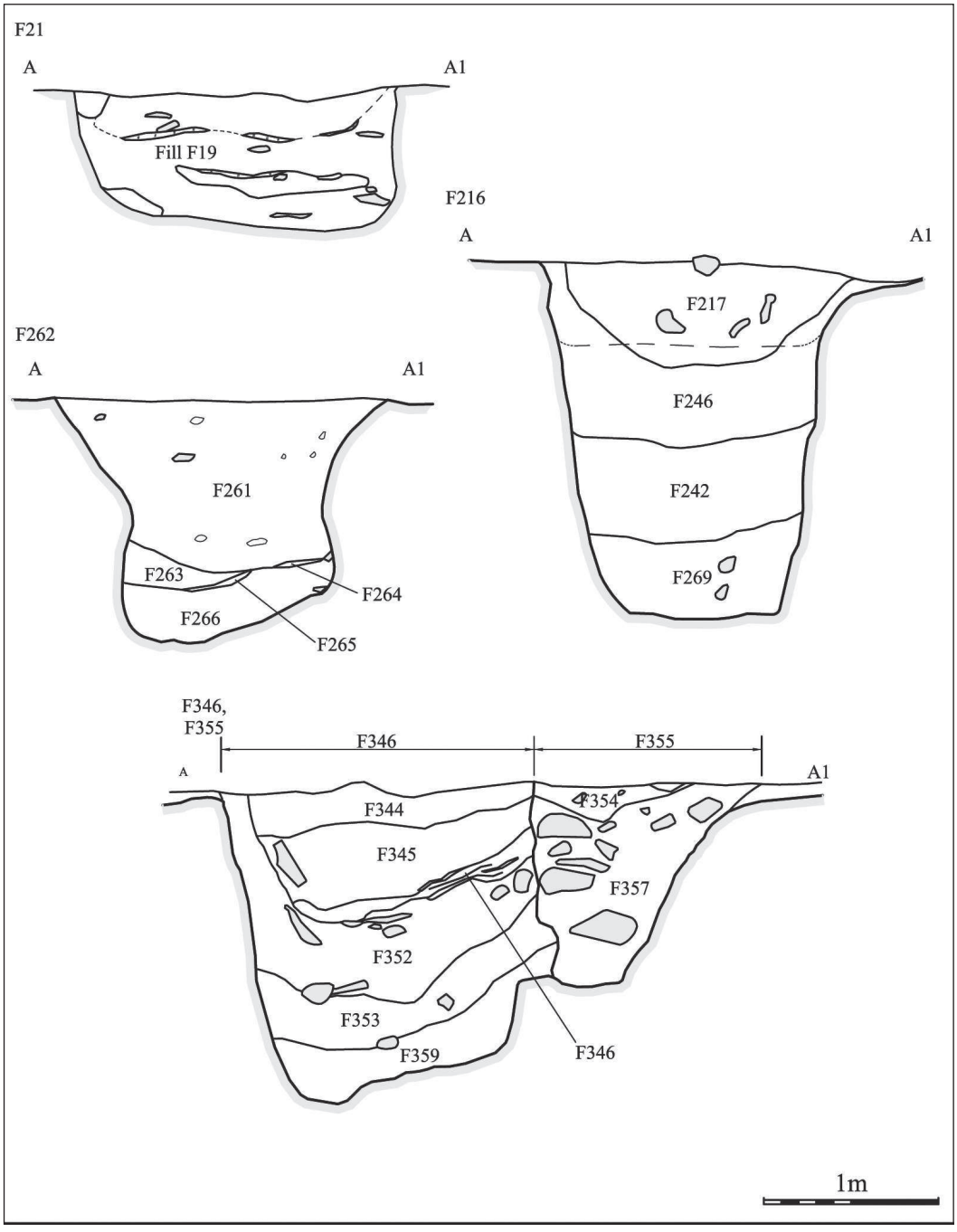

Fig. 11. Sectional profiles of medieval pits F21, F216, F262 and F346/355

to the east, and a stake-hole (F295) driven into the south side of F323 included Cork-type pottery in the fill indicating that the stratigraphically earlier pits (F314 and F323) were medieval in date. The pits (F314 and F323) were irregularly-shaped with maximum diameters of 2-2.30m. The fills included charcoal-flecked clay, oxidised clay and animal bone and teeth. Large stones in F323 displayed evidence for burning and iron slag was also recovered from this pit.

POST MEDIEVAL

Two pits (F41 and F43) on the south end of Trench 1 (Fig. 9) were post-medieval in date and the fill of F41 was a mixture of Cork-type and Glazed Red earthenware pottery. F41 cut into the north side of F43. The fills of two pits (F71 and F301) in Trench 3 (Fig. 5) included Glazed Red earthenware and a clay pipe stem was recovered from F148. Four pits (F279, F307, 315 and F321) and one post-hole (F308) dug into the infilled ditch (F298) in Trench 4 are dated to the post-medieval period by glass and clay pipe fragments. An isolated post-hole (F249) included post-medieval glass in the infill and may be relatively modern in date. Three pits on the north edge of Trench 4 intercut and the earliest of the sequence was F367 where the infill included a clay pipe stem. The other pits (F366 and F368) were stratigraphically later and consequently must date to the post-medieval/modern period. F367 was cut into by a pit (F368), a wall foundation trench (F366) and a stake (F348) was driven into the infill. A pit (F369) on the edge of the trench cut through F366 and F368. Two pits (F300 and F305) on the west edge of Trench 4 included late eighteenth/early nineteenth-century glass in the fills and are post-medieval in date.

UNDATED PITS

Four pits (F2, F4, F6 and F13) were excavated in Trench 1 and due to the lack of datable finds cannot be assigned to either the medieval or post-medieval phases. An undated pit (F73) and two stake-holes (F74 and F75) were recorded in the south-east corner of Trench 2. Three sequential pits (F138, F185 and F198) were excavated in the north-west corner of Trench 2. The earliest of these (F198) was backfilled with redeposited material (F190). The original function is unknown and the subsequent backfilling may be dumping. A crescent-shaped (F185) pit was subsequently dug into the middle of the earlier pit (F198) and backfilled. A re-digging of the upper level of F185 resulted in a small stone-filled pit (F138). Five pits (F139, F143, F144, F194 and F221) in Trench 3 did not produce any dating evidence.

Eight pits were dug along the line of the ditch (F298) in Trench 4 (Fig. 7). One (F291) of these included Cork-type pottery and is assigned a medieval date. The ceramic assemblage from another pit (F307) is post-medieval in date and clay pipe stems from F321 and glass from F279 also indicate an infill in the post-medieval period. The remaining four pits (F292, F302, F317 and F324) cannot be assigned a date. The other pits (F241, F282, F319, F329 and F387) in Trench 4 were randomly dispersed and are also undated. Apart from pit F319, the other features were small-scale in size.

DISCUSSION

The site at Boherash is located to the north of the modern Glanworth village. The exact extent of the medieval town at Glanworth is unknown but is likely to be in the footprint of the modern village and perhaps close to the bridge and castle. The excavation site can therefore be considered to be outside the nucleus of the medieval settlement. The medieval remains from Boherash are dated on the basis of ceramic finds, stratigraphic relationships and a single radiocarbon date of 1300-1365 Cal AD from the hut in Trench 2. Generally, a single C^{14} date must be treated with caution, but a fourteenth-century date is probably confirmed by the ceramic evidence from the site where locally

made Cork-type pottery was recovered across the site. This pottery is dated to the late thirteenth/early fourteenth century and appears to have gone out of production by *c.*1350 (C. McCutcheon, pers. comm.). The pottery remains may also refine a broad date of 1300-1365 Cal. AD for the hut site in Trench 3 and suggests that it was constructed before *c.* 1350 AD. The foundation date of the Dominican priory to the north is 1475 (Gwynn and Hadcock 1988) and the date is supported by the extant late fifteenth/sixteenth-century buildings on the site (Power et al. 2000, 547). It is therefore likely that the Dominican priory did not exist at the time of the medieval activity at Boherash.

Huts – Trench 2 and Trench 3

The hut in Trench 2 was dated to the fourteenth century by a C^{14} date of 1300-1365 Cal. AD. Timber structures are unlikely to last for more than 10-15 years due to rot of the post bases and it is probable that this hut and the hut in Trench 3 had a relatively short life-span. The hut was circular in plan with a diameter of 6m and the structural remains indicate that upright posts stood in a slot trench. These posts were probably load-bearing for the roof, perhaps augmented by the three internal stakes (F87, F150 and F183) on the west side that were substantial enough to have had a structural function. The remaining internal stake-holes are interpreted as the vestiges of internal fittings. There was no evidence of an internal hearth.

The second possible huts at Boherash was in Trench 3 and the western half of a building was exposed where the structural elements comprised five discrete posts driven directly into the ground without a slot or bedding trench (Fig. 6). There was no evidence of an internal hearth although the building interior was disturbed by pit-digging. The estimated diameter for the Trench 3 hut is *c.* 6m and the plan was sub-circular as far as the limited excavation can establish.

The morphology of the huts could fit easily into either a prehistoric or early medieval context. Circular huts of the medieval period are unusual in the Irish archaeological record, but this may be more to do with the absence of archaeological excavation of medieval rural settlement in Ireland. There is documentary evidence that Anglo-Norman manorial centres included 'a plethora of what appeared to be timber and clay-walled farm and administrative buildings' (O'Conor 1998, 29). These farm buildings included the granary, dovecote, malt-kiln, corn-drying kiln, byre, stables and barn (ibid.). It is therefore likely that the huts at Boherash were linked to agricultural activity. Surviving vernacular buildings can suggest uses for the remains of buildings recorded on archaeological sites. In the more recent past, small circular or rectangular stone buildings in the countryside served a variety of functions including as animal shelters, storage, fever-huts, booley-huts and winnowing huts (Evans 1957). The stone buildings clearly survive whereas structures made from timber and other perishable materials have long gone and structures such as the huts in Boherash may have served any of these functions. Indeed it is tempting to interpret the huts as perhaps winnowing huts and related to the corn-drying kiln, but there is no direct association between the structures.

The ditch

A ditch was excavated in Trenches 2 and 4 and the alignment was on a north-south axis. The ditch continued outside the trench limits and in all, a length of 12.50m was excavated in each trench with a depth of 0.92m in Trench 2 and 1m in Trench 4. The trench width varied from 1.27m in Trench 2 to 1.80m in Trench 4 but as the full width of the ditch in Trench 2 was only exposed in the north-east corner the ditch may have been as wide as that in Trench 4. The infill of the ditch (F210) in Trench 2 was silty clay particularly towards the base suggesting the ditch was open for some time whereas the ditch

(F298) in Trench 4 appears to have been deliberately backfilled and included domestic refuse such as animal bone. If the ditch represents one phase of site use and linked across from Trench 2 to Trench 4, its estimated length is at minimum 58.70m and it continued to the north and south outside the excavation trenches.

The ditch in Trench 2 (F210) cut into the east side of the round hut (F66) and post-dated that structure. A C^{14} determination places the hut in the fourteenth century and on the basis of the ceramic evidence, this date is likely to be early-mid fourteenth century rather than the later part of the century. The medieval pits in Trench 4 were largely located to the east of the ditch (F298) and a medieval pit (F291) was cut into the backfilled ditch. Ceramics in the fill of F291 indicated an infill date for the pit before *c.* 1350 AD. This suggests that this ditch was infilled and had gone out of use by the mid-fourteenth century. It can only be suggested therefore that the section of ditch in Trench 4 became redundant, perhaps soon after excavation and was subsequently infilled.

The ditch probably functioned as a boundary perhaps delimiting a land holding or specific area of land use. The location of the medieval pits mainly to the east of the ditch suggests that it may have functioned as a property boundary where the land to the east was designated as a rubbish disposal area whereas that to the west may have been farmland. The size and depth of the ditch militates against a defensive function unless there was some type of associated fence which the excavation evidence does not support. Ditches were dug in medieval times and examples were recorded on the Newgrange excavations as 1.20m wide and 0.60m deep trenches possibly associated with the Cistercians' of Mellifont thirteenth-century acquisition of the land around the Bend of the Boyne and presumably related to enclosure activity (O'Kelly 1983). Field boundaries were excavated at Drumlummin, Co. Tipperary, that pre-dated the seventeenth century and may have been associated with a nearby thirteenth-century castle and were 1-2m wide with an average depth of 0.50m (Cleary 1987). It is possible that the ditch at Boherash may be part of an enclosure associated with a hut and defined a yard adjacent to a domestic building. A yard enclosure associated with a late thirteenth-century house at Lough Gur, Co. Limerick, was defined by shallow trenches *c.* 0.30m deep and 0.90m wide and in that instance the enclosure is interpreted as including a fence (Cleary 1983).

Corn-drying kiln

The presence of charred cereal remains of oat, wheat and barley (Appendix 3) from the chamber and flue of the kiln at Boherash confirms that the structure can be interpreted as a corn-drying kiln. Corn-drying kilns were used to harden grain prior to threshing following a damp harvest. Climatic deterioration of the thirteenth and fourteenth centuries is recorded all over Ireland and Britain and exceptionally bad harvests are known from 1290 and 1315-17 due to wet weather (Postan 1975, 137). Drying was also used to harden grain prior to milling and this speeded up milling and reduced labour (Monk 1981).

The keyhole-shaped kiln at Boherash survived only as the flue and chamber pit, part of the chamber stonework and a small section of the stone platform. It is possible that the chamber wall was either straight-sided or slightly battered inwards. The structure is likely to be medieval in date as indicated by the plan of the structure and it had gone out of use by the late thirteenth century when backfilled with material that included Cork-type pottery.

Keyhole-shaped kilns are known from mainly the north and north-west of Ireland (Gailey 1970) and served other functions as well as corn drying such as malting prior to the distillation of poitín (ibid., 54). A thirteenth/early fourteenth-century site excavated at Kilferagh, Co. Kilkenny, was of similar plan to that at Boherash, albeit better preserved (Hurley 1987).

The kiln at Kilferagh was of similar dimensions to that at Boherash with a bowl diameter of 1.12m and a flue length of 2.20m. The axis of the flue in Boherash was N/S whereas at Kilferagh it was E/W and the flues were presumably aligned to the prevailing wind in order to facilitate the draft of hot air through the flue to the drying floor above the chamber. A late thirteenth/early fourteenth-century kiln at Lough Gur, Co. Limerick, was largely robbed of its stone and the excavation only uncovered the flue and chamber pit although the amount of charred grain confirmed the function as a corn-drying kiln (Cleary 1983, 67-68).

There are few parallels for archaeologically investigated corn-drying kilns in Co. Cork. A recently excavated site at Ballinvinny North was uncovered during the road construction near Rathcormac (Cotter 2003). Other examples in Cork include recently excavated sites at Ballynacarriga (Noonan 2003) and Brooklodge (Clinton 2000). A corn-drying kiln at Mashanaglass was uncovered to the west of a horizontal mill and is likely to be contemporary with the eighth-century mill and early medieval in date. All that survived at Mashanaglass was the remains of the flue and chamber pits and the stonework was dismantled prior to infilling (Fahy 1956, 35).

The Cork Archaeological Survey has also recorded unexcavated sites at Castledonovan (RMP CO 119-017-001), Dangansallagh (RMP CO 059-051-003) and Glendav (RMP CO 059-003-02) where the stone-lined flues and circular drying chambers survive and the chamber diameters range from 1.10-1.60m and the chamber at Castledonovan is surrounded by a stone platform. The example from Boherash had an estimated internal chamber diameter of 1.25m and this fits within the range of better-preserved examples in the county. Flues at Castledonovan, Dangansallagh and Glendav are recorded as stone-lined with lengths of 1.30-1.40m and are thus shorter than the recorded length of 2.38m at Boherash.

The medieval kiln at Kilferagh, Co. Kilkenny, was probably associated with a settlement rather than being a seasonally-used site, given the amount of domestic refuse on the site (Hurley 1987). Similarly, the site at Lough Gur was within a yard associated with a late thirteenth/early fourteenth-century house and barn (Cleary 1983). It is possible that a settlement exists close to the site of the kiln in Boherash.

Medieval pits

The development site is located south of the Dominican abbey founded *c.*1475 (Gwynn and Hadcock 1988; Hogan 1991). A complex of structures including the medieval parish church ('Friary (in ruins)' on the Ordnance Survey), a graveyard enclosure and the eighteenth-century Church of Ireland church is to the south of the excavation site. St Dominick's Holy Well is to the east of the excavation site. These extant buildings indicate activity in the vicinity of the site from the medieval to post-medieval periods.

The Dominican Order was established in Ireland in the thirteenth century and spread rapidly under Anglo-Norman patronage. The fourteenth century remains at Boherash may be unrelated to the Dominican foundation as it is likely that the complex is in fact late fifteenth century.

Glanworth was a medieval market town (O'Brien 1993) and was likely to have been to the south of the excavation site within the nucleus of the modern village. It is possible that waste from medieval houses was disposed of on the excavation site outside the precincts of the town. Land adjacent to the medieval town of Glanworth may have had a variety of uses including vegetable gardens, byres, stock grazing or wasteland. These areas were also the location for refuse disposal where waste was buried. The use of backyard areas for rubbish disposal in the form of pits is well documented in urban contexts in the medieval and post-medieval periods. In all, 32 pits at Boherash have been dated to the medieval period on the basis of the ceramic

assemblages, mainly Cork-type pottery and the stratigraphic relationship of the pits, with pottery finds indicating an infill date of early/mid-fourteenth century.

The distribution of the medieval pits within the excavated area was concentrated in Trench 3 where the majority (16) were excavated and a further eleven in Trench 1 and five pits in Trench 4. All the pits with the exception of F291 and F323 in Trench 4 were located to the east of the ditch (F210/F298). F323 is dated on stratigraphic grounds to the medieval period as it was cut by a stake-hole with Cork-type pottery in the fill. It is also possible that the pottery in F323 was residual and accidentally incorporated in the stake-hole fill. F291 was cut into the ditch (F298) and stratigraphically later than the infill of the ditch.

The range of size of the pits at Boherash is large in terms of depth, length and width. The average length (minimum-maximum) is 1.40m and a range of 0.44-3.60m.The average width is 1.50m and a range from 0.35-2.90m. The depths are on average 0.75m and range of 0.13-2.05m. There is no obvious pattern in terms of pit size across the excavated areas although the pits in Trench 4 were slightly deeper than those in Trenches 1 and 3 with an average depth of 1.10m compared to 0.74m for Trenches 1 and 3. There was also no clear relationship between pit dimensions and one of the most expansive pits (F211, Trench 3) was only 0.35m deep whereas one of the deepest pits (F216) had a surface area of 3.24m² and was 2.05m deep. There was no evidence of any type of lining having been used in the pits. The pit profiles were generally either straight-sided or 'bowl'-shaped. It is possible that some of the pits were lined with organic material such as wattle or bark of which no evidence survived due to the dry soil conditions.

The infill history of the pits indicates that pits were either backfilled or allowed to silt-up and the fills of approximately 50% of the pits were due to dumping. There is no surviving evidence to indicate whether the deposits within backfilled pits were primary or whether the pits had been emptied one or more times and refilled with waste. In general the largest quantity of animal bones came from pits where the infill material was dumped such as F61 where almost 230 fragments of animal bones were recovered from the fill. Some pits however such as F31 were allowed to silt up and in that case 96 animal bone fragments were in the fill, perhaps suggesting that the pit was open and used for casual dumping of household waste. The pits may have had a function other than the disposal of waste, but other functions such as storage were not obvious.

Human cess and domestic refuse are the most common fills in medieval pits. This type of refuse would have built up quickly and would therefore require either 'plugging of the filled pit and the construction of a new pit or else the emptying and reuse of the pit' (Tierney and Hannon 1997, 882). Naturally the reuse of pits creates problems for interpretation, as only the final fill is detectable which may not be indicative of the entire functional life of the pit. Where the final pit fill is recorded on excavation as silting up it may be that the pit was emptied and not reused, therefore the interpretation may be erroneous. The fills of pits can provide information relating to the economy and the environment of the time. The disposal of refuse would have been a major concern in medieval times as domestic refuse included a variety of things including the waste products of butchery, baking, bone-, wood-, leather-working etc (ibid., 888). Domestic refuse would have been deposited on house floors, onto backyard middens or into purposely built pits, possibly all three before being used as agricultural manure (ibid.).

The excavation at Boherash included thirteen pits in Trenches 1, 3 and 4 dated on the ceramic finds to the post-medieval period. These were located to the east and west of the ditch (F210/F298) and three pits (F279, F307

and F321) were cut into the infilled ditch (F298), suggesting the ditch was no longer in use as a property division when the post-medieval pits were cut into the ground. The pits ranged in size, with an average length of 1.48m and width of 0.96m, and were generally shallower than the medieval pits with an average depth of 0.46m. Four of the pits (F43, F279, F301 and F305) were deliberately backfilled with dumped deposits whereas the remainder were open for some time and gradually infilled with silt washed into the pits. The function of these pits is probably similar to those from the medieval period and was maybe related to waste disposal.

Twenty-three of the pits which were excavated in Trenches 1-4 cannot be dated to any period due to the lack of diagnostic finds or stratigraphic relationship to datable features. The pits ranged widely in dimensions and were generally shallow with the deepest (F193, Trench 2) being 1.10m deep and the shallower pits ranging from 0.13-0.30m deep and on average 0.38m deep. The pits were similar in length and width to the post-medieval pits being on average 1.50m long × 1.10m wide. One pit (F198) in Trench 2 was exceptionally large with an overall area of 24m² although the depth was just over 1m. This pit (F198) was the earliest of three sequential pits and the remainder (F138, F185) were excavated into the backfilled pit (F198). The size of and absence of finds from F198 may indicate another function for this feature and it is possible that it was dug for some other purpose such as clay extraction, perhaps for pottery production.

Analysis of the pits fills indicates that the preservation encountered was good (Appendix 3). Some of the material was abraded and fragmented, suggesting that it was exposed and/or subject to disturbance, such as trampling, at a different location prior to its final deposition. This would support the interpretation that this material represents secondary/tertiary deposits. The deposits in the pit fills included charred food waste, possibly including vegetables.

Pits used for waste disposal are common in urban contexts. Excavations inside the medieval walled town and in the backyards of street-fronting houses in Cashel, Co. Tipperary, in 2002 (O'Donnell and Cleary 2004) uncovered a series of mainly medieval and some post-medieval pits. These were interpreted as primarily for waste disposal. The Waterford City excavations (Hurley et al. 1997) uncovered a series of medieval and post-medieval pits located in the backyards of houses. The earlier pits (mid- to late-eleventh century) were unlined and this type continued in use to the post-medieval period. Lined pits were also in use from the late eleventh/early twelfth centuries (Scully and McEneaney 1997). Analysis of the pit contents from Waterford indicate that at least in the final phase of use, the pits were used for rubbish disposal including human cess (Tierney and Hannon 1997). A similar process of refuse disposal was also recorded in Cork although pits were less numerous than in other cities and waste may have been disposed of by simply dumping the material adjacent to the city wall (Hurley 2003, 188) or perhaps over the wall into the river channels.

Pits in rural medieval contexts are uncommon in the archaeological record. This is due more to the absence of excavation of medieval rural settlement sites and where excavation has taken place it is frequently in advance of monument conservation and confined to areas immediately adjacent to buildings. Recent excavations at Ballynagallagh, Co. Limerick, on a site close to a medieval nunnery uncovered a number of pits including some of twelfth-century date and these are interpreted as being used for waste disposal (Cleary 2006).

ACKNOWLEDGEMENTS

The writer wishes to record her thanks to the following: Donal Burke, Cork County Council, who facilitated the work; Cork County Council who paid for the project; Catryn Power, County

Archaeologist, for her support of the project; Margaret McCarthy and Gillian Maher supervised the excavation and Gillian compiled the initial stratigraphic report; Hugh Kavanagh for the graphics; the specialists for their contributions; the staff who worked on the site and Dr. Elizabeth Twohig, Department of Archaeology, UCC, for her help in shaping-up this report.

NOTES

1 Exact location: OS 6" scale sheet no. 27 Co. Cork. 26.5cm from N; 68.5cm from E. Td. Boherash; By. Fermoy; Par. Glanworth.

2 Licence No. 04E072.

3 The date is calibrated to one sigma. A date of 1290-1410 Cal. AD is obtained from a two sigma calibration.

4 Full details of the post- and stake-holes are available in the stratigraphic report submitted to the Heritage Service and in the site archive.

REFERENCES

Cleary, R.M. 1983 Excavations at Lough Gur Part III. Car Park area II: Medieval settlement sites. *JCHAS* 88, 51-80.

Cleary, R.M. 1987 Drumlummin, Co. Tipperary. House, defensive ditch and field systems. In R.M. Cleary, M.F. Hurley and E.A. Twohig (eds) *Archaeological excavations on the Cork-Dublin gas pipeline*. Cork. Cork Archaeological Studies 1. Department of Archaeology. University College Cork. 116-45.

Cleary, R.M. 2006 Excavations of an early medieval enclosure at Ballynagallagh, Lough Gur, Co. Limerick. *Proceedings of the Royal Irish Academy* 106C, 1-66.

Clinton, M. 2000 Brooklodge. Corn-drying kiln. In I. Bennett (ed.) *Excavations 1999*. Bray. Wordwell. 23.

Cotter, E. 2003 Ballinvinny North. Corn-drying kiln. In I. Bennett (ed.) *Excavations 2001*. Bray. Wordwell. 7.

Fahy, E. 1956 A horizontal mill at Mashanaglass, Co. Cork. *JCHAS* 61, 13-57.

Evans, E.E. 1957 *Irish Folk Ways*. London. Routledge and Kegan Paul.

Gailey, A. 1970 Irish corn-drying kilns. *Ulster Folk Life* 15/16, 52-71.

Gwynn, A. and Hadcock, R.N. 1988 *Medieval religious houses: Ireland*. Dublin. Academic Press.

Hogan, A. 1991 *Kilmallock Dominican abbey: An architectural perspective*. Kilmallock. Kilmallock Historical Society.

Hurley, M.F. 1987 Kilferagh, Co. Kilkenny. In R.M. Cleary, M.F. Hurley and E.A. Twohig (eds) *Archaeological excavations on the Cork-Dublin gas pipeline*. Cork. Cork Archaeological Studies 1. Department of Archaeology. University College Cork. 88-97.

Hurley, M.F. 1997 *Excavations at the North Gate, Cork*. Cork. Cork Corporation.

Hurley, M.F. 2003 The infrastructure of medieval and post-medieval Cork. In R.M. Cleary, and M.F. Hurley (eds) *Excavations in Cork City 1984-2000*. Cork. Cork City Council. 182-99.

Hurley, M.F., Scully, O.M.B. and McCutcheon, S.W.J. 1997 *Late Viking Age and Medieval Waterford; Excavations 1986-1992*. Waterford. Waterford Corporation.

Hurley, M.F. and Sheehan, C. 1995 *Excavations at the Dominican priory St. Mary's of the Isle*. Cork. Cork Corporation.

Keene, D.J. 1982 Rubbish in medieval towns. In A. Hall and H. Kenward (eds), *Environmental archaeology in the urban context*. London. CBA Research Report 43, 26-30.

Leask, H.G. 1971 *Irish churches and monastic buildings. Vol. III*. Dundalk. Dundalgan Press.

Manning, C. 1987 *Glanworth: a medieval castle, friary and town in County Cork*. Archaeology Heritage Guide No. 9. Bray. Wordwell.

McCotter, P. 1997 The sub-infeudation and descent of Fitzstephen/Carew moiety of Desmond (Part II). *JCHAS* 102, 89-106.

Monk, M.A. 1981 Post-Roman drying kilns and the problem of function: a preliminary statement. In D. Ó Corráin (ed.) *Irish Antiquity: Essays and Studies presented to Professor M. J. O'Kelly*. Cork. Tower Books. 216-30.

Monk, M. and Kelleher, E. 2005 An assessment of the archaeological evidence for Irish corn-drying kilns in the light of the results of archaeological experiments and archaeological studies. *Journal of Irish Archaeology* 14, 77-115.

Noonan, D. 2003 Ballynacarriga 2. In I. Bennett (ed.) *Excavations 2001*. Bray. Wordwell. 29.

O'Brien, A. 1993 Politics, economy and society: the development of Cork and the Irish south coast region *c.* 1170 to *c.* 1583. In P. O'Flanagan and C.G. Buttimer (eds) *Cork: history and society*. Dublin. Geography Publications. 157-212.

O'Conor, K.D. 1998 *The archaeology of medieval rural settlement*. Discovery Programme Monograph No. 3 Dublin. Royal Irish Academy.

Ó Corráin, D. 1972 *Ireland before the Normans*. Dublin. Gill and Macmillan.

O'Donnell, M.G. and Cleary, R.M. 2004 Predevelopment archaeological excavations at Our Lady's Hospital, The Green, Cashel, Co. Tipperary. Report for the South Eastern Health Board. Unpublished.

Postan, M.M. 1975 *The medieval economy and society*. Harmondsworth. Pelican.

O'Kelly, M.J. 1983 The excavation. In C. O'Kelly (ed.) *Newgrange, Co. Meath, Ireland. The late Neolithic/Beaker period settlement*. Oxford. BAR S190, 1-53.

O'Sullivan, M. 1913 Note. *JCHAS* 19, 95.

Power, P. 1932 *Crichad an Chaoilli*. Cork. Cork University Press.

Power, D., Lane, S., and Byrne, E. with Egan, U. and Sleeman, M. 2000 *Archaeological Inventory of County Cork Vol. VI – North Cork*. Dublin. The Stationery Office.

Scully, O.M.B. and McEneaney, E. 1997 Pits. In M.F. Hurley, O.M.B. Scully and S.W.J. McCutcheon *Late Viking Age and Medieval Waterford; Excavations 1986-1992*. Waterford. Waterford Corporation. 244-72.

Smith, C. 1750 *The ancient and present state of the county and city of Cork*. Dublin.

Tierney, J. and Hannon, M. 1997 Plant Remains. In M.F. Hurley, O.M.B. Scully and S.W.J. McCutcheon *Late Viking Age and Medieval Waterford; Excavations 1986-1992*. Waterford. Waterford Corporation. 854-93.

Zajac, S., Cronin, J. and Kiely, J. 1995 Urban archaeology survey of County Cork. Unpublished report.

APPENDIX 1

The pottery and other small finds

by CLARE McCUTCHEON
(*Archaeological Services Unit, Department of Archaeology, UCC*)

The following is an abbreviated version of the finds' report lodged with the site archive.

Pottery

A total of 159 sherds of pottery were recovered from the site, of which 130 (81.76%) are medieval in date. The pottery has been identified visually and the information is presented in Table 1. This contains the number of sherds in each fabric type, the minimum number of vessels (MNV) and the minimum vessels represented (MVR). The probable form of the vessels represented and the date range for the distribution are also listed.

The medieval material mirrors that found at previous excavations at Glanworth Castle (McCutcheon forthcoming) and dates from the later 13th century.

Cork-type:

The majority of the medieval pottery (85.38%) is identified as Cork-type. This is a generic term used to describe the locally-made pottery in the wider Cork area during the later 13th and early 14th centuries. Cork-type is a wheel-thrown, glazed ware, generally firing red/brown with a dull brown glaze.

A substantial portion of a jug (Fig. 12.4) was recovered from the fill (F246) of a pit (F216). This is the body profile of approximately a quarter of a jug, with vertically applied strips between 23-41mm apart, in white clay, appearing yellow under the lead glaze. This is clearly inspired by the contemporary Bristol Redcliffe ware. There may have been thumbing on the base but this has not survived, although several sherds in the assemblage indicate that thumbing was commonly used. There is clear evidence, however, of knife trimming below the lower

TABLE 1
POTTERY FROM BOHERASH, GLANWORTH, CO. CORK (04E0072)

FABRIC TYPE	SHERDS	MNV	MVR	FORM	DATE
Cork-type	111	2	>5	Jugs	M13th-E14th
Redcliffe	7	-	1	Jug	M13th-14th
Saintonge green glazed	4	-	1	Jug	13th-14th
Merida-type	3	-	1	Costrel	14th
Unidentified	5	-	>1	Jug	13th-14th
Total medieval	130	2	9		
Seville coarseware	2	-	1	Olive jar	17th
Tin glazed earthenware	1	-	1	Plate	L17th-18th
Westerwald	1	-	1	Chamber pot	18th
North Devon gravel tempered	2	-	1	Pancheon	17th
White salt glazed stoneware	1	-	1	Cup	18th
Glazed red earthenware	22	-	2	Bowl, pancheon	18th-19th
Total late/post-medieval	29	-	7		

extent of the applied strips, an unusual feature on medieval jugs in Ireland. Two of the handle sherds were decorated with three parallel incised lines (Fig. 12.3) while two others had two parallel lines bordering diagonal slashing (Fig. 12.2). These are both typical decorations of the later 13th and early 14th centuries.

Redcliffe:

The wheel-thrown ware from Bristol, dating from *c.*1250, replaced the hand-built Ham Green ware so widely found in Anglo-Norman settlements in Ireland. The fabric is sandy and was fired rapidly giving a 'sandwich' appearance in section, with a dark grey core and beige outer edges. The green glazing was often complemented by the addition of strips and pads in contrasting brown. Considerable quantities of this are found in Ireland, particularly in Cork (McCutcheon 2003, 206) and Waterford (Gahan and McCutcheon 1997, 301-3) when commercial activities between these towns and Bristol was at its height in the 13th century. In addition, as the pottery was easily acquired from Bristol, there was little impetus to produce pottery locally and, with the Saintonge green glazed ware, Bristol Redcliffe filled much of the needs of the later 13th and 14th century requirements.

A large sherd (Fig. 12.1) was found in the fill (F36:1) of a pit (F35). This had an applied bridge spout and the decoration on the body consisted of a thumbed strip below the spout with a pair of narrow brown strips on either side, all applied vertically. It is likely that these strips were repeated around the body of the jug. Three other body sherds were also decorated with applied contrasting strips. A fourth body sherd was decorated with an applied stamped pad in contrasting colour.

Saintonge green glazed:

This white ware was imported in large quantities throughout the 13th and early 14th centuries and is particularly prevalent in Cork city where it can account for as much as 55% of the medieval total by sherd count (McCutcheon 2003, 211). The pottery was closely associated with the wine trade from Bordeaux area.

Merida-type:

Merida is the easternmost point of an area of pottery production straddling Spain and Portugal and from where costrels were traded from the 13th century to the present day (Hurst et al.

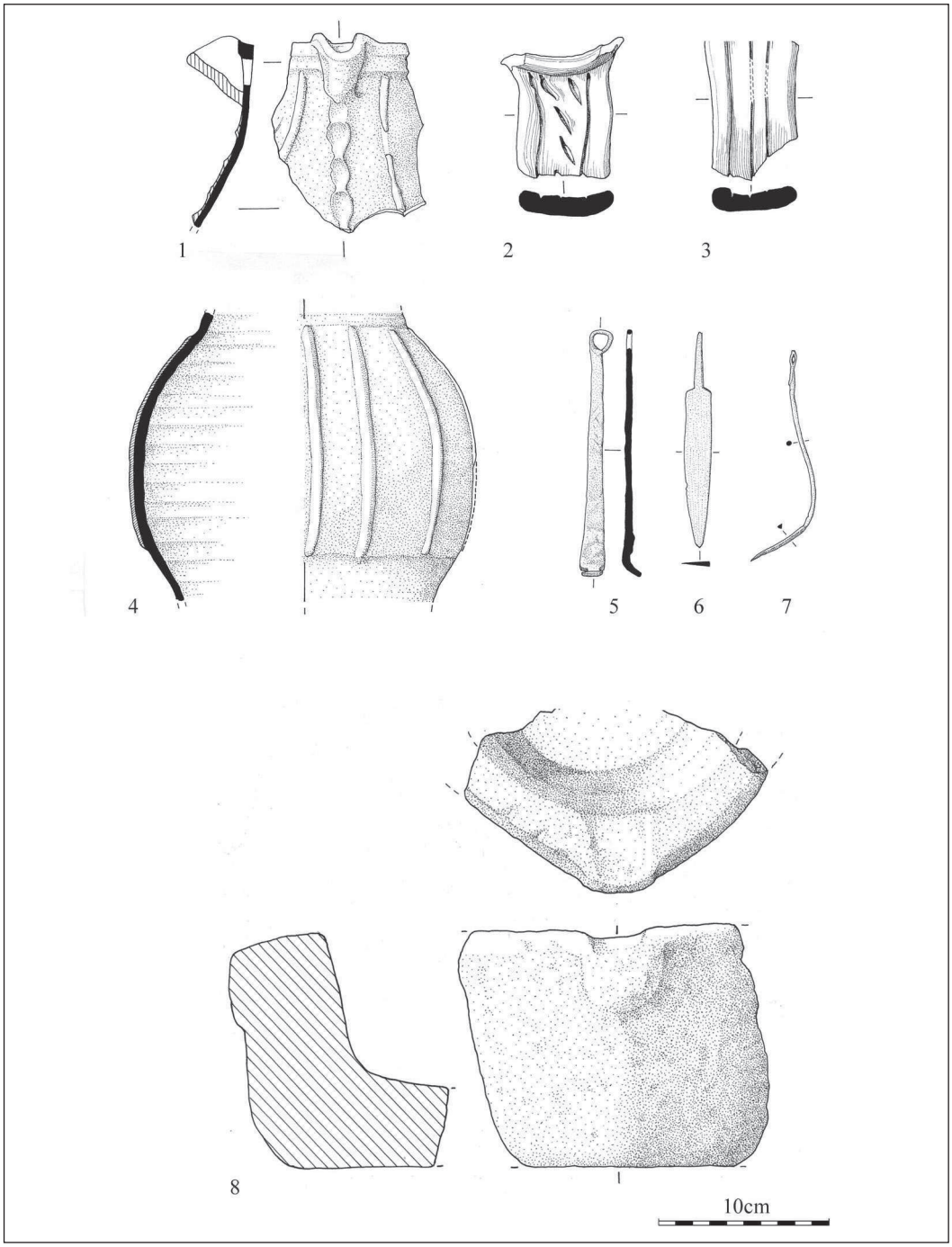

Fig. 12. Bristol Redcliffe pottery 1; Cork-type 2-4; Barrel padlock key 5; Knife 6; Needle 7; Stone mortar 8

1986, 69). The fabric is fine, sandy micaceous, normally unglazed but occasionally burnished. Medieval pieces tend to be rougher and brown in appearance while the 16th and 17th century fabric is harder, finer and usually red-brown to red in colour (ibid.). As this definition can be difficult to discern in isolated sherds, generally the context will provide the more secure dating for this ware. For example, 43 sherds recovered from excavations at Peter Street, Cork, are taken to be medieval while the majority of the material from nearby Grattan Street are assumed to be 16th-17th century in date, based on their contextual associations (McCutcheon 2003, 224). As all three of the sherds were recovered from contexts containing Cork-type and Saintonge wares (F32, F217, F299), the Merida-type ware in this assemblage is taken as also being medieval. All three were somewhat coarse and were not burnished.

Seville coarseware:

Three sherds were recovered, reduced to two sherds following reassembly, both from the same vessel. The fabric is coarse, pink-buff in colour with a light coloured exterior resulting from 'the reaction of salt and calcium carbonate during firing' (Gerrard et al. 1995, 281). All three sherds in this assemblage were dark green glazed internally, one found in the fill (248) of a post-hole (F245) and the other two in the fill (F289) of a pit (F307). These sherds provide a link between these two features as the piece from the post-hole was reassembled with one of the sherds from the pit.

Clay pipes and glass

Eight bowl fragments and 29 stem fragments were recovered. The majority of the material (six bowls and thirteen stems) were recovered from the fill (F289) of a pit (F307) in Trench 4. A full description of the clay pipe assemblage is included in the archive report along with a catalogue of the single piece of window glass and the eleven shards of late 17th-19th century bottle glass.

Ferrous and non-ferrous artefacts

A total of 70 iron artefacts were recovered from the site. These included a knife, a barrel padlock key, a needle and 34 nails. A further ten copper alloy artefacts were recovered, including strap ends, a pin and some wire. In addition, 18 groups of slag, weighing a total of 5619.2g were recovered, some in association with the metal artefacts. A full description of the metal assemblage is included in the archive report.

Barrel Padlock Key: 253:5: (Fig. 12.5) Fill of pit (F260): *Fe*. L. 145mm × W. 7.60 at bow to 14.55 at bit, max. Th. 4.6mm Bow max D, ext.14.40mm × int. D. 8.60mm, set laterally to shank. Bit with wards cut on either side.

Knife: 32:6: (Fig. 12.6) Fill of pit (F62): *Fe*. whittle tang: 13th-14th C. L. 93mm × W. 16.5mm x Th. 3.5mm. Complete. Triangular blade, straight blade back.

Needle: 288:1: (Fig. 12.7) Layer, south-east of pit (F214): *Fe*. L.146mm × D.3.5mm. Circular in section.

Stone artefacts

A total of nine stone artefacts were recovered from the excavation. Of these, two are remains of quernstones and a third is a portion of a mortar. Three fragments of whetstones, a hammerstone, a pot boiler and a polishing stone complete the assemblage. A number of flint fragments were also recovered. A full description of the stone artefacts is included in the archive report.

Quernstones and Mortar:

These artefacts are grouped here because of their function. All three are from locally derived Old Red Sandstone. Quernstones may have been 'used less for grinding bread-flour than for . . . substances required in lesser quantities' (Biddle and Smith 1990a, 882) and were superseded by mortars as grinding tools from the thirteenth century onwards (Biddle and Smith 1990b, 891). This appears to be a distinctly urban practice, however, and it is quite likely that both grinding tools were used together for a considerable period.

Two upper stones from rotary disc querns were recovered. The process of grinding is discussed in detail by Caulfield (1969, 61) and the typology is followed in all Cork excavations (cf. Hurley and Cleary 1997, 218). 'The rotary quern or handmill consists of two circular stones with their flat surfaces in contact. The upper stone is revolved on the lower one and grain which is poured into a central hole in the former is forced outwards between the two stones by centrifugal force and ground in the process' (Caulfield 1969, 59).

The mortar (Fig. 12.8) retains a small lug on the extant corner and there is no evidence of a handle. Similar sandstone mortars with small bowls and lugs were recovered at Christ Church, Cork (Hurley and Cleary 1997, 216),

Quernstone: 169:1: Old Red Sandstone: Fill of pit (F170): Upper stone. 11 pieces, D. 510mm × Th. 80mm (centre)- (edge). Hopper D. 95mm.

Quernstone: 345:1: Old Red Sandstone: Upper stone. D.540mm × max H. 120mm. Hopper D. 75mm.

Mortar: 344:1: (Fig. 12.8) Old Red Sandstone: *c.* ¼ of object, Int. rim. D. 120mm. Int. depth 93.2mm. Base Th. base 54.9mm.

REFERENCES

Biddle, M. and Smith, D. 1990a The querns. In M. Biddle, *Object and economy in medieval Winchester*. Oxford. Clarendon Press. 881-90.

Biddle, M. and Smith, D. 1990b Mortars. In M. Biddle, *Object and economy in medieval Winchester*. Oxford. Clarendon Press. 890-908.

Caulfield, S. 1969 Some quernstones in private possession in Co. Kerry. *Journal of the Kerry Archaeological & Historical Society* 2, 59-73.

Gahan, A. and McCutcheon, C. 1997 Medieval pottery. In M.F. Hurley and O.M.B. Scully, *Late Viking age and medieval Waterford: Excavations 1986-1992*. Waterford. Waterford Corporation. 285-336.

Gerrard, C.M., Guitérrez, A., Hurst, J.G. and Vince, A.G. 1995 A guide to Spanish medieval pottery. In C.M. Gerrard, A. Guitérrez and A.G. Vince (eds) *Spanish medieval ceramics in Spain and the British Isles*. Oxford. BAR S610, 281-95.

Hurley, M.F. and Cleary, R.M. 1997 Stone artifacts. In R.M. Cleary, M.F. Hurley and E. Shee Twohig (eds) *Skiddy's Castle and Christ Church, Cork: Excavations 1974-77 by D. C. Twohig*. Cork. Cork Corporation. 206-22.

Hurst, J.G., Neal, D.S. and van Beuningen, H.J.E. 1986 *Pottery produced and traded in north-west Europe 1350-1650*. Rotterdam. Foundation 'Dutch Domestic Utensils', Museum Boymans-van Beuningen.

McCutcheon, C. 2003 Pottery. In R.M. Cleary and M.F. Hurley (eds) *Excavations in Cork City 1984-2000*. Cork. Cork City Council. 197-235.

McCutcheon, C. forthcoming The medieval pottery. In C. Manning, *Excavations at Glanworth Castle, Co. Cork*.

APPENDIX 2

The faunal remains

by MARGARET MCCARTHY
(*Archaeological Services Unit, Department of Archaeology, UCC*)

INTRODUCTION

A relatively small sample of animal, bird and fish bones was amongst the finds recovered during the excavations at Boherash. The bones were found in various features dated by ceramic and stratigraphic evidence to two main periods of use of the site. A corn-drying kiln of medieval date was excavated at the eastern end of the site and this yielded a few fragments of mostly indeterminate burnt animal bones. The excavation revealed extensive evidence for the digging of substantial pits during the medieval and post-medieval periods. The bulk of the animal bones originates from the medieval pits and the analysis shows that some of these pits were used specifically for the disposal of non-food animals and primary butchery waste. Although the samples are generally small, the analysis has provided some useful information relating to the diet and economy of the medieval occupants of Glanworth and its environs.

TABLE 1
SPECIES REPRESENTATION IN HUT 1, CORN DRYING KILN AND POST-MEDIEVAL PITS

	HORSE	CATTLE	S/G*	PIG	DEER	DOG	RABBIT	FISH	BIRD	LM*	MM*	*TOTAL*
Hut 1												
F67			1									1
Corn drying kiln												
F26		1										1
F55											2	2
Post-medieval pits												
F41		1	1							6	5	13
F148		1	1	1						4	2	9
F249		5	2							4	12	23
F301		1								2		3
F307		3	5							5	12	25
F315			1	1						4	5	11
F321		5	1								3	9
F367										3		3
F368	1										2	3

LM* Large mammal MM* Medium mammal S/G* Sheep/Goat

ANALYSIS

The site yielded 1074 hand-collected fragments of bone. In addition, 76 fragments were recovered from sieved soil samples and of these a further 23 were identified. The material is in a reasonably good state of preservation although analysis of the types of bones represented show that the carcasses suffered from differential destruction due to canid scavenging and erosion. Loose teeth are well represented, as are dense bones such as the mandible and tibia, while vertebrae and small bones from the limb extremities are rarely present. There are traces of burn marks on several of the fragments and despite the paucity of dog bones in the assemblage, a large proportion of the assemblage shows evidence for canid gnawing. Table 1 lists the species identified for those features that produced the least amount of animal bones, i.e. Hut 1, the corn-drying kiln and the post-medieval pits. The fill of the slot trench for the circular hut contained a fragment of an adult sheep molar. Two small fragments of a long bone of a medium mammal were recovered from the stoking area of the corn drying kiln, at the southern end of the flue. The fill of the flue contained a single cow bone, a fragment of a mandible. By far the largest assemblage of bones was recovered from the medieval pits and the proportions of the major genera for each of these features are set out in Table 2.

Medieval period

Among the faunal remains from the medieval pits, those of cattle are the most abundant, accounting for 51% of the identified specimens. Their remains are consistently represented in all pits with a minimum of four individuals being present in F61. The bones are mostly from adult animals and the few horn cores recovered appear to come from adult female individuals. Estimates of the mortality rates of cattle were limited by the fragmentation of the bones but

TABLE 2
SPECIES REPRESENTATION IN MEDIEVAL PITS

	HORSE	CATTLE	S/G*	PIG	DEER	DOG	RABBIT	FISH	BIRD	LM*	MM*	*TOTAL*
F11		3	13	2						16	21	55
F21		5	8						1	16	29	59
F29		3	6							7	36	52
F31	2	16	15	5		2				33	23	96
F35											2	2
F49		10	1	1						11	5	28
F53		3	5	3	1					5	9	26
F61	34	72	25	3					1	71	23	229
F62	4	26	22	2			2		1	30	29	114
F133										1		1
F196		1	4	1							5	11
F197										3		3
F207			1	3								4
F211	1	16	3					1		2	9	32
F214	1	16	5	1						6	14	43
F216		10	5	7						19	8	49
F226		2	4	1						16	17	40
F231		10	6								4	20
F244		4	2							9	18	33
F262		4										4
F291		3	2							7	7	19
F314		1								1		2
F323		4	2/1					1		17	11	35/4
F332										4		4
F346		12	2	1						8	8	31
F355		1	2									3

LM* Large mammal MM* Medium mammal S/G* Sheep/Goat

eleven mandibles provided sufficient toothwear evidence to be assigned to a wear stage and most of these belonged to adult animals. Out of the total sample of jaws, there were eight adults, two sub-adults and one juvenile. The post-cranial skeletal elements reflect a similar pattern of age distribution in that about 65% of the surviving epiphyses had fused and belonged to adult cattle, probably over four years of age. The ageing pattern for cattle strongly suggests that these animals fulfilled other economic functions aside from the production of meat, e.g. dairy production, prolonged breeding and perhaps traction. The withers height could not be established due to the absence of complete bones but width and depth measurements fall well within the range of those obtained for contemporary urban medieval material (McCarthy 1988). Most of the assemblage shows some form of butchery with almost half of the long bones being crudely chopped. Anatomical analysis indicates that certain pits contained a higher proportion of prime butchery waste, with loose teeth, mandibles, skull fragments and metapodial bones being the dominant elements in F61, F62 and F214. In

all cases, there is a disproportionate amount of poor meat-bearing elements to bones representing the prime meat joints and it may be assumed that cattle were slaughtered on site and processed there for consumption elsewhere. In addition, the paucity of phalanges suggests that these elements were removed with the hide to a tannery site.

The bones of small ruminants, sheep and possibly goat, account for 31% of the total number of faunal remains identified from the medieval pits. In so far as it can be determined, it seems that very few goats were consumed and the single bone listed from F323 is a horn core. Two other horn cores from this pit were identified as sheep on the basis of their shape and size. It is probable that most, if not all, of the bones of small ruminants are of sheep especially in view of the importance of the wool trade in medieval Ireland. This is borne out by the ageing data, with most of the long bones and the few jaws representing animals that would have provided at least four to five clippings of wool. A femur and a metatarsus from a newborn lamb were recovered from F61, suggesting that sheep were grazed in the immediate vicinity of the site and neonatal losses were disposed into the pits. As on other medieval sites, the sheep bones are on the whole more slender and smaller than those of present-day animals. The withers height of three individuals was calculated to be *c*. 60cm on the basis of length measurements of metapodial bones. Many of the sheep bones show traces of butchery consisting of fine incisions made with knives and medial division of the vertebral column with a heavier implement such as a cleaver.

Pig bones are the least frequent of the main domestic food animals, accounting for just 7% of the total number of identified fragments. Although the economic potential of pigs is limited by comparison with sheep and cattle, their unusually low count at Boherash may indicate that there was little woodland in the vicinity of Glanworth during the medieval period. None of the eight pig mandibles with tooth eruption evidence belong to adult animals and the postcranial bones also suggest that most pigs died in their first year of life. High rates of immature slaughter are typical of pig exploitation patterns as the animal is primarily kept for its meat. Two neonatal mortalities were found in pits F53 and F207 indicating farrowing in the immediate vicinity of the site.

Horse bones were exceptionally well represented in the samples, providing 10% of the identified medieval assemblage. Most of the horse bones were concentrated in the pit (F61) and consist of a complete radius, distal femur, cervical vertebra, two right mandibles, 16 skull fragments and 13 loose teeth. There is no clear evidence that any of the bones were deposited in articulation and at least two individuals are represented by the mandibles. One of these mandibles belongs to an old male horse with very worn incisors. Calculation of withers heights from the complete radius places this individual in the category of small horses with a shoulder height of 134cm. The second main concentration of horse bones was found in a pit (F62) where fragments of a scapula, mandible, tibia and first phalanx were recovered. Other finds of horse bones included a first phalanx from F211, the distal end of a tibia from F214 and two loose teeth from F31. The absence of chop or cut marks on most of the bones suggests that horse meat was generally not consumed. All of the horse bones from the site are from adult animals that were probably used for draught purposes. A femur and a tibia are, however, fractured medio-laterally and these seem to be related to some form of food processing technique, perhaps for human consumption but most likely to be fed to dogs.

The remains of other species were present in very few numbers. The main evidence for dogs lay not in the discovery of their bones but in the abundant traces of gnawing from the two main periods of activity. Just two dog bones were found in the medieval pits and both of these

came from a pit (F31). The bones are identified as a shaft fragment of a radius and a metatarsus and both indicate the presence of a medium-sized breed. Remains of domestic fowl are present as single finds in three pits (F21, F61 and F62). The central shaft portion of tibio-tarsus from F21 contains medullary bone indicating the presence of laying hens. Generally there is little evidence of exploitation of wild animals for meat. The one red deer fragment consists of a piece of a sawn antler tine from pit F54. The forelimbs of an adult rabbit were found in pit F62. Despite the proximity of the site to the river Funshion and the well-documented fish trade from the coast in the medieval period, fish are represented by just two bones. The identified specimens include a calcined hake, *Merluccius merluccius*, vertebra from pit F323 and a ceratohyal of a cod, *Gadus morhua*, from pit F211.

Post-Medieval Pits

The post-medieval pits produced just 101 bones of which 32 were identified to species. All three common domesticates were found to be present as well as a horse bone from pit F368. Cattle are the most numerous amongst the finds followed by sheep while pigs again feature third in importance. As in the preceding medieval period meat acquisition seems to have been solidly based on the exploitation of domestic livestock.

DISCUSSION

Despite its relatively small size, the faunal assemblage from Boherash has produced some interesting evidence concerning the exploitation of animals in the Glanworth area during the medieval period. In the medieval period, cattle and sheep were the two most abundant species and were clearly the most important economically while remains of pig occur less frequently. Those bones within the ovicaprid group which allowed a distinction between the two species were all identified as sheep. The predominance of cattle and sheep among the faunal remains is not surprising in view of the nature of the local environment. Glanworth is situated in a landscape where there are abundant rich pastures ideally suited for livestock grazing.

The cattle and sheep represented at the site appear to have had a multi-functional role, as a very high proportion of the animals were killed off in their fourth or fifth year. This implies that, aside from meat production, animal by-products such as milk, cheese and butter and the possible use of cattle as beasts of burden were equally important considerations. Both species were undoubtedly also exploited for their hides and wool, significant trade items from Ireland to Continental Europe in the medieval period. The few pigs represented in the assemblage were reared for meat alone and the high proportion of juveniles and almost complete absence of individuals over three years of age suggest that they were bred locally. The low proportion of pig bones from the site compared to remains of ruminant species is a further reflection of the local type of environments i.e. open pastureland with relatively little or no woodland. Remains of pigs are usually more abundant at sites in the vicinity of forests where pigs can be turned out to feed on tree mast.

In many respects the assemblage from Boherash has attributes typical of most medieval sites in Munster with regard to species consumption and relative abundance of the different animals (McCarthy 2003; 2005). The distribution of skeletal elements differs from other sites in that it is indicative mostly of large scale processing of cattle and sheep carcasses with the primary butchery waste being discarded into refuse pits. Mortality patterns of the domestic species also have similarities with several other contemporary assemblages from different parts of the country. In addition to meat, secondary products were regarded as being highly valuable and this pattern of ruminant exploitation does not differ significantly from other rural and urban sites for this part of Ireland. The proportion of horse

bones in the assemblage is larger than at medieval urban sites, suggesting that there was an increase in the use of horse for agricultural traction during this period. A concentration of bones in one pit indicates that the site was an officially acceptable place for the burial or dumping of horse carcasses. Although a few of the horse bones show signs of chopping, there is little clear evidence that these animals were exploited for meat. Very few of the mammal bones belong to hunted species with only the presence of rabbit and red deer being confirmed. Neither are bird and fish bones plentiful at the site despite an intensive sieving programme of selected deposits from the pits. The finding of a human bone in one of the medieval pits is a chance inclusion, perhaps brought in with rubbish.

REFERENCES

McCarthy, M. 1988 Animals in the Economy of Medieval and Post-Medieval Cork. MA thesis submitted to National University of Ireland.

McCarthy, M. 2003 The Faunal Remains. In R.M. Cleary and M.F. Hurley (eds) *Excavations in Cork City 1984-2000*. Cork. Cork City Council. 375-391.

McCarthy, M. 2005 Faunal Remains Summary. In E. Klingelhofer, Edmund Spenser at Kilcolman Castle: the archaeological evidence. *Post-Medieval Archaeology* 39(1). 148.

APPENDIX 3

The plant remains

by MERIEL McCLATCHIE
(*Archaeological Services Unit, Department of Archaeology, UCC*)

INTRODUCTION

This appendix provides the results of analysis carried out on non-wood plant macro-remains from excavations at Boherash, Glanworth, Co. Cork. Analysis was carried out on 18 deposits located in four areas of the site (Trenches 1, 2, 3 and 4). All of the examined deposits contained charred plant remains (Tables 1 and 2). A range of cultivated plants was recorded, including significant quantities of cereal remains. Gathered plants and species that are likely to have been growing locally were also present in a number of deposits. This report will detail the types and locations of plant remains recorded, in addition to interpreting the remains in their wider context.

METHODOLOGY

The archaeobotanical material was extracted from each soil sample using a combination of conventional flotation and wet-sieving techniques, with the smallest sieve mesh used measuring 0.25mm. The scanning, sorting and subsequent identification of the archaeobotanical material in all samples was carried out using a stereo-microscope, with magnifications ranging from ×6.3 to ×50. Each sample was scanned in order to extract the archaeobotanical material, which was then sorted into general groupings on the basis of visual comparison of morphological features. The archaeobotanical material was identified by comparison to reference material in the UCC Archaeology Departmental collection of modern diaspores and the drawings from various seed keys (Anderberg 1994; Beijerinck 1947; Berggren 1969; 1981; Katz et al. 1965). Some of the material was distorted or fragmented and identified to genus level only. The identified taxa are listed in Tables 1 and 2. With the exception of Gramineae, botanical names are listed following the order and nomenclature of *Flora Europaea* (Tutin et al. 1964-83), and common names follow those provided in *New flora of the British Isles* (Stace 1991). Seeds, achenes and utricles of plants are referred to as 'seeds' throughout the text for convenience (see Tables 1 and 2 for botanical names). 'F' refers to Feature number.

ARCHAEOBOTANICAL MATERIAL

Trench 1: corn-drying kiln

A keyhole-shaped corn-drying kiln, dating to the medieval period, was recorded in Trench 1.

Two deposits from the kiln were submitted for archaeobotanical analysis: a fill (F56) of the kiln stoke-hole (F55) and a fill (F26) of the kiln bowl and flue (F25 and F54).

The stoke-hole (F55) was located at the southern end of the kiln flue (F54), and its fill (F56) contained a substantial number of cereal remains. A fill (F26) of the kiln-bowl (F25) and flue (F54) contained a similar range of plant remains. It was decided to sub-sample F56 and F26 because of the large quantity of remains present in each deposit. Analysis of just one litre of soil from F56 (one-fifth of the soil sample available) and four litres of soil from F26 (four-fifths of the soil sample available) each produced over 500 whole grains, which was deemed to be representative. Cereal remains were therefore concentrated in the stoke-hole fill (F56), with a smaller, but significant, quantity of remains being produced by the kiln-bowl and flue fill (F26).

Avena sp. (oat) was the predominant cereal type recorded in both deposits, with occasional grains of *Triticum* sp. (wheat) and *Hordeum vulgare* L. (hulled barley) also present. Most of the oat grains were without floret bases and could not, therefore, be identified to species level. It is, however, likely that many of the oat grains are of *Avena sativa* L. (cultivated oat), as evidenced by the recovery of a small number of cultivated oat floret bases. A substantial quantity of oat chaff was also present, particularly in F56. Oat lemma and awn fragments were recorded, as well as culm (stem) and culm node fragments from the Gramineae (grass) family. It appears that efforts had been made to separate the cereal grains from the chaff, but the presence of a significant quantity of chaff fragments indicates that the crop was not fully cleaned.

The recovery of over 800 cereal grain fragments, indeterminate to genus, in each deposit indicates that the material seems to have been subject to a considerable level of disturbance, perhaps associated with activities at the kiln, such as raking-out.

The remains of a range of plants associated with disturbed and cultivated ground were recorded in F56 and F26, including *Rumex* spp. (dock), *Polygoum persicaria* L. (redshank), *Chenopodium/Atriplex* spp. (goosefoot/orache), *Spergula arvensis* L. (corn-spurrey), *Raphanus raphanistrum* L. (wild radish), *Anthemis cotula* L. (stinking chamomile) and *Galium* spp. (bedstraw). Plants such as *Lapsana communis* L. (nipplewort), *Vicia sativa* L. (common vetch), *Vicia/Lathyrus* spp. (vetch/pea) and *Plantago lanceolata* L. (ribwort plantain) may also have been growing in the background environment around the site or on agricultural land. A small number of *Corylus avellana* L. (hazelnut) shell fragments was also present in F26.

Trench 1: medieval pits

A number of medieval pits that post-dated the kiln was also present in Trench 1; fills (F20, F64 and F51) from three of the pits (F29, F53 and F61) were submitted for archaeobotanical analysis. F20 comprised the basal fill of F29, which was the earliest of the examined pits. Pit F29 was cut by pit F53, and the basal fill (F64) of pit F53 was submitted for analysis. Pit F53 was in turn cut by pit F61, and the fill (F51) of pit F61 was analysed for its archaeobotanical content. Pit fill F51 contained the largest assemblage of the three examined pits.

The pit fills were far more mixed in composition when compared with the kiln deposits. Oat, wheat and barley grains were again present in all examined pit deposits, but oat was not always the predominant cereal type. Wheat, for example, was predominant in F51. The identification of wheat species by grain alone is generally unreliable (Hillman et al. 1996), and well-preserved chaff is instead a more reliable indicator of wheat varieties. Many of the wheat grains present appeared to be of free-threshing wheat, and the presence of this variety was confirmed by the identification of a rachis fragment of free-threshing wheat in F51. Other chaff recorded in the pit fills included oat lemma fragments and cereal

culm node fragments. Hulled barley and *Hordeum vulgare* subsp. *vulgare* (six-row barley) were represented in the Trench 1 pits, and indeterminate cereal fragments were also recorded, with over 700 fragments present in F51.

An interesting find in pit fill F51 was a seed of *Linum usitatissimum* L. (flax), representing another addition to the range of cultivated plants present at Boherash. A range of plants associated with disturbed or cultivated ground was recorded in the Trench 1 pit fills, including dock, *Agrostemma githago* L. (corn cockle) and stinking chamomile. Nipplewort, possible common vetch and vetch/pea, in addition to a small number of *Corylus avellana* L. (hazelnut) shell fragments, were also present.

Waste material, including animal bone, was present in a number of the Trench 1 pits. These pits may also have been used for the dumping of waste material deriving from kiln activities, as there are many similarities in the types of cereal and non-cereal remains recorded in both the kiln and the Trench 1 pits. While oat was the predominant cereal type recorded in the kiln, the pit fills were more mixed, highlighting the benefits of sampling deposits around kilns, rather than just the kiln deposits. The final firings of the kiln appear to have focused on the processing of oat crops, which appear to have remained *in situ*. The remains of previous firings are eventually likely to have entered the pits surrounding the kiln, and the evidence from these pits provides more of an overview of the types of crops used throughout the history of the kiln. The material from the pits demonstrates, therefore, that while oat was certainly important, the processing of wheat was also a significant element of activities at Boherash.

Trench 2: medieval circular hut

A medieval circular hut, measuring 6m in diameter, was uncovered in Trench 2. Three deposits (F67, F68 and F86) associated with the hut were examined for their archaeobotanical content. All of the deposits contained small quantities of plant remains.

F67 was interpreted as a fill of the hut slot-trench (F66) and contained oat, wheat and hulled barley grains. Seeds of possible common vetch and vetch/pea were also recorded. The recovery of a seed of the Caryophyllaceae family (pink) in F67 represents a family of plants that can be found growing in a wide range of environments, including arable fields and disturbed ground.

Cereal grains were again recorded in the fill of a stake-hole (F68) located at the base of the hut slot-trench. F68 produced grains of oat, wheat and wheat/barley. A small number of oat grains were also present in the fill (F86) of a stake-hole (F87) that may represent part of an internal house-fitting.

The plant remains recorded in deposits associated with the circular hut in Trench 2 are generally comparable with the remains recorded in medieval deposits elsewhere on the site, although the Trench 2 deposits contained much smaller quantities of remains.

Trench 3: medieval pits

A number of medieval pits was excavated in Trench 3, and seven fills (F169, F208, F217, F238, F239, F243 and F258) from six of the pits (F170, F211, F216, F226, F244 and F259) were submitted for archaeobotanical analysis. The fill of pit F226 (F239) contained the largest quantity and widest range of material, and approximately 2.5 litres of soil from F239 (one-half of the soil sample available) produced over 500 whole grains, which was deemed to be representative.

Evidence for crop processing in this area of the site was recovered in the form of quern fragments, which were found in the fill of pit F170 (F169), and cereal grains were found in all examined pit fills. Oat was the predominant cereal type in most deposits, but wheat was often significant, and indeed predominant in the fill of pit F226 (F239). Many of the wheat grains

appeared to be of a free-threshing variety, and a rachis fragment of free-threshing wheat was recorded in fill F239. The presence of cultivated oat was also evidenced by the recovery of a cultivated oat floret base in F239. Six-row hulled barley was recorded in a number of the Trench 3 pits, and a grain identified to a wheat/*Secale cereale* L. (rye) category was also present in F239. Chaff present in these pits included occasional oat lemma and awn fragments, as well as a small number of cereal culm node fragments. Occasional poorly-preserved grass seeds were recorded in F239, some of which had the appearance of *Bromus* sp. (brome), which can be weed of cereal crops. Indeterminate cereal grain fragments were recorded in all examined Trench 3 pit fills, with almost 500 fragments being recorded in F.239.

The cereal remains recorded in Trench 3 pits, particularly the remains in F239, are therefore comparable to the remains found in the Trench 1 pits surrounding the corn-drying kiln. A similar range of non-cereal plants was also represented in Trench 3, with the recovery of dock, goosefoot/orache, wild radish, bedstraw, stinking chamomile, possible common vetch, vetch-pea, nipplewort and hazelnut. A small number of other plants were also represented, including possible *Vicia faba* L. (broad bean), possible *Galium aparine* L. (cleaver) and *Ranunculus* sp. (buttercup).

Trench 4: medieval pits

Three fills (F353, F356 and F334) of medieval pits (F346, F355 and F323) located in Trench 4 were submitted for archaeobotanical analysis. Pit F346 cut pit F355, and both were located on the north-eastern side of Trench 4. Pit F323 was located on the south-western side of Trench 4. The fill (F356) of pit F355 contained a much smaller quantity of material than the other two examined pit fills. The fill (F353) of pit F346 contained the largest quantity of remains, in addition to a quern stone fragment.

All examined Trench 4 pit fills contained oat and wheat grains, with cultivated oat and free-threshing wheat chaff occasionally recorded. Other chaff present in the Trench 4 pit fills included a small number of oat lemma fragments, and occasional cereal culm and culm node fragments. Barley was present in pit fills F334 and F353, including six-row hulled barley. Indeterminate cereal grain fragments were recorded in all three pit fills, with more than 500 fragments present in F334 and almost 1000 fragments in F353. A small number of poorly-preserved grass seeds was also present in F334, some of which appeared to be of brome.

The cereal remains recorded in Trench 4 pits are again comparable to the remains found in the Trench 1 pits surrounding the corn-drying kiln. A similar range of non-cereal plants were also represented in Trench 4, with the recovery of dock, goosefoot/orache, corn-spurrey, corn cockle, stinking chamomile, possible common vetch, vetch-pea, nipplewort and hazelnut. A small number of possible *Carex* sp. (sedge) seeds were recorded in fill F334, representing a genus that may have been growing on damper ground, for example around field boundaries and ditches.

DISCUSSION

Glanworth is known to have been the location of a medieval market town, and cultivated crops are likely to have been traded at such markets. Indeed, the recovery of cereal remains in all examined deposits at Boherash highlights the importance of arable agriculture in activities at this site. The processing of cereal crops was taking place on the site, as evidenced by the presence of a corn-drying kiln, cereal remains and quern stone fragments. The cereal remains are likely to have derived from activities associated with the corn-drying kiln in Trench 1, with waste material from the kiln being deposited into nearby pits. McCarthy (*supra*) also notes that most of the animal bone recorded at Boherash originates from the medieval pits, and analysis shows that some of these pits were used specifically for the disposal of non-food animals and

Table 1: NON-GRAMINEAE TAXA RECORDED IN DEPOSITS

	Trench	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	4	4	4	
	Feature no.	20	26	51	56	64	67	68	86	169	208	217	238	239	243	258	334	353	356	
BOTANICAL NAME	PLANT PART	COMMON NAME																		Total
CORYLACEAE																				
Corylus avellana L.	shell fragments	hazelnut	4	2	2	…	1	…	…	…	…	2	…	…	…	…	1	2	…	14
POLYGONACEAE																				
Polygoum persicaria L.	achenes	redshank	…	…	…	1	…	…	…	…	…	…	…	…	…	…	…	…	…	1
Rumex spp.	achenes	dock	1	7	2	37	1	…	…	1	1	4	1	26	…	10	10	9	…	110
Rumex spp.	achene fragments	dock	…	…	…	…	…	…	…	…	…	…	…	1	…	…	…	…	…	1
CHENOPODIACEAE																				
Chenopodium/Atriplex spp.	utricles	goosefoot/orache	…	…	…	7	…	…	…	…	…	…	…	10	…	1	12	1	…	31
Chenopodium/Atriplex spp.	utricle fragments	goosefoot/orache	…	…	…	…	…	…	…	…	…	…	…	1	…	…	…	…	…	1
CARYOPHYLLACEAE																				
Spergula arvensis L.	seeds	corn spurrey	…	…	…	1	…	…	…	…	…	…	…	…	…	…	…	…	…	1
Agrostemma githago L.	seeds	corn cockle	…	…	1	…	…	…	…	…	…	…	…	…	…	…	…	1	…	2
Caryophyllaceae	seeds	pink	…	…	…	…	…	1	…	…	…	…	…	…	…	…	…	1	…	2
RANUNCULACEAE																				
Ranunculus sp.	achenes	buttercup	…	…	…	…	…	…	…	…	…	…	1	…	…	…	…	…	…	1
CRUCIFERAE																				
Raphanus raphanistrum L.	pods	wild radish	…	1	…	4	…	…	…	…	…	1	…	…	…	…	…	…	…	6
Raphanus raphanistrum L.	pod fragments	wild radish	…	…	…	2	…	…	…	…	…	…	…	…	…	…	…	…	…	2
LEGUMINOSAE																				
cf. *Vicia faba* L.	seeds	cf. broad bean	…	…	…	…	…	…	…	…	…	…	…	2	…	…	…	…	…	2
cf. *Vicia faba* L.	seed fragments	cf. broad bean	…	…	…	…	…	…	…	…	…	…	…	1	…	…	…	…	…	1
cf. *Vicia sativa* L.	seeds	cf. common vetch	1	3	2	1	1	…	…	…	…	…	…	2	1	1	…	1	…	13
cf. *Vicia sativa* L.	seed fragments	cf. common vetch	2	2	3	2	…	2	…	…	…	2	…	12	…	1	1	1	…	28
Vicia/Lathyrus spp. (0.5mm-0.6mm)	seeds	vetch/pea	2	2	1	3	1	1	…	…	…	…	…	15	…	…	…	1	…	26
Vicia/Lathyrus spp. (0.5mm-0.6mm)	seed fragments	vetch/pea	…	2	4	…	…	1	…	…	…	…	1	6	…	1	…	…	…	15
Vicia/Lathyrus spp. (0.3mm-0.4mm)	seeds	vetch/pea	3	36	19	31	…	…	…	…	…	1	5	2	63	…	11	…	9	…	180
Vicia/Lathyrus spp. (0.3mm-0.4mm)	seed fragments	vetch/pea	3	16	8	3	…	…	…	…	…	…	…	…	7	…	1	…	1	…	39
LINACEAE																				
Linum usitatissimum L.	seeds	flax	…	…	1	…	…	…	…	…	…	…	…	…	…	…	…	…	…	1
RUBIACEAE																				
Galium cf. *aparine* L.	seeds	cf. cleaver	…	…	…	…	…	…	…	…	…	…	…	6	…	1	…	…	…	7
Galium spp. (0.3mm-0.4mm)	seeds	bedstraw	…	…	…	1	…	…	…	…	…	1	…	5	…	1	…	…	…	8
PLANTAGINACEAE																				
Plantago lanceolata L.	seeds	ribwort plantain	…	…	…	2	…	…	…	…	…	…	…	…	…	…	…	…	…	2
COMPOSITAE																				
Anthemis cotula L.	achenes	stinking chamomile	…	5	1	17	1	…	…	…	…	…	…	8	…	…	1	5	…	38
Lapsana communis L.	achenes	nipplewort	…	…	…	3	1	…	…	…	…	1	…	1	…	…	…	…	…	6
CYPERACEAE																				
cf. *Carex* spp.	achenes	cf. sedge	…	…	…	…	…	…	…	…	…	…	…	…	…	…	2	…	…	2

Table 2: GRAMINEAE TAXA AND TOTAL NUMBERS OF ALL COMPONENTS IN DEPOSITS

		Trench	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	4	4	4	
		Feature no.	20	26	51	56	64	67	68	86	169	208	217	238	239	243	258	334	353	356	
BOTANICAL NAME	PLANT PART	COMMON NAME																			Total
GRAMINEAE																					
Triticum spp.	rachis fragments	free-threshingwheat	…	…	1	…	…	…	…	…	…	…	…	…	1	…	…	3	…	…	5
Triticum spp.	grains	wheat	22	8	110	13	9	2	1	…	5	5	21	2	166	3	23	24	34	1	449
Triticum spp.	grain fragments	wheat	…	…	2	…	1	…	…	…	…	…	…	…	2	…	…	…	1	…	6
Triticum sp./*Secale cereale* L.	grains	wheat/rye	…	…	…	…	…	…	…	…	…	…	…	…	1	…	…	…	…	…	1
Hordeum vulgare subsp. *vulgare*	grains	six-row hulled barley…		…	…	…	…	…	…	…	…	…	1	…	12	…	…	5	…	…	18
Hordeum vulgare subsp. *vulgare*	grains	six-row barley	…	…	2	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	2
Hordeum vulgare subsp. *vulgare*	grain fragments	six-row barley	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	1	…	…	1
Hordeum vulgare L.	grains	hulled barley	1	1	…	3	2	1	…	…	…	…	1	…	26	2	…	15	8	…	60
Hordeum vulgare L.	grains	barley	…	3	…	…	…	…	…	…	…	…	…	…	…	…	…	4	…	…	7
Hordeum vulgare L.	grain fragments	barley	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	3	…	…	3
Hordeum vulgare L.	spikelet bases	barley	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	1	…	1
Triticum/*Hordeum* spp.	grains	wheat/barley	2	8	22	5	3	2	1	…	1	…	6	…	37	…	6	2	3	…	98
Triticum/*Hordeum* spp.	grain fragments	wheat/barley	…	2	6	…	1	1	…	…	2	…	1	1	7	…	2	1	4	…	28
Avena sativa L.	grains + floret base	cultivated oat	…	3	…	15	…	…	…	…	…	…	…	…	1	…	…	2	6	1	28
Avena sativa L.	floret base fragments	cultivated oat	…	1	…	4	…	…	…	…	…	…	…	…	…	…	…	…	…	…	5
Avena spp.	grains + lemma	oat	…	…	…	2	…	…	…	…	…	1	…	…	2	…	…	1	8	…	14
Avena spp.	grain fragments + lemma	oat	…	…	…	2	…	…	…	…	…	…	…	…	…	…	…	1	…	…	3
Avena spp.	grains	oat	47	428	86	420	21	3	…	…	3	9	33	16	144	8	61	147	150	5	1581
Avena spp.	grain fragments	oat	29	411	54	339	19	5	1	2	5	5	27	9	78	6	16	73	156	5	1240
Avena spp.	floret base fragments	oat	…	9	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	9
Avena spp.	lemma fragments	oat	3	57	8	304	21	…	…	…	…	1	1	2	1	…	…	9	18	…	425
Avena spp.	awn fragments	oat	…	1	…	7	…	…	…	…	…	…	…	…	1	…	…	…	…	…	9
Cerealia	grains	indeterminate cereal	4	7	7	…	1	…	…	…	2	…	1	1	3	…	13	1	5	1	46
Cerealia	grain fragments	indeterminate cereal	155	947	706	859	179	19	3	8	2	12	122	6	474	8	81	518	984	3	5086
Cerealia	culm node fragments	indeterminate cereal	1	8	…	2	1	…	…	…	…	…	…	…	7	…	…	3	…	…	22
Cerealia	culm fragments	indeterminate cereal	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	1	…	1
Gramineae	grains	grass	…	…	…	…	…	…	…	…	…	…	…	…	3	…	…	2	…	…	5
Gramineae	culm node fragments	grass	1	…	…	1	…	…	…	…	…	…	…	…	3	…	…	2	2	…	9
Gramineae	culm fragments	grass	1	…	2	1	…	…	…	…	3	…	…	…	1	…	3	…	3	…	14
		Total	282	1970	1050	2092	264	38	6	10	24	35	231	41	1136	28	233	844	1416	16	9716
	Soil volume processed (litres)		7.5	4.0	5.0	1.0	5.0	4.0	0.5	1.5	1.5	3.5	5.0	5.0	2.5	3.0	5.0	5.0	2.5	1.0	Avr.
	Plant components per litre of soil		37.6	492.5	210.0	2092.0	52.8	9.5	12.0	6.7	16.0	10.0	46.2	8.2	454.4	9.3	46.6	168.8	566.4	16.0	155.5
	Whole cereal grains per litre		10.1	113.8	45.4	443.0	7.2	2.0	4.0	0.0	7.3	4.3	12.6	3.8	156.4	4.3	20.6	39.8	83.2	7.0	36.4
	Cereal grain fragments per litre		24.5	340.0	153.6	1200.0	40.0	6.3	8.0	6.7	6.0	4.9	30.0	3.2	224.4	4.7	19.8	119.4	458.0	8.0	101.9

Avr. = Average

primary butchery waste. Evidence from analysis of the plant remains concurs with the animal bone evidence to suggest that the pits were frequently used for the disposal of waste.

Oat was the most regularly-recorded cereal type at Boherash, with significant quantities of wheat also being recorded. The recovery of oat and wheat chaff provided evidence for the presence of cultivated oat and free-threshing wheat. Barley, sometimes identified to the six-row hulled variety, was present in small quantities in all four trenches. These cereal varieties recorded can regularly be found in medieval Irish deposits (McClatchie 2003, 398-99; Murphy and Potterton 2005).

In areas outside the Pale and the south-east of the country, numerous social commentators have maintained that oat was the most commonly grown and economically the most important cereal type in Ireland during the medieval period (Evans 1957, 8; Lucas 1960; Clarke 1991, 173; McClatchie 2003, 398-99). Oat is well suited to the Irish humid, wet climate and will tolerate poorer soils that may have discouraged the cultivation of other cereal types. The dominance of oat in the archaeobotanical record has been displayed at other medieval sites in nearby Co. Tipperary, such as Ballyveelish (Monk 1987a, 86) and Drumlummin (Monk 1987b, 143). The cultivation of wheat required an increased input of labour and a better quality of soil than other cereals, and there seems to be a strong association between the cultivation of wheat, particularly free-threshing wheat, and areas connected with Anglo-Norman and other settlers in medieval Ireland (Monk 1985/6, 34; McClatchie 2003, 398-99). The correlation between wheat and these settlers may have contributed to the cultural significance that came to be associated with wheat. Wheat would have been regarded as a high-status grain and luxury foodstuff that would have produced superior bread. Barley, often of the six-row hulled variety, was also an important cereal in the economies of medieval Ireland. Cereals would have been used in a range of foodstuffs, including breads, ales, porridges, pastes and fodder. Cereal chaff and straw may also have been incorporated into fodder, and the straw could have been used in bedding and flooring material, as well as in the construction of baskets, mats, hen-roosts and mud-walls.

Evidence for flax was recorded at Boherash, representing a plant that would have been cultivated for cloth production, while its seed may have been retained for propagation or use in oil. Flax seeds have been previously recovered from archaeological deposits in other parts of Munster, including Cork city (McClatchie 2003, 399) and Waterford (Tierney and Hannon 1997, 889).

The regular recovery of possible broad bean, possible common vetch and various species of the vetch/pea genera in deposits at Boherash is likely to represent legumes that were utilised in foods, whether for humans or animals. Monk (1985/6, 34) has attributed the widespread adoption of such legumes to the cultural influence of the Anglo-Normans, and evidence for broad bean has previously been recorded at other medieval corn-drying kilns, such as Kilferagh, Co. Kilkenny (Monk 1987c, 98). Gerard (1633, 1226) acknowledged the use of vetches in times of famine, and it has been suggested that vetches were regularly grown in medieval England as a field crop, being mixed with cereals (Green 1984, 107; Greig 1988, 118; Greig 1991, 323).

A range of other non-cereal plants recorded at Boherash may have been gathered for consumption or other uses. The collection of hazelnuts is more often associated with prehistoric societies in Ireland, but there is regular archaeological evidence for the collection of this nutritious foodstuff in medieval Ireland (for example, Geraghty 1996; Tierney and Hannon 1997; McClatchie 2003). Other plants that may have been gathered include wild radish, which is believed to have been consumed in Viking

Dublin in order to add variety to the diet (Mitchell 1987, 26). The presence of knotgrass in deposits in Ferns Castle, Co. Wexford, is believed to indicate the possible usage of this plant as a foodstuff (Sweetman 1979, 241), and various species of the knotgrass genus have also been recovered from faecal deposits at a number of Irish sites (Geraghty 1992, 120).

Cultivated plants and domesticated animals, rather than gathered plants and wild animals, are predominant at Boherash. It should be remembered, however, that preservation by charring is biased in favour of plants that are more likely to come into contact with fire. The drying of cereal grains, and perhaps legumes, may have been required as part of the processing of these crops or prior to storage. Such plants are therefore more likely to be represented in charred assemblages when compared with plants that are more often eaten raw or boiled. Fruit remains, for example, were absent from the examined deposits at Boherash. It is therefore probable that the inhabitants at Boherash would have made use of an even wider range of plants than that represented in the examined deposits.

CONCLUSIONS

Analysis of the archaeobotanical material from Boherash has provided evidence mainly for a range of cultivated plants. Remains of cultivated oat, free-threshing wheat and six-row hulled barley were recorded, in addition to flax and a variety of legumes. Most of the cereal remains are likely to have derived from the corn-drying kiln in Trench 1, the remains being gradually dispersed into the surrounding pits in Trenches 1, 3 and 4. A narrower range of plants that are likely to have been growing alongside the cereals or around the site was also recorded.

REFERENCES

Anderberg, A.-L. 1994 *Atlas of seeds part 4: Resedaceae-Umbelliferae*. Stockholm. Swedish Museum of Natural History.

Beijerinck, W. 1947 *Zadenatlas der Nederlandsche Flora*. Wageningen. H. Veenman & Zonen.

Berggren, G. 1969 *Atlas of seeds part 2: Cyperaceae*. Stockholm. Swedish Museum of Natural History.

Berggren, G. 1981 *Atlas of seeds part 3: Salicaceae-Cruciferae*. Stockholm. Swedish Museum of Natural History.

Clarke, A. 1991 The Irish economy 1600-60, in T.W. Moody, F.X. Martin and F.J. Byrne (eds) *Early Modern Ireland 1534-1691*. New York. Oxford University Press. 168-186.

Evans, E.E. 1957 *Irish folk ways*. London. Routledge and Kegan Paul.

Geraghty, S. 1992 The macrofossil plant remains, 119-21. In M. Gowen, Excavation of two souterrain complexes at Marshes Upper, Dundalk, Co. Louth. *Proceedings of the Royal Irish Academy* 92C, 55-121.

Geraghty, S. 1996 *Viking Dublin: botanical evidence from Fishamble Street*. Dublin. Royal Irish Academy.

Gerard, J. 1633 *The herball or generall historie of plantes: very much enlarged and amended by Thomas Johnson*. London. Islip and Norton and Whitakers.

Green, F.J. 1984 The archaeological and documentary evidence for plants from the Medieval period in England, in W. van Zeist and W.A. Casparie (eds) *Plants and ancient man: studies in palaeoethnobotany*. Rotterdam. Balkema. 99-114.

Greig, J. 1988 Plant resources. In G. Astill and A. Grant (eds) *The countryside of medieval England*. Oxford. Blackwell. 108-27.

Greig, J. 1991 The British Isles. In W. van Zeist, K. Wasylikowa and K.-E. Behre (eds) *Progress in Old World palaeoethnobotany*. Rotterdam. Balkema. 299-334.

Hillman, G.C., Mason, S., de Moulins, D. and Nesbitt, M. 1996 Identification of archaeological remains of wheat: the 1992 London workshop. *Circaea* 12, 195-209.

Katz, N.J., Katz, S.V. and Kipiani, M.G. 1965 *Atlas and keys of fruits and seeds occurring in the quaternary deposits of the USSR*. Moscow. Nauka.

Lucas, A.T. 1960 Irish food before the potato. *Gwerin* 3(2), 1-36.

McClatchie, M. 2003 The plant remains. In R.M. Cleary and M.F. Hurley (eds), *Cork city excavations 1984-2000*. Cork. Cork City Council. 391-413.

Mitchell, G.F. 1987 *Archaeology and environment in early Dublin*. Dublin. Royal Irish Academy.

Monk, M.A. 1985/6 Evidence from macroscopic plant remains for crop husbandry in prehistoric and early historic Ireland: a review. *Journal of Irish Archaeology* 3, 31-6.

Monk, M.A. 1987a Charred plant remains. In R.M. Cleary, M.F. Hurley and E.A. Twohig (eds) *Archaeological excavations on the Cork-Dublin Gas Pipeline*, Cork Archaeological Studies 1. Department of Archaeology. University College Cork. 86-87.

Monk, M.A. 1987b Charred plant remains. In R.M. Cleary, M.F. Hurley and E.A. Twohig (eds) *Archaeological excavations on the Cork-Dublin Gas Pipeline*, Cork Archaeological Studies 1. Department of Archaeology. University College Cork. 143-45.

Monk, M.A. 1987c Charred plant remains. In R.M. Cleary, M.F. Hurley and E.A. Twohig (eds) *Archaeological excavations on the Cork-Dublin Gas Pipeline*, Cork Archaeological Studies 1. Department of Archaeology. University College Cork. 98-99.

Murphy, M. and Potterton, M. 2005 Investigating living standards in medieval Dublin and its region. In S. Duffy (ed.) *Medieval Dublin VI: proceedings of the Friends of Medieval Dublin Symposium 2004*. Dublin. Four Courts Press. 224-56.

Stace, C. 1991 *New flora of the British Isles*. Cambridge. Cambridge University Press.

Sweetman, P.D. 1979 Archaeological excavations at Ferns Castle, County Wexford. *Proceedings of the Royal Irish Academy* 79C, 217-45.

Tierney, J. and Hannon, M. 1997 Plant remains. In M.F. Hurley, O.M.B. Scully and S.W.J. McCutcheon, *Late Viking age and medieval Waterford excavations 1986-1992*. Waterford. Waterford Corporation. 854-93.

Tutin, T.G., Heywood, V.H., Burges, N.A., Valentine, D.H., Walters, S.M. and Webb, D.A. 1964-83 *Flora Europaea* (Volumes 1-6). Cambridge. Cambridge University Press.